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Changing Cultures in Higher Education

Moving Ahead to Future Learning

Springer

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Ulf-Daniel Ehlers • Dirk Schneckenberg
Editors

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Foreword

Technology-based teaching continues to evolve with the development of new technologies. New technologies allow for or provide "affordances" that subtly shift the way the learners and teachers interact and hence the underlying pedagogy of teaching. Nowhere is this more evident than in the development of what are conveniently called web 2.0 technologies. More and more educational scenarios or "landscapes" are developed utilizing Blogs, Wikis, Podcasts, and e-portfolios. Web 2.0 tools give learners much more control, through enabling learners easily to access, modify, or develop their own digital learning materials; and web 2.0 tools enable social learning networks that transcend the bounds of an individual class of students, thus blurring the distinction between formal and informal learning.

The underlying key question of this book is, are our universities prepared to make graduates fit for the future of work in the twenty-first century? This book presents analyses of new learning scenarios or "landscapes" utilizing web 2.0 technologies and describes them as learning 2.0. However, the practices in the fields of strategic innovation of universities, faculty development, assessment, evaluation, and quality assurance have not changed sufficiently to accommodate fully the changes in technology and teaching. Often educators do not know how to evaluate the quality of learning processes conducted with web 2.0 tools – and often they lack in the first place the competences to use learning technologies. Thus there is a need for practical guidance on concepts and methods for developing technology-related competences, assuring quality, and evaluating learning outcomes of the next generation of learning scenarios. At the same time, new approaches for strategic implementation, evaluation, and assessment are emerging alongside the new technologies and the new learning landscapes.

This book presents strategic approaches for innovation in universities; it explores new models to develop and engage faculty for technology-enhanced education; and it details underlying reasons for why quality assessment and evaluation in new, and often informal, learning scenarios has to change. The book is a practical guide for educators, aiming at answering these questions. It describes what e-Learning 2.0 is, which basic elements of Web 2.0 it builds on, and how e-Learning

2.0 differs from learning 1.0. Furthermore, the implications for quality assurance in e-Learning are presented and discussed. Thirdly, a number of methods and examples of quality assurance, assessment, and evaluation for learning 2.0 scenarios are presented and described. The book provides a step-by-step guide for educators who can choose their own quality assurance or assessment methods or develop their own evaluation methodology for specific learning scenarios.

In the book, quality methods such as self assessment, peer-review, social recommendation, peer-learning, and other methods are described using illustrative cases and giving practical recommendations. The book is intended to equip educators with the resources to construct sound assessment and evaluation procedures for their learning 2.0 scenarios in classroom, blended learning, and distance learning settings. It looks at new learning landscapes in ways that will resonate with the academic community while at the same time encouraging innovation and change in teaching and fostering a move towards more holistic higher education models, which embrace the potential of technologies to build the future of learning.

Vancouver, Canada 2009

Tony Bates,
Tony Bates Associates Ltd

Preface

The motivation to publish this book on "*Changing Cultures in Higher Education – Moving Ahead to Future Leaning*" has its origins in numerous discussions, during the last few years, that we have held with colleagues from all over the world. They took place in international research projects and conferences related to learning technologies, as well as in university meetings and in policy events, and they were triggered by the fundamental changes visible through integration and adoption of technologies into all areas of universities.

We had the chance to learn the fundamental insight that a lack of coherent strategic models, low interest and engagement of faculty and missing quality considerations for eLearning are all visible symptoms for deeply-rooted causes which paralyze current innovation efforts of universities. As a consequence we are convinced that it is necessary to develop a more holistic view on changing cultures of universities.

If higher education institutions want to keep leading positions in the knowledge economy it will be necessary for university management to perceive innovation and change not as a singular achievement but rather as an emerging and ongoing phenomenon which has to be embraced as part of a culture of change in higher education institutions. We have to engage the higher education community – students, administrators, management and teachers, as well as policy makers – in its entirety, to take into consideration strategic change models rather than isolated ad-hoc attempts and to understand how technology-enhanced innovation attempts impact long-standing cultural values in the science system in higher education.

At the same time it will be necessary to view changes not as a technological revolution but as an ongoing educational innovation and to develop a new understanding how to join efforts towards a more open and emerging innovation model for universities. A new culture of change will have to take into account barriers for educational innovation which are often caused by macro-level influence factors that even committed universities can hardly overcome at institutional level. University leaders have in consequence to take the underlying innovation barriers into account when they try to engage faculty for the use of learning technologies.

The book is addressing the higher education governance community as a whole – university leaders, chief information officers, change and quality assurance managers and faculty developers who are involved in strategic management decisions. Pedagogical advisers and consultants find new insights and practices for the sustainable integration and management of learning technologies in higher education. The volume fosters a sound understanding of the necessity and strategy to change for professors and teachers and provides them with practical recommendations on competence and quality methodologies for their own practices. Furthermore, the discussed concepts are likely to be of strong interest to senior government officials and policy makers working to evoke change, and/ or who are concerned about national economic competitiveness. The book presents a number of cases for e-Learning application, change and innovation from different disciplines to attract its readership from a broad range of disciplines.

Although we believe that the presented work does not need prerequisites, a basic understanding of the field of technology enhanced learning as well as a perceived need of the necessity to change in higher education to meet tomorrow's work and learning challenges will be beneficial for reading. The presented contributions offer well-grounded insights into successful education innovation from two angles: First, they set a clear focus to uncover the underlying factors which slow down e-Learning innovation and addresses them with coherent approaches for strategic change; and second, they present their experiences in the fields of innovation, change and strategic thinking. The contributions deal with technology-triggered innovation challenges that higher education policy-makers as well as decision-makers and academics in universities face alike.

This volume suggests moving ahead to future learning. It is meant to be a handbook for strategic change in higher education for those who work towards innovating education to meet future challenges. We believe that we are standing at the threshold to radical changes of our good old universities. We believe that this change will come rapidly and probably faster than we foresee it. We believe also that visions are always restricted by current experiences. With this book we can only aspire to shed light on some strands of development within the near next future. But the panorama of great thinkers of education which came together here already indicates that transformation will happen and that it will not leave us with the same institutions we know today. The future universities will look radically different. How? We do not know yet – but with this book we can take a look into the future and see where it will lead us.

A volume of this scope is a collaborative exercise. We are thankful to all collaborators contributing their best thinking and visions to this project, and all those who gave advice and motivation to proceed and push the boundaries. Experts from all over the world formed an interactive community to realize this project. It would not have been possible without the immense commitment of all authors who contributed their time and ideas to this book, agreed to take part in reviews and provided input for lively debates. We have also been able to build on a wide network of supporting organizations, whose commitment and willingness to help have constantly carried us forward in the edition of this book. We would like to

express our sincere gratitude to all authors and organizations for their great support. Last, but not least, we would like to thank our wives Virginie and Anne-Marie for supporting us during the long hours we worked in evenings and weekends on this book – without their patience this work would not have been realized.

Essen and Rennes, December 2009

Ulf-Daniel Ehlers and Dirk Schneckenberg

What can you expect?

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Chapter 1
Introduction: Changing Cultures in Higher Education

Ulf-Daniel Ehlers and Dirk Schneckenberg

> Thirty years from now the big university campuses will be relics. Universities won't survive. It's as large a change as when we first got the printed book. (Peter Drucker, Forbes, 3/10/97)

Twelve years have passed since Peter Drucker made his threatening prediction for the future of universities. But, while we have left the twentieth century behind us, the university as an institution has been quite stable in its capacity to adapt and serve society – and continues to do so today. One proof for the evolution of higher education institutions can be found in the great diversity of institutional forms higher education displays, which range from small colleges and universities of applied science to complex university systems and from private colleges to global online universities. This way, universities are responding to the challenges and opportunities inherent in a modern world as they are evolving to serve new purposes in rapid changing times. However, scholars and academic practitioners believe that revolution, but not evolution, is the paradigm, which coherently characterizes the required changes in the higher education landscape (see e.g. Chaps 4 and 5).

Changing cultures in higher education is about changing universities. It starts with a vision how higher education will look like in the future and brings together some of the best thinkers and brilliant minds from all over the world in the fields of higher education and training. The book contains forecasting thoughts from strategic thinkers, competence researchers, and innovators. At the same time, the contributors give recommendations and specify methodologies for working with and in future universities.

In this introduction, we would like to lay the foundations for the higher education change agenda. We outline policy-related, technological, and organization-cultural factors, which trigger innovation, and we identify those dimensions of organizational development which in our view are the ones most affected by change in higher education. Rather than a scientific account, this introduction is meant to be a prelude for the following book contributions with detailed analyses and concepts to shape change, which provide evidence for current innovation pressures and trends in higher education.

U.-D. Ehlers and D. Schneckenberg (eds.), *Changing Cultures in Higher Education*,
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1.1 Drivers and Directions of Change in Higher Education

Some higher education institutions will continue to stay as they are today, while many others are likely to transform themselves into different types of organizations. This transformation will be visible in several aspects: from outside, how institutions of higher learning look like, relate to students, organize themselves, define structures, and detail specific functions. The transformation will also be visible from the inside, where change is characterized through the evolution of organizational cultures, and affects values, beliefs, and everyday practices of all stakeholders in the field of higher education. New forms of higher education institutions are likely to appear, which will challenge both our experiences with and our concepts for universities as institutions for research and teaching.

We believe that these changes will not only be visible at the surface but will also alter the very core constitution of what higher education presents and how it is interwoven with society. We think that the current change processes can in their essence be characterized by a paradigm shift toward a new paradigm of organizational and individual learning, rather than a gradual drift toward diversification. Such a major paradigm shift requires in turn a more strategic approach to institutional change, which distincts itself from evolutionary processes that have characterized universities in the previous decade. Deep changes involve the whole higher education governance community in a combined effort to create a new and all-embracing concept for universities:

- From the student perspective, key drivers for education innovation are topics like a growing diversity and changing demographics of the population, the need for competence rather than knowledge transfer, the demand for practice-oriented learning scenarios rather than artificial "as-if" education, and enforced mobility needs.
- From perspective of teachers, trainers, professors, and lecturers, a redefinition of the balance between teaching, learning, and research has to take place. In particular, faculty has to shape a new university landscape by breaking down disciplinary boundaries and by adopting new forms of flexible and learner-centered educational models, which are oriented toward innovation and competence development.
- Teachers are requested to change their roles from information transmitters in a distributive paradigm to coaches who support social interaction, innovation, and invention, and who deal with new, unanswered questions as origin for the student's learning processes, in a participative and reflective paradigm of learning.
- Learning will be reoriented along paradigms of collaboration, reflection, and interaction. Learning processes, their assessment, and measurement will focus on relevance for practice and competence. Teachers have to become artists, playing with the dialogical nature of learning and teaching. They have to find more creative ways to provide education in a diverse range of pedagogical

models. New activity patterns concerning dimensions of locality and space, time, and topics need to be practiced.

- University administrations have to develop into teaching and research support centers which suggest ways of organizing higher education ahead of pressing challenges, and which gain a better understanding on the need for restructuration. More than merely organizing higher education processes, these new administrative entities stand for the values, beliefs, and everyday practices that are increasingly adopted in modern universities. They will play a decisive role in supporting the whole institution, in particular on issues such as the integration of information and communication technologies (ICTs) for learning and teaching, the interplay between research and administration, the creation of knowledge flows, and public understanding of science.
- Higher education institutions today are often overmanaged and under-led. A new role for higher education management will be the systematic and strategic development and implementation of visions on how higher education institutions can be turned into revolutionary and forward-leading learning organizations.
- Finally, government and civil society will find new ways of relating to universities as major actors in the development of societies' capability to solve current and future problems and to serve the citizens' well-being and economic prospering.

The changing faces of higher education will lead to a different but not unanimous look of the higher education landscape. Universities will have to deal with a number of fields which emerge as cornerstones of change today but which are often not consequently understood in their potentials to reform the current landscapes of universities. Among them are the following topics:

- *Lifelong Learning*: Universities will become major actors in providing opportunities for learning, reflecting, and engaging citizens into learning processes on their lifelong learning path. While this requires a willingness of citizens to continue to learn, it also requires a commitment to provide educational opportunities and spaces which go beyond the current "cycle oriented" provision of higher education;
- *ICT adoption into all levels of education*: An adoption approach which is not restricted to distribution and presentation of course materials or information but aims to connect students and teachers from universities around the world into a seamless web of communities which are collaborating, reflecting, developing, and learning for innovation;
- *Ubiquitous learning*: Ubiquitous learning scenarios which are asynchronous (anytime, anyplace) and available in a whole range of different learning provision patterns. These include courses, ateliers, short- and long-term commitments, ad hoc groups, and international study panels, as well as traditional lectures, seminars, and classes – which will nonetheless not only be used for knowledge transfer but stimulate debates and discussions. Learning opportunities will be made compatible with and correspond to different lifestyles and needs of a diversifying student population;

- *Affordable education*: Affordable education, which is within the reach of all citizens, whether it is made possible through open educational resources (OERs), low cost structures, and/ or subsidies;
- *Collaborative Learning*: Interactive and collaborative learning modes, which focus on engaging groups into reflection on real problems, break disciplinary barriers, and establish cross-disciplinary curricula;
- *Diversity*: Diversity education, which is capable to serve an increasingly diverse population with diverse needs and goals;
- *International*: International and intercultural education, as universities are increasingly focal points for global debates of change, innovation, and competence development in a variety of fields that are relevant to local, regional, and global needs.
- *New forms and patterns*: Patterns of change, as future universities will develop different patterns to serve higher education in different configurations between episodic and sequential provisions of education, research, and service to the public.

1.1.1 Changing Cultures for Future Universities

Changing organizational cultures will be at the heart of universities' attempts and strategies to respond to the above-outlined challenges. The changes will rest on three pillars which this book is built upon:

1. *Strategies for change*: In will, Modern universities have to engage in a more strategic process of change (Sect. A).
2. *Competences for change*: They have to develop the capabilities of their professionals, employ new technologies, enter into new forms of partnerships, and adopt new forms of incentive systems to develop new ways of living and working, teaching, and researching in universities (Sect. B).
3. *Quality and Innovation as basis for change*: While the natural evolution of learning organizations may be the best model of change, it has to be guaranteed to preserve fundamental values and missions in higher education. Innovation will be at the heart of excellence and the origin for all new approaches to lead change in higher education organizations. Quality is at the heart of universities' future development and will be defined through empowering stakeholders to participate in defining and implementing values into professional and reflected practice. Quality will not be characterized by control and inspection, but rather by approaches which lead to stakeholder involvement and which innovate and inspire new forms of servicing the needs of students and researchers (see Sect. C).

The concept of openness will play an important role. Open innovation and open leadership approaches will enable universities to work together beyond disciplinary

and organizational boundaries. Openness will lead to universities' crossing national borders and tapping into partnerships of excellence where collaboration of the best minds generates mutual benefits from collective intelligence. The movement of open educational resources (OERs) will increasingly lead to open educational practices, which will turn educational scenarios into laboratories for reflection and participation of learners into communities of practice, learning from sharing experiences. Universities will be less organizations of knowledge but more institutions of learning and reflection. Educational materials and knowledge will cease to constitute the academic "holy grail"; instead, universities will earn fame and reputation through refined and dedicated educational methodologies, providing educational opportunities in collaboration with industry and civil societies and sharing their resources in mutual beneficial partnerships. Not knowledge but wisdom, not information but reflection, not exclusiveness but inclusiveness will be constituting characteristics of higher education excellence (see Chap. 4).

The challenge for universities is to tap into their great sources of creativity and energy and to associate these with entrepreneurial spirits and activities – all this in a way that develops and preserves their fundamental mission and values. Future universities might change their appearance, their structure, or their educational portfolio – but first and foremost they will be recognized by their altered cultures, their enhanced way of employing learning to rethink their own structures and to integrate all stakeholders for the joint development of core values and practices. It is from this perspective that universities have to come to an improved understanding of institutional transformation. It is not the primary goal to achieve a specific set of predefined goals, but rather to build the continuing capacity, energy, motivation, and commitment to move toward bold visions of university futures. In summary, the first – and most important – objective of all innovation efforts is to build the capacity for strategic change – a change which is necessary in order to enable universities to respond to changing societies and a changing world.

ICT plays a crucial role in this change, both as driver and tool for innovation. e-Learning will be a natural part of all learning activities. Mainstreamed technology, which enables people to better connect into efforts of joint developments around commonly defined projects, will be naturally available. Learning and teaching will follow different paradigms, less acquisition, and more participation. Universities have to make efforts to turn into learning organizations in order to build their capacity to transform themselves into entirely new entities. The key challenge for higher education stakeholders is to collaborate for providing an environment in which change is not perceived as a threat, but welcomed as an opportunity to engage into learning as the primary activity of a university in its many different forms.

This time of great change, of shifting paradigms, provides the context in which universities have to consider the changing nature of the academic research enterprise itself. It is important that they take responsibility and not to only extrapolate the past but instead to analyze the full range of opportunities of the future. Both the pace and nature of the changes occurring in our world today have become so rapid and so significant that our present social structures – in government, education, and the private sector – have increasing difficulties to anticipate those changes. They are

often incapable to understand the profound nature of changes that characterize our modern world. As a consequence, they are not able to respond and adapt to the changes in suitable ways.

The ability of universities to adapt successfully to the challenges they face will depend to a great extent on their collective capabilities to learn and to continuously improve their core competencies (see Sect. B). Only a concerted effort of planning, management, and governance to understand the challenges of the present and the possibilities for the future can enable institutions to prosper during times of fast and deep change. There is an increasing need for holistic, transversal change strategies to innovate education. While this is obvious in theory, it is a challenging task to put into practice.

Emerging ICTs are pervading higher education and have the potential to enhance teaching and learning activities. But, at the same time, technologies are and remain tools – they cannot by themselves implement innovation. Web 2.0 technologies can in particular be deployed to change educational scenarios – from teaching to learning, from transmitting to constructing knowledge, from channeled to distributed knowledge sources and repositories, from taxonomies to folksonomies, from expert circles to wisdom of crowds.

Universities are under pressure to innovate. The initially cited prophecy of Peter Drucker that universities will become redundant institutions in the twenty-first century might now look a bit overstretched. However, the sources of knowledge creation shift considerably to corporate and open web contexts. Universities seem to have a survival guarantee, as they possess the socially granted privilege to be degree-awarding higher education institutions. But if they want to defend their place as main source of innovation and places for competence development for future graduates, they have to rethink their key work processes. Changing cultures requires the liberation of creative resources that are currently bound in often too large and inflexible institutional hierarchies. Universities have to push for a change of long-standing values, habits, beliefs at both management and faculty level.

1.2 Overview: What Can You Expect?

Changing Cultures in Higher Education – Moving Ahead to Future Leaning presents key challenges that universities face in this period of rapid technology-driven innovation. We are convinced that the barriers for innovation are deeply rooted within the predominant university culture. Our contemporary higher education landscape is facing rapid technological advancements and the promises of Web 2.0 to foster a new mode of knowledge creation and collaborative learning among students around the world. We are always online, continuously updating and connecting to electronic information nodes in the globalized digital village of the Web. However, the promises of ICT and e-Learning have not effectively innovated universities. Little progress has been made, and resources invested into ICT

adoption are frequently spent without a clear definition of objectives and change strategies. The future of learning is taking place now – and yet courses in universities are stalled in a pedagogical model of transmitting knowledge rather than constructing solutions, following educational approaches that have been put into place centuries ago and still largely dominate teaching and learning in academia.

While universities still educate tomorrow's managers with yesterday's tools, too often the e-Learning discussion is focusing on obvious symptoms rather than on underlying causes for the slow uptake of innovation in universities. To facilitate understanding and in order to overcome these barriers, the presented book gathers contributions from international leaders in the research area of innovation and change, which is triggered through the adoption of knowledge, information, and learning technologies in higher education. The proposed concepts are bound to a holistic perspective, which takes into account the three key areas of (a) Change Management, (b) e-Competence Development, and (c) Quality through Innovation.

The contributions for change management discuss, in Sect. A on the basis of cultural values and structural particularities of universities, the necessary steps to drive innovation forward; the second part of the book calls, in Sect. B, for a decisive institutional investment into measures that develop the understanding and ability of faculty and students to use technologies for teaching and learning in the classroom; and the final part in Sect. C presents a quality strategy for the changing face of learning which focuses on quality cultures rather than control and fosters innovation rather than compliance in universities. Preceding these three key areas, the book presents in its *introduction* four provocative and groundbreaking contributions which pave the way for preparing the future of higher education.

Tony Bates identifies, as first author, in the introduction in Chap. 2 critical motivations and dimensions for change in today's universities. While the introduction of technology into teaching, learning and, research makes the necessity of change apparent, it is neither the only reason nor the only area in which universities will have to adopt new organizational models. The author considers a set of key innovation issues: the function of universities in today's societies; how technology may help to transfer viable new futures of universities; why the traditional culture of teaching and learning fails; new forms of teaching and learning that are needed for the twenty-first century; the prevailing culture of universities and why it prevents necessary changes; and how the necessary changes can be brought about.

Gilly Salmon thinks in Chap. 3 about learning innovation for the twenty-first century. She is addressing in particular senior managers, who certainly will be aware of the wide range of issues touched upon in the chapter but may not have thought about them in the given perspective of the future of learning. The author writes that in the education 2.0 environment gives a chance for each individual – student, teacher, researcher, administrator – to be involved in not just responding to external events, but choosing and creating pathways for the future of education through true innovation.

Jay Cross writes in Chap. 4 that most human endeavors have changed so much that visitors from 300 to 400 years ago would not recognize them. One remarkable exception is the lecture hall of universities, where things still look much the same

like the Middle Age. Universities resist change. The author deals with a set of questions such as: how can universities become fit for shaping a changed world? How can they enable students to shape a changing world in which lecturers do not know if what they teach to students today will be relevant for their jobs tomorrow? When future generations look back at the early twenty-first century, they might say "Hey, look, they had people called professors back then, who taught students safe answers to safe questions!" An essential endeavor for future universities is to reconfigure the relation between formal and informal learning processes.

Roberto Carneiro closes the introduction part of the book by proposing in Chap. 5 a theory of change to interpret and encompass the modern challenges of University transformation. Next, he moves into the discussion of four key levers of institutional change, which are: the role of structure, culture, leadership, and governance. The last part of the chapter establishes the relationship between effective transformation and meaning. In this respect, meaning is presented as the highest stage of a value chain moving upward from raw data and information to knowledge, learning, and meaning-building.

Section A discusses new strategies for a culture of change and innovation in universities. While the rationale to move from the traditional model of knowledge transfer to a new model of knowledge sharing is clear, the problem is that the strategic intents for implementing innovation in our universities are not effective enough. What is slowing down the desired change, and what can be done to unblock the current stalemate in universities?

Dieter Euler provides in Chap. 7 a holistic definition of "learning cultures." This term covers the various dimensions impacting on student learning, which rang from the individual to the interactional and institutional level of a university. Based on the explicated notion, the author puts a conceptual frame forward which covers the key features of "learning cultures." Finally, some ideas are presented providing some first answers on how to shape learning cultures on the strategic level at universities.

In Chap. 8, *Monica Feixas* and *Franziska Zellweger* propose a conceptual framework for learning cultures in higher education. The framework includes several components – like a description of prevailing teaching cultures, a discussion on faculty development, a definition of learning cultures, and a framework of the environmental factors affecting learning transfer. Their results show the necessity to pay greater attention to the conditions under which novice teachers teach the importance of peer support and other aspects that contribute to changing teaching and learning cultures in higher education.

Steve Wheeler focuses in Chap. 9 with reference to the discussion about open content and open learning on the use of social software (wikis and blogs) as online supporting and enabling tools for students in higher education. He describes approaches to promote best practice in the use of blogs and wikis for reflective practice, knowledge creation, and the promotion of a culture of sharing and collaboration, and he introduces a model of online learning activities which is presented as an adaptive framework.

Sandra Schaffert reflects in Chap. 11 on approaches to integrate OERs in higher education. OERs can be seen as social movement but are also implemented as strategic measures in higher education. This chapter describes the current aims and experiences with the implementation of OER in higher educational institutions (HEIs). Sandra provides a set of definitions and milestones of the OER movement and she describes with the MIT Open Courseware project and the Open Learn project at the Open University in the UK two concrete case studies.

Marta Cleveland-Innes explores in Chap. 12 new directions for higher education with a specific focus on the main challenges, opportunities, and outcomes. She writes that change in higher education to accommodate broader societal changes requires new ways of thinking about economic issues, accountability, technology, and the teaching-learning process. The author makes the current challenges facing higher education explicit. She outlines leadership traits and behaviors that are moving higher education into a hybrid version of traditional and distance institutions. Six principles of sound strategic planning for creating a new higher education enterprise are reviewed.

Jan vom Brocke, *Cynthia White*, *Ute Walker*, and *Christina vom Brocke* highlight in Chap. 13 the concept of user-generated content (UGC). UGC offers in their view a high potential for innovative learning and teaching scenarios in higher education. The authors present examples like Wikipedia and Facebook to illustrate the enormous effects of multiple users worldwide contributing to a pool of shared resources, such as videos and pictures but also lexicographical descriptions. They write, however, that the systematic application of UGC communities at universities is still very underdeveloped. This is related to the fact that the organizational dimension of setting up UGC communities has widely been neglected so far. The authors appeal to set up incentive systems to actively involve students and to achieve specific pedagogical objectives.

Hans Roosendaal introduces in Chap. 14 the topic of strategic issues in the information management of universities. He highlights different organizational levels of e-teaching, starting with general management, e-science developments and what this means to universities, and business models, followed by focusing on specific teaching issues. He applies the model of strategic positioning to the university as a whole – an approach that leads to the introduction of the university entrepreneur. The model is used to describe structural issues and the relations between the primary processes of research and teaching with the secondary processes. e-science is introduced as a further step toward the universal sharing of scientific results and to analyze what kind of incentives will be required to attain the goal of making information a more integral part of the research and teaching process.

In Chap. 15 *Geraldine Lefoe* thinks about the potential to change culture in universities through leadership capacity development. She describes an innovative framework for leadership capacity development which has been implemented in a number of Australian universities. The framework, which is underpinned by a distributive approach to leadership, aims to prepare a new generation of leaders for formal positions of leadership in all aspects of teaching and learning. The

described leadership development model can also be adapted to have a specific focus on leadership for e-Learning.

Linda Murray, *Philip Alberts*, and *Julia Stephenson* present in Chap. 16 experiences made with the ENcourage Teaching Innovation in a Computerized Environment (ENTICE) Project at Brunel University. This project has been initiated as a change management program for e-Learning, which is based on the appreciative inquiry (AI) method. The project aim has been to identify the pedagogic value of the diverse range of e-Learning activities already being undertaken and to encourage their more widespread use. In terms of the effectiveness of the process, it is had become evident that the AI methodology is very beneficial to increase awareness among academic staff of the range of e-Learning activities.

Gráinne Conole, *Ruth Brown*, *Maria Papaefthimiou*, *Phil Alberts*, and *Catherine Howell* describe in the final chapter of the strategy section the experiences of four projects under the Higher Education Academy (HEA) funded e-Learning pathfinder initiative. All four projects have focused on institutional strategic change and in particular on embedding e-Learning. While each institution has adopted different approaches, the projects stakeholders also worked at a cluster level, which enabled them to draw on commonalities and differences. The authors present lessons learned and consider the implications of their findings for future strategic change within their institutions.

Section B presents contributions on the topics of e-Competence and Faculty Engagement for e-Learning. Models for technology-enhanced change will fail in universities when the key stakeholders in the foreseen change process lack the required competences to put the innovation goals into place. Which measures can be taken to develop the required competences and to foster the motivation of faculty to actively support education innovation?

Dirk Schneckenberg develops in Chap. 19 a theoretical framework for the concept of e-Competence, and he investigates principles for the methodical design of competence development measures for faculty. e-Competence is grounded in the motivation and capability of faculty members to use ICT. A literature review extracts the key components of action competence and integrates them into a holistic model, which serves as foundation for discussing e-Competence. The chapter discusses portfolio models for faculty development and presents findings of an international survey on e-Competence measures. It can be concluded that universities need to create portfolios for staff development which extend both the scope and the breadth of traditional training in order to increase the engagement of faculty for education innovation.

Etienne Wenger, *Nancy White*, and *John Smith* describe in Chap. 20 how their learning communities model can be used for engaging faculty for change in universities. As people experience being part of a community in a wide variety of ways, communities have different styles, and different habitats work for different communities. This chapter organizes the diversity into nine distinct “orientations” that the authors have observed in practice. Each orientation is associated with a set of tools that support its patterns of activity. The optimal configuration for a community includes the complement of technologies and processes that are aligned

with its key orientations. These observations may serve as design paths for community-centric learning and faculty development, especially when technology is involved.

Tony Carr, *Laura Czerniewicz*, and *Cheryl Brown* explore in Chap. 21 how online conferences can be productively used by educators in Africa to share and learn together. Communities of practice can play a key role in the professional development of educational technologists and educators learning to teach with technology. The impact of communities of practice on educational technology practices across a university is enhanced where educational technology professionals and change agent educators act as boundary professionals who are able to learn practices from encounters with related communities. Such encounters can be stimulated through several means including face-to-face and online meetings and conversation, workshops, and conferences whether face to face or online.

John Erpenbeck writes in Chap. 22 about conspiracies and competences. He states that universities are currently organizations that convey knowledge, more than they develop competences – these are the often verbally proclaimed, but only rarely achieved goals. Two causes can be made responsible for this discrepancy. First, conveying informational, as well as subject-specific and specialized knowledge can even today be planned, assessed, and checked much more easily than conveying competences – an approach for teaching which needs new patterns of thought and actions. Teachers and learners, assistants and assessing staff, and especially actors and planners who are concerned with questions of educational politics therefore form a "conspiracy of assessors," which has chosen the simpler and seemingly safer approach. Second, conveying competences needs different forms of learning and teaching than conveying knowledge.

Hans Boon presents in Chap. 23 experiences made with both e-Learning and face-to-face teaching in higher education and asks how these two modes can be best combined for education innovation. The chapter identifies typical advanced teaching and learning activities/functions that can be applied in the e-Learning and face-to-face teaching and learning, and it presents case studies for teachers who have already been involved in both teaching modes for some years and thus have experience in blended teaching and learning. As seen by the teachers in the case studies, both e-Learning and face-to-face teaching and learning are complementary to each other.

Wim Veen and *Jan-Paul van Staalduinen* discuss in Chap. 24 the concept of the Homo Zappiens and its consequences for learning in universities. They assert that Homo Zappiens is the new generation that is growing up with modern communication technologies shaping their views on the world around them. Prominent characteristics of Homo Zappiens include their preference for images and symbols as an enrichment of plain text, their seemingly effortless adoption of technology, and their cooperation and sharing in networks. Homo Zappiens shows us that we can increasingly rely on technology to connect us and allow us to organize and preserve our society as a group. The authors assume that higher education institutions will have to evolve toward institutions that will function as hubs in knowledge networks,

serving students working in fluid communities of research or learning on subjects of their interest.

Teresa Guasch, *Ibis Alvarez*, and *Anna Espasa* present in Chap. 25 an integrated framework of the educational ICT competencies that university teachers should have in order to teach in an online learning environment. They assert that teaching through ICT in higher education involves performing three main roles – pedagogical, social, and design/planning – and also two cross-cutting domains that arise from the online environment: technological and managerial. This framework, and the competencies for university teachers associated with it, was validated at a European level by a dual process of net-based focus groups of teachers and teacher trainers and an online Delphi method involving 78 experts from 14 universities of 10 European countries.

Tony Churchill thinks in Chap. 27 about the impact of collaborative e-Learning on concepts of teaching. He states that beliefs and practices of teachers in the sector have remained largely unchanged despite the widespread adoption of e-Learning, and he identifies key differences in the beliefs and practices of practitioners, reflecting levels of engagement with e-Learning. Using activity theory, the barriers to such change are explained and lessons for future approaches to professional development derived. The author explores the nature of e-Learning innovation and considers that learning communities should be at the heart of such transformation.

Section C deals with the innovation and quality potential through e-Learning in universities. While universities use technologies in their daily work, an authentic culture of quality in e-Learning frequently remains weakly developed. How can we develop a holistic view on the general impact that ICT has at different institutional levels of universities?

Ulf-Daniel Ehlers argues in Chap. 30 that quality development in higher education needs to go beyond the implementation of rules and processes to improve educational quality. Quality development rather has to focus on promoting a quality culture that enables individual actors to continuously improve their profession. While this understanding of quality as part of the organizational culture gains more importance, there is still a lack of fundamental research and conceptual understanding of the phenomenon in itself. The author proposes foundations for a comprehensive understanding of quality culture in organizations, focusing on higher education. For this purpose, the state of the art in research about organizational culture is discussed and a model of quality culture is presented.

Jan Pawlowski and *Monika Walter* discuss in Chap. 31 quality for global knowledge-intensive organizations. They write that learning and education as well as knowledge-intensive work processes become more and more internationalized. Knowledge workers are distributed around the world, study programs are exported across borders, and learners work in globally distributed groups. However, the quality of their work differs in many cases. The authors present an approach to manage quality within the process of internationalization for globally distributed knowledge-intensive organizations (such as universities). A particular focus is the field of e-Learning. The key quality factors for internationalization of global

learning are defined, and examples for quality criteria resulting from these factors are introduced.

Ulf-Danel Ehlers explores in Chap. 32 the potential of Web 2.0 technologies to leverage e-Learning to a new generation and assesses the consequences for quality assurance, management, and development in higher education. He describes key characteristics of the e-Learning 2.0 phenomenon and how related emerging learning scenarios can be used for principles of quality development in community-oriented learning. And he discusses if a new learning culture, which is based on the philosophy of web 2.0 and exploits the potentials of social software for learning, automatically leads to a new quality culture.

Graham Attwell asks in Chap. 33 how Web 2.0 and social software can help transform measuring quality in teaching, learning, and research. He looks at the different ways technology is being used to learn and at the changing expectations of learners leading to pressures for transformations in both pedagogy and institutional structures, and he proposes a rhizomatic model of learning. The author suggests that traditional measures of the quality of teaching, learning, and research have been hijacked by the commoditization of education and looks at how Web 2.0 and social software can provide opportunities of new ways of measuring the quality of learning. The development of new quality processes will require fundamental rethinking of the purpose and role of universities.

Taiga Brahm, *Dieter Euler*, and *Sabine Seufert* provide in Chap. 34 an insight into the methodological derivation of the quality criteria used in the teChnology-Enhanced Learning accreditation (CEL) of the European Foundation for Management Development (EFMD), which was designed to assess and improve technology-enhanced programs. The main question of the chapter is how to develop quality criteria in a methodologically sound manner. After briefly outlining how the quality dimensions and the quality perspectives form the basis of an integrated quality model, the derivation of a number of quality criteria is explained in detail.

Peter Baumgartner and *Reinhard Bauer* present the MedidaPrix ("Mediendidaktischer Hochschulpreis") model for initiating change in universities. With the possibilities of virtual or blended learning environments, remarkable opportunities for new forms of learning have emerged. To respond effectively to this transformation process, we need both to capture, honor, and disseminate high quality e-Learning materials, and to initiate a new sharing mentality. The MedidaPrix is an initiative that intends to function as a change agent exactly for this complex transformation process. Based on the pattern movement, the authors discuss the different strategic measures set by the MedidaPrix Award to change the lock-up culture of learning materials currently found in higher education organizations and to promote high-quality material as OERs.

Annemie Boonen and *Helena Bijnens* ask in Chap. 36 how a quality label supports a culture of innovation within higher education institutions. The eUropean uNIversity QUality in e-Learning project (UNIQUe) was launched several years ago in the context of the broad Bologna process, which aims at creating a European Higher Education Area (EHEA) that is more compatible and comparable, more competitive, and more attractive for European students/citizens and for

students/citizens from other continents. One of the specific objectives of the action program set out in the Bologna Declaration is to establish a European dimension in quality assurance, with comparable criteria and methods, and that is precisely what the UNIQUe project wants to contribute to.

Niall Sclater writes in the final chapter of the book about the organizational impact of OERs on universities. He states that the OER movement has been growing rapidly since 2001. Individuals and organizations are motivated by a variety of drivers to produce OERs, both altruistic and self-interested. The author draws parallels with the open source movement where authors and others combine their efforts to provide a product which they and others can use freely and adapt to their own purposes. If institutions are to develop sustainable OER initiatives, they need to build successful change management initiatives, developing models for the production and quality assurance of OERs, licensing them through appropriate mechanisms such as the Creative Commons, and considering how the resources will be discovered and used by learners.

In addition to the full chapters, the book contains a number of short and illustrative *case studies* on education innovation, which are titled "Stories of Change." *Eva Seiler Schiedt* reports from the change program at the University of Zurich, Switzerland; *Iain Mac Labhrainn* outlines activities taken at the National University of Ireland, Galway, Ireland; *Wim Van Petegem* reports from the Katholieke Universiteit, Leuven, Belgium; *Tony Carr* writes for the University of Cape Town; *Anna-Kaarina Kairamo* and *Matti Sinko* share experiences made with the TIEVIE universities network project in Finland; and *Holger Hansen* presents change efforts at the University of Bochum, Germany.

Chapter 2
New Challenges for Universities: Why They Must Change

Tony Bates

> Today, everyone, if they are to have a job, needs the kind of higher order thinking skills that only those in managerial or professional positions formerly needed. We can achieve this only through major structural reform of our education system.
>
> Jane Gilbert, 2005, p. 67

Abstract This chapter identifies the critical motivations and dimensions for change in today's universities. While the introduction of technology into teaching, learning, and research makes the necessity of change apparent, it is neither the only reason nor the only area in which universities will have to adopt new organizational models. The following questions are considered: what is the function of universities in today's societies? how can technology help the transfer to viable new futures of universities? why is the old culture of teaching and learning failing? what new forms of teaching and learning are needed for the twenty-first century? what is the prevailing culture of universities and why does this prevent necessary changes? how can the necessary changes be brought about?

2.1 Introduction

Universities are very resilient. The concept of the university has remained largely unchanged for over 800 years. Universities have always retained an uneasy tension between cloistered independence and relevance to society at large, but they have successfully resisted or thrown off control by church, princes, state, and commerce to remain by and large fully autonomous, at least in Western society. Over 800 years, they have undergone radical restructuring, massive expansion, and the introduction of fundamentally new areas of scholarship, while protecting their core

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mission. As a result, universities are probably in a stronger position today than at any other time in history.

Despite this, universities are facing continuing pressures for further change. In this chapter, I will argue that the core mission of universities must remain, but radical change is needed in their organization and, in particular, their governance, if they are to be "fit for purpose" for the twenty-first century. However, for most public universities, this change is likely to be slow. Nevertheless, economic development is strongly linked to the ability of universities to adapt to the demands of a knowledge-based society. Thus, those universities that do change appropriately are likely to gain a strong competitive advantage, both for themselves and for the economies in which they operate.

2.2 The Pressure for Change

2.2.1 Universities 1.0

The organization and structure of the modern university began to form in the mid to late nineteenth century. The forces leading to these changes were complex and interrelated. The core factors were the rise of science and the recognition of the importance of science for economic development through the industrial revolution. Thomas Huxley in Britain and von Humboldt in Germany were two key figures who promoted the growth of science and engineering. (Indeed, Huxley had to start his own program for teaching biology at the Royal School of Mines – which later became Imperial College – because neither Oxford nor Cambridge University was willing to teach biology at the time – see Desmond 1997.) Also, the growth of the nation state and the extension of empire required a large increase in government bureaucrats, who tended to be taught the "classics" (philosophy, history, Greek, and Latin.)

Consequently, the number of universities in Europe and North America expanded considerably toward the end of the nineteenth century. The land-grant universities in the United States in particular were developed to support agricultural expansion, and "red brick" universities were opened in the industrial cities of Britain to meet the increasing demand for engineers and scientists.

Despite this expansion, though, entrance to university in many countries was limited by and large to a small, elite minority of upper class or rich middle class students. As late as 1969, less than 8% of 18-year olds (children born in 1951) were admitted to university in Britain (Perry 1976). As a result, teaching methods in particular were suited to what today would be considered small classes, even at the undergraduate level, with seminar classes of 20 or less and even private tutorials with a senior research professor for students in their last year of an undergraduate program. This remains today the "ideal" paradigm of university teaching for many professors and instructors.

In the United States and Canada, the move to a mass system of higher education began earlier, following the Second World War, when returning servicemen were given scholarships to attend university, and for the last half of the twentieth century, access to university and colleges was expanded rapidly. For a mix of social and economic reasons, from the 1960s onwards, governments in Europe also started again to expand rapidly the number of university places, so that by the end of the century, in many Western countries more than half the 19-year-old cohort were admitted to some form of postsecondary education (the figure for Canada in 2004 was 52% – Stats Canada, 2009). This represents a massive increase in numbers, and not surprisingly, governments, although spending ever more each year on postsecondary education, were not able or willing to fund the staffing of universities at a level that would maintain the low class sizes. In many North American universities, there are first and second year undergraduate courses with more than 1,000 student, taught mainly in large lecture classes, often by nontenured instructors or even graduate students.

Modern universities have many features of an industrial organization (Gilbert 2005). Classes are organized at scheduled times in a fixed location on the assumption of full-time attendance. Students receive (at least within the same course) a "standard" or common product, in terms of curriculum (same lectures, same reading lists, etc. for each student in the course). The institution is divided into departmental silos, with a hierarchical management structure. The Spellings Commission in the United States (U.S. Department of Education 2006) is even pushing for standardized measurements of output, to allow comparison in "performance" between institutions, reflecting a classic industrial mentality.

2.2.2 The Growth of a Knowledge-Based Economy

However, one consequence of the expansion of postsecondary education has been the growth of a knowledge-based economy. Peter Drucker (1969) is credited with coining the term. He made the simple but powerful distinction between people who work with their hands and those who work with their heads. Typical knowledge-based occupations can be found in biotechnology, telecommunications, banking and insurance, computing and electronics, health, entertainment, and education. These enterprises depend heavily on information and communications technologies (ICTs) for the creation, storage, transmission, analysis, and application of information in ways that create knowledge. Thus knowledge is seen as being both process and product, with economic value.

Labor is a major cost in industrial organizations. Cheaper labor means lower costs and hence competitive prices. In a globalized market, factories move to the lowest cost labor market. Thus we have seen to a large extent the de-industrialization of former industrial economies.

It is probably no coincidence, however, that as the numbers of graduates from universities increased year by year, so did the expansion of the knowledge-based

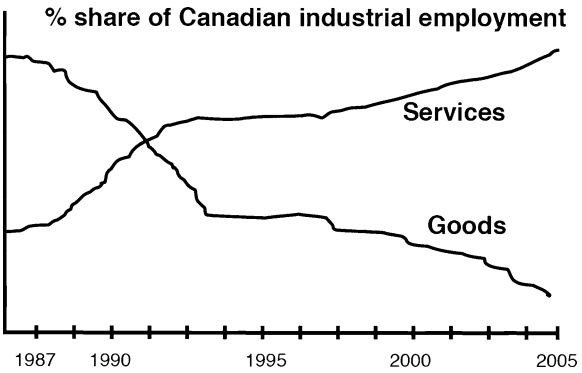

Fig. 2.1 Percentage share of Canadian industrial employment
Source: Globe and Mail, 27 April 2006, B9

economy, thus balancing to some extent the jobs lost in the industrial sector. Knowledge-based jobs of course require large numbers of people with higher levels of education, and this to some extent compensates more developed economies for their loss of industrial jobs. The following chart (Fig. 2.1) shows how dramatic and sudden this shift in the labor market has been.

Although the data applies to Canada, similar shaped graphs would apply to other economically advanced countries, but on a different timescale. Thus while the crossover between people employed in service industries surpassed those employed in manufacturing in Canada in 1991, this crossover occurred in Britain, the heartland of industrialization, in 2007. (Note that services include both high-paid knowledge-based work and low-paid unskilled work.) Thus, to maintain the high living standards of economically developed countries, it is essential to develop knowledge-based industries, and the large proportion of the population receiving postsecondary education helps to feed and stimulate that market.

2.2.3 Skills and Competencies in a Knowledge-Based Economy

Knowledge-based businesses operate very differently from industrial-based businesses, which revolve around the manufacturing and distribution of goods. Because of the benefits of economies of scale in manufacturing – the same product using the same manufacturing process manufactured on a very large scale to offset the high capital costs of a production line – goods are produced in large factories, with mainly relatively unskilled manual labor organized around a strict division of labor, with separate, narrowly defined jobs and even unions for each step in the industrial process. Management, of course, is hierarchical, with owners, managers, supervisors, and workers.

Knowledge-based industries however are often small – two or three people, often recent graduates who start their own company – and even when they grow large, such as Microsoft, Apple, or Google, they employ far fewer workers than industrially based companies. The majority of knowledge-based companies employ less than 100 people, so the spread of work is much "flatter." In such companies, workers have to be multiskilled. A typical worker in a small computer software company has to be an entrepreneurial manager, an accountant, a software specialist, and a marketer. Because knowledge-based companies do not need direct access to raw materials, they can be located anywhere. However, because of their need to access highly qualified workers, such companies are often found in clusters around universities. Nevertheless, such companies are often "virtual" in that they work primarily over the Internet. Small companies tend to build networks and partnerships with other companies that can provide added-value services, allowing a small company to focus on its core business, such as a software product. Workers in knowledge-based industries need to continue to learn throughout life, to keep up-to-date in their fields and indeed to develop new knowledge that can be applied to their work.

The skills and competencies in knowledge-based companies have been clearly identified (e.g., Conference Board of Canada 1991). Workers in such industries are expected to have the following skills:

- Good communication skills (reading/writing/speaking/listening)
- Ability to learn independently
- Social skills: ethics; positive attitudes; responsibility
- Teamwork
- Ability to adapt to changing circumstances
- Thinking skills: problem-solving; critical/logical/numerical
- Knowledge navigation: where to get/how to process information.

In particular, they need to be entrepreneurial, not necessarily in the sense of being skilled at making money, but in seeing an opportunity, and doing what is necessary to make it happen. Knowledge-based companies depend on innovation – creating, modifying, and improving existing products and services – rather than reproducing the same product all the time, as in an industrial organization. Thus knowledge-based workers need to be creative and risk-takers. Most universities would claim to develop thinking skills such as problem solving and critical thinking, but these are not generic skills: they need to be embedded within the professional discipline. Thus problem solving in business is different from problem solving in medicine.

2.2.4 The Central Significance of ICT in Knowledge-Based Economies

Most people understand the importance and impact of ICTs in modern society. ICTs can be thought of as the raw materials of a knowledge-based economy, in that

they provide the means for creating, storing, analyzing, transferring, reproducing, and transforming information.

However, it would be a mistake to see ICTs merely as modern tools for preserving and reproducing knowledge, as if knowledge is somehow separate from or independent of the technology. Just as the technology of the mass-produced, printed book had enormous impact on society, economics, and the development of new knowledge (especially science), so do the new ICTs (see for instance, Lyotard 1984; Katz 2008). Indeed, it is important to distinguish between different functions and roles of ICTs in higher education.

2.2.4.1 Digitilization of the Curriculum

Almost all subject areas have been affected by the development of ICTs in terms of the content of the curriculum. Most graduates are now expected to be able to use the Internet and computers to find, store, analyze, apply, transform, and communicate digital information, whatever their field of study or intended profession. Furthermore, these skills need to be specific to their field of study. In most subject areas and in most universities, this process is usually well understood and implemented.

2.2.4.2 Changing Views on the Nature of Knowledge

There is not space here to do justice to this controversial topic (see Gilbert 2005, for an excellent discussion), but it is being increasingly recognized that ICTs are changing our concepts of what constitutes knowledge and how it is created and applied. This epistemological issue is a direct challenge to the primacy of academic knowledge and has specific relevance to how or whether universities should address the issue of lifelong learning and applied knowledge. It raises questions about the role of scientific thinking, the power and nature of collective intelligence, the extent to which knowledge can be created independently of individuals, and how innovation occurs. The response to such questions will affect not only the content of curriculum, but how learning should be structured and where it will be delivered. This is a topic that needs much more discussion within and outside universities.

2.2.4.3 Managing, Administering, and Organizing the Institution

Universities are organized around the benefits and constraints of a physical campus. However ICTs enable the institution to be managed, administered, and organized quite differently. There are increasing moves to student self-service, through online admission, course registration, fee payment, and ordering and delivery of learning materials, not just to save money, but to provide more flexible and better service.

Student, faculty, and staff digital identities allow for single log-in and secure access to appropriate programs, services, and resources. New business intelligence tools allow for the distribution of information to inform better decision making for faculty, staff, and managers at all levels (Katz 2008). Many universities are making moves in these directions, but they are more often piecemeal and uncoordinated, and are not driven by any new vision of the university and how it should provide services.

2.2.4.4 Program Delivery

The "old" university is built around the delivery of programs through campus "residence," i.e., the physical attendance of students at lectures, seminars, and labs. ICTs now though enable students to access information and services, including interaction with instructors and other students, at any time and any place. Programs can now be delivered in a variety of ways to an increasing wide variety of students, though face-to-face, blended, or fully online learning. This requires a radical rethinking of the benefits and limitations of physical presence, related to the nature of the subject matter and the type of learner being targeted (e.g., high school leavers or lifelong learners). Many professors and instructors are incorporating ICTs into their on-campus classroom teaching, and enrolments in fully online courses are growing rapidly. Nevertheless, both of these are a perpetuation of old models of teaching and learning. What is lacking is a systematic, pedagogically based approach that attempts to fit the design and delivery of courses and programs to the needs of an increasingly diverse student population. In particular, how and to what extent universities should serve the lifelong learner, the graduate in the workforce, is an issue that needs to be much more seriously addressed than it has been up to now in most institutions.

2.2.4.5 Learner-Centered Teaching

The recent development of Web 2.0 and mobile technology tools, such as blogs, YouTube, mobile phones and cameras, virtual worlds, and e-portfolios, now enable learners to collect, create, transform, and adapt their own learning materials (Lee and McCoughlin 2009). These tools can be used for collaborative learning, group work, projects, problem solving, and creative thinking, to develop the skills needed in a knowledge-based economy. These tools require the role of the instructor to change from that of a provider and evaluator of knowledge to one of facilitator and guide. Increased time spent by learners on active online tasks and peer collaboration is one way to deal with the massification of higher education, allowing for greater personalization of learning and increased motivation, while at the same time controlling the workload of the teacher. However, a major redesign of how courses and programs are delivered is needed for this approach to succeed.

2.2.5 *The Implications of Change*

It can be seen that changes both outside and inside the university require an appropriate set of responses from institutions, if they are to remain relevant and of value to society.

There is a particular responsibility for the leadership of universities to plan and encourage change in their institutions. Second, education and training is needed to ensure that all stakeholders fully understand the reasons for change. There is still a tendency in many institutions to see information technology as a support service for other activities (research, administration, teaching, and learning). Thus, senior administrators rely on IT professionals to make recommendations, and these recommendations are judged on how well they support other objectives, such as research or teaching.

However, digital information and communication are now themselves core goals and activities for universities. ICTs require institutions to identify carefully what their mission and goals are, or what kind of institution they want to be in the twenty-first century (Katz 2008). As a result, questions need to be asked such as:

- What should be the institution's cyber presence and how will this be manifested through research, teaching and learning, and administration?
- How should curriculum be shaped to meet the changing demands of a knowledge-based society?
- What are the physical and spatial boundaries of our activities?

These are decisions that require the full participation of the university and college community.

2.3 Will Universities Change?

One Vice-Chancellor noted: "Universities are like graveyards. When you want to move them, you don't get a lot of help from the people inside." Why should universities change? They have survived for 800 years, they are recognized as essential for the social and economic development of nations, they are reasonably well funded, either from government or through endowments, and they have a great deal of autonomy.

Certainly, there is no need for the core mission (creation and preservation of knowledge through scholarship and research, dissemination of knowledge through teaching and publication, and public service). However, the means by which the mission is accomplished does need radical reexamination because of changes in the external world.

Tierney and Hentschke argue that:

> [. . .] innovation in higher education has remained within a socially constructed framework where the innovators have tended to accept the parameters of traditional higher education

> and have worked within them. ... As with all social constructions, deviations from these norms are relatively minor, in large part because those who participate in the construction have difficulties imagining ways much beyond the status quo [...]. (2007, pp. 13–14)

Thus traditional universities seek ways to integrate new technology within the parameters of the traditional model, and look for changes at the margins, in a slow and incremental manner, that sustain the existing goals and values of the organization. Thus radical change is unlikely to come from traditional universities.

At the same time, governments have balked over the last 20 years at the creation of completely new organizations based on technological innovation (the possible exception is the fully online Open University of Catalonia, created in 1996). Thus, governments are hoping for the changes to come from within existing institutions.

Nevertheless, there are signs of growing impatience at the slow speed and lack of radical change in universities. David White, Director, EU Commission, DG Education, and Culture, Lifelong Learning, at the 2008 EDEN conference in Lisbon, stated that:

> Although ICT has had a major impact on education and training at all levels, its impact has not yet been as great as we hoped and expected. The task of transforming the teaching and learning process is still just beginning. Some innovation content is there: but not enough. New business models are needed. Making the best use of new technology in education and training is not going to be achieved just by applying new methods in old contexts. In education and training, using new technology and new approaches means we must be prepared to change the model to get the best.

Similarly, the World Economic Forum's Global Advisory Committee on Technology and Education at its recent meeting in Dubai (November, 2008) commented:

> Education is in a state of transition from a traditional model to one where technology plays an integral role. However, technology has not yet transformed education: (1) student expectations about the educational experiences (e.g., connected, participatory, engaging) are not being realized, (2) students are digital "natives" while teachers are "laggards," (3) rather than introducing twenty-first century skills, technology is often being used to automate outdated education paradigms, (4) technology changes what students/citizens need to learn (e.g., analysis over rote memorization)

In other words, technology is in the main just being added on to the traditional classroom experience. Thus, while there are "pockets" of innovation, technology is not being used for systematic change. This was well illustrated recently by a Ph.D. study of ICT integration in five European universities by Albert Sangra Morer of the Open University of Catalonia (2008). He found few, if any, institutions had a formal strategic plan for ICTs and its impact on teaching and learning, and none had any way of evaluating or measuring performance resulting from ICT investment.

Where are the "pockets" of innovation? The area with the most potential is the use of Web 2.0 tools, such as blogs, wikis, virtual worlds, and mobile technologies such as phones, cameras, and iPods, that allow learners to collect, create, share, and evaluate their own learning materials (Lee and McCoughlin 2009). A second area where innovation is possible – but still very slow to develop – is the use of open educational resources by students where instructors create a learning environment that encourages learners, to seek, find, analyze, and apply information appropriately.

What would true innovation look like? Well, it would be a break from the 9 to 5 block timetabling of classes. With students able to access teaching and learning anywhere at any time, there is no need to have everyone coming to the same place at the same time, every day. This is not to say there is no role for the campus, but teaching could – and should – be organized quite differently from today's predominantly nineteenth century model of education.

Why is change and innovation through the use of technology so necessary in our education systems? Because the traditional methods are preparation for an industrial society that is fast vanishing. We need to use technology as an integral part of our teaching and learning activities to prepare learners for a knowledge-based society, where learning prepares for and matches the world of work, leisure, and society. This is just not happening to any degree yet.

2.4 Driving Change

What can be done to accelerate the pace of change in universities?

2.4.1 Increase the Institutional Incentives for Change

Governments and charitable donors can play an important role by tying funding to strategic directions for change. For instance, endowments are increasingly coming from donors who have made their money from knowledge-based businesses. They could request that their funds be used to stimulate innovative uses of technology for teaching that develop appropriate skills and competencies. Governments are increasingly requiring annual budget requests to be tied to strategic plans. They could require institutions to identify strategies for innovative teaching and how this will be funded. Indeed, governments could withhold 1% of operational grants, to be reallocated for projects that aim to introduce sustainable innovative programs. Institutions should be encouraged to develop new business models to serve lifelong learners that allow the hire of extra, tenured professors from the fees generated. Without some form of external stimulus, radical change is unlikely to happen with traditional universities.

2.4.2 Professionalize the Training of University Teachers and Provide Better Incentives for Innovative Teaching

Nothing reflects the nineteenth century model of higher education more than the preparation of university teachers. The Ph.D. is a training in research, not teaching.

New methods of teaching that exploit technology and develop skills embedded in disciplinary knowledge require not only an understanding of technology but an understanding of how people best learn, and technology-supported models of course and program design. Appointment, tenure, and promotion are currently driven entirely by research (despite statements to the contrary); governments should require evidence of proficiency in university teaching (as well as research) as a prior condition of tenure, because no research university will voluntarily go this route.

2.4.3 Management Training for Senior University Administrators

Sangra (2008) noted that there are well-established techniques for managing change in organizations that are not being applied even in those institutions that wish to change. University managers (rectors, vice-presidents, deans, and heads of department) receive at best spasmodic and unsystematic training for their roles as managers. An understanding of the issues and choices that arise from the fast and ever-changing development of ICT is essential for all university managers if the university is to be professionally managed (see, for instance, Katz 2008). Strategic planning has its weaknesses, but even – or especially – large research universities need a strong vision for the future that incorporates an understanding of the goals, benefits and challenges of new technology, and strong leadership with an understanding of change management if the vision is to be successfully implemented.

2.5 Conclusion

It will probably not be the "world's top 100 universities" that lead the charge to innovation. They have too much to protect, in the way of history and reputation. The worry is that real innovation, as Tierney and Henschke (2007) suggest, will come from private, for-profit universities, in those countries where they are allowed to operate. This will result in a challenge to the whole concept of public funding for universities who have not shown a capacity to adapt to the changing needs of the twenty-first century. This, more than any other reason, is why they should make the effort to change.

Chapter 3
Learning Innovation for the Twenty-First Century

Gilly Salmon

> Every society honors its live conformists and its dead troublemakers. (Mignon McLaughlin)

Abstract This chapter combines the complex notion of incremental and radical innovations, especially associated with the exploitation and deployment of new technologies, with that of students' learning experience in higher education. It cites the detailed "case study" of the learning innovation strategy at the University of Leicester in the United Kingdom. It provides a framework and model to assist in making choices and taking action for exploration and application.

3.1 Introduction to Learning Innovation

This chapter is for everyone involved in universities. I think it will be of interest to senior managers, who certainly will be aware of the wide range of issues I touch upon but may not have thought about them in quite this way for the future for learning. However, in the Education 2.0 environment of the twenty-first century, there is a huge chance for each individual – student, teacher, researcher, and administrator – to be involved in not just responding to external events but choosing and creating pathways for the future of education through true innovation.

We need to identify the causes, consequences, uncertainties, and continuities about the future for learning from a wide range of stakeholders, map them onto the complexities of the impact of the complex interactions between pedagogy,

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technology, and student experience, and seek to understand what shaped the past and the present, growing and declining forces, and emerging issues (Gator 2008).

Almost every higher educational institution (HEI) throughout the world is trying to accommodate new ways of learning, using digital and Web technologies and at the same time meeting students' shifting aspirations and expectations. There is a focuson efforts to provide students with the highest quality learning experiences. However, it is difficult to get a holistic picture of the best evidence to promote improving learning experience and even harder to get realistic visions of future directions and pathways.

Universities already know much about learners' needs, changing demographics, and the challenges of the complex relationships between technologies and pedagogies. However, they know less about how to prepare for changes in learners' expectations, including what, in the range of opportunities, is significant and what is not.

The adoption of new technologies in learners' everyday lives offers wonderful opportunities (Melville Enquiry 2009) but also outstrips HEIs' understanding of and ability to exploit appropriate pedagogical and systemic approaches. Stereotypical views abound, such as that the "net generation" (Oblinger and Oblinger 2005) *knows* how to learn through digital media or that experienced teaching staff *cannot* embrace new technologies. Neither is true. A much broader debate is developing that seeks to frame new identities and communities for academics within shifting concepts of knowledge for the twenty-first century (Barnett and Napoli 2008).

The failures to effectively forecast future developments typically fall into two main kinds: the very pessimistic and the very optimistic. There are also those who think that everything is going to happen to everyone very soon, and others who think they can "park" their concerns because it would not happen in their lifetime. The reason we find it so difficult to achieve effective forecasting is that most people's thought processes are linear, whereas the "real big world" has complexity, adaptability, variability, and crazy logic (Laszlo 2006). Forecasting the future involves us not only in looking at potential directions, but also choosing carefully between alternatives and deliberately letting others go.

There are two kinds of innovation – radical and incremental. Complete originality is not the only way forward!

3.2 Introducing Learning Innovation at the University of Leicester

There are many definitions of innovation. The one that we find helpful when considering the future for learning recognizes that innovation is the process that translates knowledge into economic growth and social well-being. It encompasses a series of scientific, technological, organizational, financial, and commercial activities. Research is only one of these activities and may be carried out at different phases of the innovative process (adapted from Australian Research Council

definition). For learning, we believe that both radical and incremental innovations are necessary.

The University of Leicester is a top-ranking university for research and teaching located in the middle of England. It was the Times Higher University of the Year for 2008/2009 and was the first university in the United Kingdom to receive the peer-reviewed award "UNIQUE" for e-Learning. It offers undergraduate and postgraduate courses in medicine, science, social science, and arts and humanities. Unusually, it is a fully mixed-mode university, with 12,000 campus-based learners and 7,000 studying by distance learning.

The mission of the University of Leicester to make it a leading U.K. university committed to international excellence through the creation of world changing research and high quality, inspirational teaching. One of its (nine) ways of achieving the mission is:

> Leading the UK in terms of innovation in teaching and learning through the application of e-Learning.

The new learning innovation strategy, developed as an addendum to the university's Learning and Teaching Strategy, and replacing the previous e-Learning and pedagogical innovation strategy (2005–2009), provide the direction, environment, and actions for success of this objective for the whole institution and its stakeholders. The Learning Innovation strategy seeks to ensure that ownership, of content and of pedagogy, continues to lie directly within academic departments but recognizes that a wide variety of mechanisms must underpin the continued and continuing innovations, thus creating rather than responding to the strategy.

Through consultation across a wide variety of stakeholders at the University, I agreed with colleagues what was important for us and where innovation could help. These are as follows:

3.2.1 Students Experience and Learning

- Twenty-first century skills and competencies for learning at university and beyond
- Up-to-date skills for employment
- Full engagement of students in their own learning experiences
- Equivalence – for distance, mixed mode, and campus
- Access to the best possible learning resources and processes
- Flexibility and choices
- Meeting or exceeding learners' technological expectations
- Teaching
- Creating time for academics – effectiveness and efficiency
- Equal value to teaching and research
- Research into teaching
- Research to practice

3.2.2 Institutional Positioning

- "New elite without elitism" (Press release about University of the Year, October 24, 2008)
- Student-centeredness and engagement with future choices
- Global reach
- Market focus and improvement
- Utilizing capabilities and capacities in new ways
- Creating a learning architecture for future success
- Acceptable and successful change processes for the University of Leicester

3.2.3 Benefits of Learning Innovation

The key benefits of increasing learning innovation in learning in the University of Leicester are to

- drive change from the students' learning experience and pedagogical challenges;
- make a significant contribution to keeping Leicester "ahead" and with a high profile as an innovative university, contributing to its overall success;
- position the university internally and externally as flexible, having the ability to change to absorb changes in the demographics and characteristics of students and the impact of the external environment, through innovative responses;
- address the changing needs, expectations, and potential of "the net generation" (students born after 1980) (Oblinger and Oblinger 2005. Educating the net generation, An Educause e-book publication, http://www.educause.edu/ir/library/pdf/pub7101.pdf [20/04/07];
- address new agendas as they occur for example, work-based learning;
- meet the compelling requirement to developing distance learning (DL) that is both pedagogically sound and economically sustainable in an increasingly receptive and demanding educational market, and provides high-quality learning and support to distance learners equivalent to that provided to campus attendees;
- increase the flexibility, accessibility, and personalization of provision for campus and distance students and enhance their capacity for integration of study with working, home, leisure, and social lives;
- further integrate e-Learning with the growing provision of e-business, e-resources, and e-support in the university so that each contributes to, and enhances, the others;
- ensure choices of investments in technologies and staff development are made based on researched evidence and likelihood of scalability; and
- treat learning with and through technology, university-provided, and student-owned as normal, necessary, and desirable in the twenty-first century.

While developing innovation, the University plans not only to meet but enhance the students' experience of learning. The learning innovation strategy and aims fit

directly with University's Quality Assurance and Quality Enhancement processes. Quality, along with the overall success of the strategy is and will be judged from the perspective of the student experience

3.2.4 Deciding How and Where to Focus: The Nature of the Learning Innovation Strategy

Through extensive consultation we decided that the Learning Innovation Strategy would be

- underpinned by government policy and e-Learning strategies (2009);
- built on existing strengths of the University of Leicester including lessons and the successes of the first e-Learning and pedagogical innovation strategy (2005–2009) and of the recently updated Learning and Teaching Strategy;
- leading on approaches to developing institution-wide capabilities and capacities for learning design and delivery;
- focusing on preparing for the short-, medium-, and long-term future;
- institution-wide engagement and collaboration, cross-institutional teams including colleges, services, and crossing disciplines.

These are major innovation challenges for a university also committed to maintaining its leading position in both teaching and research and research deployed in teaching! Our approach starts first and foremost with staff achievements.

3.2.5 Core Capabilities

The framework for the first strategy (from 2005) and the second Learning Innovations strategy takes a "resource-based" definition of the match that we can make between our internal resources and skills, and the opportunities and risks created by our external environment. Such a framework both implies identifying what core capabilities and existing strengths (what are we good at, what makes us special?) and how a strategy can take advantage of these in a competitive world (what we can do well and differently). A strategy based on the university's strengths is durable and hard to imitate.

The core capabilities that are obvious or members of the university most enjoy or admire may *not* be strategically relevant. Instead, they need to be those that its wide range of "stakeholders" (students, clients, partners, funding bodies, etc.) both perceive *and* value. Choices of where to be innovative and where to change or develop a new learning approach are complex – and should be based on a complex view of the added value of learning and its meeting university mission and objectives.

3.2.6 Differentiation of Learning Technologies

At the end of the first decade of the twenty-first century, it is unimaginable that innovation does not include technology of all kinds**.** We can distinguish between core and peripheral learning technologies. The core forms the basis of current activities that must be maintained, or changed, or ceased in a deliberate and planned way. Huge effort and investments are put into them and they do not present a high risk. But their uses need to be maximized for return on investment (ROI). Peripheral technology is on the "edge" and is not mainstreamed but is important for innovation.

For Leicester, the core technologies have grown in number, range, and importance over the first decade of the twenty-first century. These include systems such as the wired and wireless networks on campus and in halls of residence. Applications include the use of the commercial virtual learning environment (VLE, now Blackboard across all departments) and its integrated components, currently Adobe Presenter, Adobe Connect, Questionmark Perception, and Wimba, Plagiarism detection software along with blogs, wikis, podcasting software, private file storage, personal blog and wiki space, and the wide range of digital resources provided by the University Library.

Other core technologies are multipurpose but are also significant for supporting learning and include the Office 2007 suite. Then there 100+ specialist software applications within computing areas across the campus. Some of these could be considered "core" for a particular discipline or subject, e.g., GIS software for geography.

Peripheral technologies are not mainstreamed or centrally supported by the university. In universities, they come in and out of use typically driven by an individual academic, researcher or – nowadays – students. Such technologies are often considered "disruptive" (Sharples 2003), but they may act as catalysts for change and are good for small-scale experiments and pilots.

There also a wide range of new student-owned devices that have been developed for entertainment, leisure, or communication that bring advantages for learning such as mps3 players, e-book readers, and PDAs. The terms "Web 2.0" and "e-Learning 2.0" have become synonymous with this interactive, peer-generated, and collaborative approaches associated with newer Web-based programs. Some argue that the new possibilities of "social networking tools" are resulting in a fundamental shift in the way students learn, consume, and produce new artifacts. Many of the currently "peripheral to learning" technologies are not owned or controlled (nor can be) by the university. Evidence of their potential, pedagogical models, and relevance to learning and teaching are needed to help the university determine which are worth further development and application

3.2.7 Constant Innovation

In the university we have core generic (available institution-wide and typically centrally supported), core subject (essential for a subject or department and

typically maintained locally), peripheral generic, and peripheral subject technologies (usually part of a small scale research or pilot project. Some peripheral technologies may become mainstream over time so the strategy needs ways of including potential new technologies *and* preparing for the associated new staff and student capabilities. Importantly, the university need ways of identifying when a peripheral technology has become mainstream enough to warrant investment in making it core. It is also important to focus on building increased capacity for learning innovations and on looking ahead to potential and new learning technologies and their applications for learning and teaching.

3.2.8 The Challenges of Change

The University of Leicester has been very successful at adopting new technologies and pedagogies over the past 4 years in supporting learning. However, challenges remain.

There are two main ways in which learning innovation can be introduced into traditional teaching, whether on campus or at a distance. One is through large-scale centralization and provision of professional services. The second is more incremental, a little slower but gradually involving all members of staff to make their contribution. This involves the choice of easy to use technologies and investment in personal, course, and departmental learning. The latter has the advantages of developing capabilities for the longer term and keeping ownership with the academic departments and avoiding the setting up of expensive central support units. It was this model that we chose as most appropriate for Leicester from 2005 and it has resulted in very large-scale engagement and all corporate services units contributing and collaborating with academic departments. However, there is now a dearth of support in some areas of implementing innovations and a need to build coherent pathways of support from research to practice, innovation to mainstream, learning design to production of courses and programs. A (very) few departments have failed to engage with innovation, significantly disadvantaging their students.

Distance learning requires more up-front investment (compared to campus-based teaching) and a sustainable model over several years. Leicester has a new 10-process (10P) distance learning process in place which is currently being tested and developed; DL in a campus-driven university needs to be handled quite differently from campus-based face-to-face learning for scalability and success including a focus on learning, operational systems, learning support, learner focused resources, and appropriate use of technology. Implementation of the first e-Learning strategy was considered, along with a range of other initiatives, to have supported the maintenance and development of DL in Leicester in 2004–2009. In 2008, a new approach to DL was agreed (10P model). The ten processes are: (1) Proposal; (2) Planning; (3) Procurement of Resources; (4) Program Approval; (5) Pedagogic Design; (6) Production; (7) Promotion and Recruitment; (8) Presentation; (9) Performance Review; and (10) Program Termination.

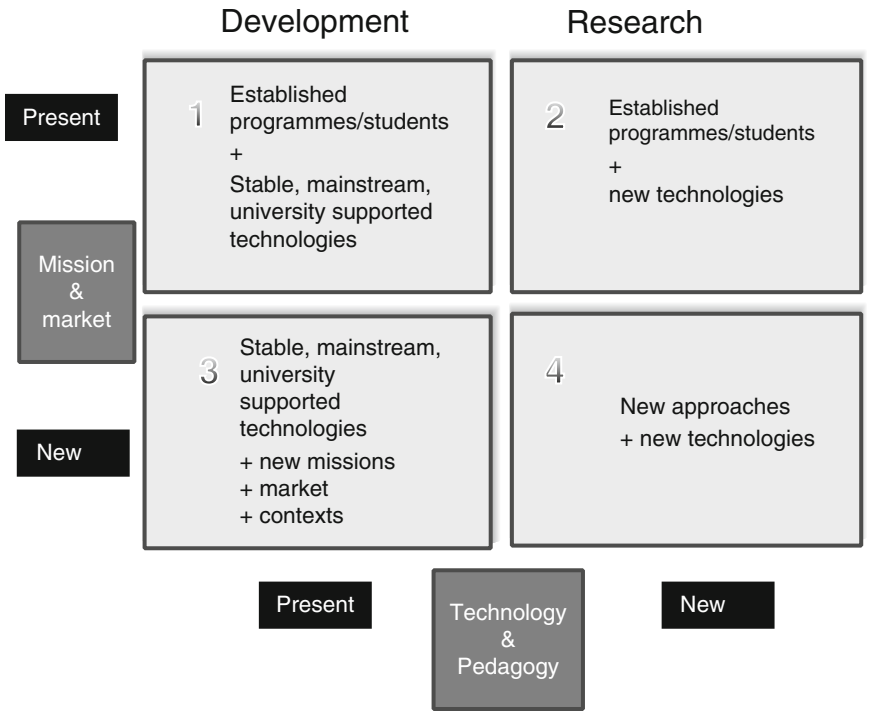

Fig. 3.1 The quadrant approach to learning innovation

The 10P process will be tested alongside the Learning Innovations Strategy and supported by it (Fig. 3.1).

- Quadrants 1, 2, and 3 represent the deployment of the University's existing core capabilities and capacity through incremental innovation.
- Quadrants 1 and 2 suggest deployment of the University's key strengths in teaching excellence but with adjustments to new technologies.
- Quadrant 3 suggests deploying the understanding of technologies already in place to promote business development, solve problems, and increase quality of all kinds.
- Quadrant 4 represents a more radical view of change using peripheral technologies, new products, new markets, and missions.

3.2.9 Quadrant One

The top left-hand quadrant of the matrix (mainstream technologies/existing mission) suggests ensuring continuous and rapid development of innovations in the University's mainstream provision of learning and teaching, together with

enhancing and extending students' learning experiences, achieving growth with the established technological products, and embedding them further into the teaching and learning processes. The purpose is to seek increased effectiveness and efficiency for staff and students.

3.2.10 Quadrant Two

The top right-hand quadrant (existing mission/new technologies) addresses the many new technologies available including the current movement toward open educational resources and open source and toward personalization and using student-owned devices. Most of the newer widely used devices such as e-book readers, smart phones, iPods, etc., have *no*t been developed for learning and need good understanding of potential teaching applications to be successful in new contexts. There are new understandings of the use of knowledge creation, sharing, and repositories that can be deployed. Many technologies can be channeled through the VLE but are not limited by the obvious VLE operations.

3.2.11 Quadrant Three

The lower left-hand box (existing/new) represents using e-Learning technologies to address different and new markets, missions, levels and disciplines of learning, and teaching (compared to now) but using the expertise and technologies already developed. For Leicester, for example, this includes cross-disciplinary work, outreach to less developed countries, and developing distance learning.

3.2.12 Quadrant Four

The lower right-hand box (new/new) is the most challenging, risky, and potentially rewarding. Research about e-Learning is being published and goes beyond the simplistic "what works" scenarios of stage 1 of technology introduction. Here "weaker" signals from the technological and learning environments can be brought forward for consideration and research. At Leicester, for example The Learning Futures Academy is providing a scholarly approach to the future.

3.2.13 Innovation to Mainstream Processes

The right-hand side of the matrix (i.e., quadrants 2 and 4) is associated with research projects, small scale pilots, experiments and developments, and bringing

forward evidence of the combination of a technology and approaches to learning that has benefit. This could be judged by student or staff feedback and by the development of pedagogical models that are transferable and shareable.

Built into the strategy there needs to be a decision-making process to determine which innovations fall into the category of "mainstreaming" and when. Criteria for this process can include a minimum of

- pedagogical models and exemplars
- examples of business models
- scalable benefits and requirements
- software and/platforms available to all appropriate members of the university with licensing, software download and support, and university systems allowing access
- links with and through the VLE
- helpdesk staff trained
- staff development/capacity building workshops offered
- student support from student services and/or library.

3.3 Implementation Partners for the Strategy at Leicester

Learning Innovation covers all modes and disciplines within the University and works in partnership with corporate services. This requires a sensitive and collaborative partnership approach, with appropriate leadership.

3.3.1 Learning Innovation Research

The Beyond Distance Research Alliance was established by the first strategy. It acts to bring together teachers and researchers interested in the field of innovation, from any discipline or level of education. It has an important role in bringing forward evidence for innovation and change. Internally it works in collaboration with departments and corporate services and has up to 15 relevant research and development (R & D) and/or action research projects running at any one time. Such knowledge has transformed the teaching and enhanced the learning of some programs. Month on month, year on year, more individuals and groups within the university have become involved in R and D in learning, leaning technology, and educational resources development.

Beyond Distance also offers an innovative approach to learning design based on a two-day workshop called "CARPE DIEM." It is has been researched and developed to encourage teams to work together on e-Learning design. It is based on a trained facilitator, discipline, and small professional teams and uses low-cost, high-value newer but mainstream learning technologies. For a full description of the model, see Salmon et al. 2008.

3.3.2 Communication Strategy

The Beyond Distance Research Alliance (see above) has set up an extensive communication approach based on the quadrant approach. It maintains a physical space just for staff to experiment, another for students, a Web-based communication area for its R and D projects, and a Second Life island. These are collective known as the "Media Zoos."

The Media Zoos were developed for the communication of the first e-Learning strategy to staff, provide an ongoing opportunity to experiment, and hear about research evidence that might impact on their teaching. There are now well-established modes of the staff Zoo with plans for a "Graduate Student Media Zoo." Web-based Media Zoo and all research projects can be found at: www.le.ac.uk/beyonddistance/mediazoo and on Second Life by searching for "The Media Zoo."

3.3.3 Human Resources (HR)

We recognize that capability and capacity building in the university cannot be achieved through "training" and that developing innovation close to the academics and the students is a big HR challenge. There is overall support throughout the HR department for the Learning Innovation Strategy and recognition that innovation impacts on HR from recruitment, promotion, staff development, and appraisal. HR support includes

- ensuring that an approach to innovation and creativity is considered from recruitment onwards;
- building learning innovation and exploiting new technologies into the university's developing staff competencies framework; and
- ensuring that all staff development and Continuing Professional Development (CPD) processes provide the essential underpinning to the Learning Innovation Strategy.

For example, The Academic Practice award provides CPD, rather than an academic hurdle, for all staff new to teaching in higher education. It is currently being revised to ensure that staff are introduced to the potential of learning technologies and innovative pedagogy while exploring the broader theory and practice of their work.

3.3.4 IT Services (ITS)

Some organizational changes and clarifications of role have now been achieved in relation to the way that support for DL and learning innovation is provided across the institution by ITS. Most teams within the recently established ITS are now

involved to some extent in the provision of the technology-rich learning environment at Leicester. For this reason, there is no one team that is called the "e-Learning team." This is a reflection of the extent to which the use of technology to support learning is thoroughly embedded. There are four teams, however, with particularly important roles:

- ITS Multimedia Services works on the design, production, and commissioning of material in Web, video, and audio media for both marketing and learning purposes. The group now includes a dedicated Learning Technologist who provides practical day-to-day help to academics as they exploit e-Learning technologies and who attends the Carpe Diem workshops run by Beyond Distance Research Alliance to ensure continuity of support as ideas and plans are taken forward by course teams.
- ITS Training and Communications includes a trainer who is dedicated to the training of academic staff in the use of mainstream learning technologies.
- ITS Academic Liaison ensures that every College has a dedicated person within ITS with whom they can discuss their broad plans and needs. This team has a wealth of knowledge about the services provided by ITS and how these can be exploited effectively to support learning.
- ITS Student Information Services runs the VLE itself.

Student Perspective: The Student Union (SU) is involved in and supportive of the development of the Learning Innovation Strategy. The SU provides

- representative on the Innovation to mainstream group,
- feedback and identification of innovation on Student Learning experiences, and
- support for Student Media Zoo.

Critically, every research project includes research and evaluation on the student learning experience. Students are also extensively involved in the Learning Futures Academy, to imagine the short-, medium- and long-term futures for learning at Leicester and beyond.

3.3.5 Learning Futures Academy

Beyond Distance has been focusing on learner voice and approaches to the future on a small scale through funded projects. It now needs to raise the profile of a scholarly approach to the future for learning to benefit in a more major and higher profile way.

The Learning Futures Academy will continue to position Leicester at the national and international forefront of learning innovation and student satisfaction by providing a highly supportive evidence service to senior managers, university teachers, and support staff, as well as further extend the growing reputation for learning technology research.

The purpose of the Learning Futures Academy at Leicester is to provide an ongoing evidence base and processes for implementation of innovation, changes, and developments for the University over the short- (1 year), medium- (2–5 years), and long-term (more than 5 years) future, associated with learning, teaching, and assessment. The Learning Futures Academy will sustain, build on, and extend the work of the Beyond Distance Research Alliance of The Media Zoos to encourage take-up and implementation throughout the university. It will enable much clearer processes of normalizing, embedding, scaling up in a cost-effective way, and *adopting* effective and efficient innovative learning, teaching, and assessment processes, with evidence-based feedback.

The Learning Futures Academy is constituted with an overall steering group including futures experts, significant representatives from other levels and areas of education, industry, alumni, and students for advice on direction, together with an Operational Group meeting frequently. The Learning Futures Academy has the support of senior management and their agreement that it can report into the University's Student Experience Committee. Beyond Distance has secured a funded project "CALF" (Creating Academic Learning Futures) to start off the process (see.www.le.ac.uk/beyonddistance/mediazoo/calf).

3.3.6 Evaluation Criteria

The success of "Leading the UK in terms of innovation in teaching and learning through the application of e-Learning" through the implementation of the Learning Innovation strategy will be judged in a variety of ways, in addition to the criteria for each individual R & D project. These include the following:

1. Student satisfaction and involvement
2. Direct investments in learning innovation
3. Dividends from investment
4. Attraction of research development funding
5. Numbers of staff involved in research to practice
6. Numbers of staff involved in learning innovation
7. Compatibility with the Higher Education Funding Council for England (HEFCE) revised e-Learning strategy

3.4 UK Policy Context

The HEFCE launched a new strategy in March 2009 called "Enhancing learning and teaching through the use of technology." It is designed to provide further support to HEIs as they develop their own e-Learning strategies, to prioritize

their technology-related investment over the next few years, and to develop appropriate institutional learning and teaching strategies.

The document suggests a framework focusing on pedagogy, curriculum design and development; learning resources and environments; quality; and research and evaluation.

John Selby, HEFCE Director (Education and Participation), said:

> Our emphasis is on recognizing that technology has a fundamental part to play in higher education, and that it should now reflect commitment from senior management in institutions within an institutional context. Our revised approach to e-Learning will contribute to the Government's aim to position the UK at the front of technology-enhanced learning internationally and continue to build a knowledge-based economy.

David Sadler, Director of Networks at the Higher Education Academy, said:

> The Higher Education Academy is pleased to have been involved in this review and the revised policy statement, and its emphasis on enhancement is one that highlights how technology can be used by practitioners to support students in their learning. It focuses on the benefits and the outcomes from using technology to support learning, teaching and assessment, which will be different in each institution, and could make a real difference to the learning experience of students across all higher education institutions.

Malcolm Read, Executive Secretary at Joint Information Systems Committee (JISC) said:

> JISC welcomed the opportunity to work with its partners to contribute to this review and suggest how technology can enhance teaching and learning to assist in the delivery of higher education institutions strategic missions. Part of this strategy is already beginning to take shape through the current investment being made in the open educational resources (OER) pilot*. This work aims to open access to high-quality education resources on an international scale. It shows a new approach to virtual education, and will help to maintain the UK's position as a global leader in online learning. http://www.hefce.ac.uk/pubs/hefce/2009/09_12/

3.5 Conclusions

This chapter has attempted to show that we do not need to drown in the complexity of options and instead can get some handle on identifying and working with the causes, consequences, uncertainties, and continuities about the future for learning from a wide range of stakeholders. We can then map them onto the interactions between pedagogy, technology, and student experience. Policy directions are recognizing the need to push responsibilities back to institutions for strategy and academics for decision making and design for learning. A more sophisticated and involved view of the "net generation" and its needs for learning needs to be taken, and I have tried here to demonstrate some of the ways this can be achieved. We need to go beyond "training" and development of staff' and into capacity building, partnership, and collaborations that are sustainable and beneficial for the future (Salmon et al. 2008).

I hope I have shown here that we need not be overly neither pessimistic nor optimistic above the future for learning in HE but instead need to start to find effective ways of being involved in setting its direction both in terms of incremental and radical innovation.

The failures to effectively forecast future developments typically fall into two main kinds: the very pessimistic and the very optimistic. There are also those that think everything is going to happen to everyone very soon, and others who think they can "park" their concerns because it won't happen in their lifetime. The reason we find it so difficult to achieve effective forecasting is that most people's thought processes are linear, whereas the "real big world" has complexity and adaptability and variability and crazy logic (Laszlo 2006). Forecasting the future involves not only in looking at potential directions, but also choosing carefully between alternatives and deliberately letting others go.

Chapter 4
"They had People Called Professors. . .!" Changing Worlds of Learning: Strengthening Informal Learning in Formal Institutions?

Jay Cross

Abstract Most human endeavors have changed so much that a visitor from 300 to 400 years ago would not recognize them: unless they went to a university lecture hall, where things would look much the same. Universities resist change. How can we become fit for shaping a changed world? How can we enable students to be able to shape a changing world in which we do not know if what we teach to them today will be relevant for their jobs tomorrow? When our children's children look back at the early twenty-first century, it will seem as primitive as Neanderthals seem to us. They might say "Hey, look, they had people called professors back then, who taught students safe answers to safe questions!" An essential endeavor for future universities is to configure the relation between formal and informal learning processes anew.

4.1 Introduction

Most human endeavors have changed so much that a visitor from 300 to 400 years ago would not recognize them: unless they went to a university lecture hall, where things would look much the same. Universities resist change. They are still working in many ways like they did hundreds of years ago.

Why do universities have to change? The answer lies in the change of societies around them. They are not separate entities. The nature and pace of change have developed and are faster today than ever. We have to enable students to improvise, to deal with new situation, to charter on change, and to make sense of change. How can we become fit for shaping a changed world? How can we enable students to be

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able to shape a changing world in which we do not know if what we teach to them today will be relevant for their jobs tomorrow?

Reflection and reflective development and learning are vital for coping with new situations and being able to take action rather than merely following and reacting. Without reflection, there is no learning. However, a second aspect gains importance: Along with the increasing rate of change, more and more things are interconnected. Today, we have an ecology of thought that spreads across many disciplines, fields of applications, and communities. Means from different fields are increasingly interrelated, and processes are more problem driven than disciplinary driven. Network artist or reflection professionals – that is what the vision of students coming out of university will look like more and more.

We need to be our own instructional designers and need to know how we learn and what is good for our learning and development. The lesser we can put those things we need to learn into a creditable course, the more those things we need to learn are between disciplines, lie in the social sphere of collaboration, and demand from students to build their own frames, meaning, and contexts and make sense of them. It is needed to focus on new competences, such as search competences and network competences,

When our children's children look back at the early twenty-first century, it will seem as primitive as Neanderthals seem to us. They might say "Hey, look, they had people called professors back then, who taught students safe answers to safe questions!"

Our world is changing fast, and the pace is picking up. Inventor and scientific sage Ray Kurzweil writes that the twenty-first century will contain not just a hundred twentieth-century-style years, but 20,000. Moore's law applies not just to technology, but to the entire human evolution.

An essential endeavor for future universities is to configure the relation between formal and informal learning processes anew. The chapter will show how universities can strengthen the informal and tie it to formal learning situations.

4.2 What is Informal Learning?

Informal learning is the way most people learn to do their jobs and to get along in the world. It's how you learned to speak English. It's how 10-year-old children learn more about personal computers than you ever will. It's how you learn to become a leader. Formal and informal learning are ranges along a continuum overall, not opposites. Sometimes they overlap. Formal learning is characterized by a schedule, a curriculum, and a measure of accomplishment. It's what comes to mind when someone mentions learning or training or education.

Formal learning is analogous to riding on a bus. Everyone starts at the same place, goes to the same destination, and arrives at the same time. This is very efficient. It's ideal for novices who need a foundation for understanding, for

learning the specialized vocabulary associated with any task, and for developing frameworks for pigeon-holing future lessons.

Informal learning is more like riding a bicycle. A person starts when he feels like it. If he sees another cyclist broken down by the side of the road, he stops to offer assistance. If he's hungry, he may detour to a restaurant. If he chooses to shoot for another destination, he does so. The bicycle style of learning is appropriate for experienced people who have already mastered the basics. They need to fill in a few holes in their tapestry of understanding.

Formal learning is classes, lectures, workshops, tests; its hallmark is that someone in authority is specifying the curriculum. Informal learning is everything else. Informal learning in the work setting comes from asking questions, hearing stories, watching someone do a task, trial and error, searching Google, talking with the help desk, conversation in the coffee room, deciphering a process chart, hanging out with people who know, taking advice from a mentor, writing and reading blogs, and dialog. Outside of work, you learn informally from your mother, your father, your siblings, your grandparents, and (in time) your children; your mates, your bridge partners, the people at the pub, your neighbors, television programs, gossip, old army buddies, and former classmates. Most learning is social.

Informal learning is so tightly woven into the fabric of life that it's easy to overlook. In the early nineties, IBM was in deep trouble as a business. Then-CEO John Akers admonished workers to cut the conversation at the water cooler and get back to work. He failed to realize that talking was their work. Informal learning is akin to intangible assets. Just because you don't see it doesn't mean it's not there. By and large, informal learning flies under the radar. There's no budget for it, no one is in charge of it, and few ever do a cost/benefit analysis (Fig. 4.1).

Study after study finds that at least 80% of how workers learn to do their jobs in informal. This is a knowledge economy. Intellectual capital outweighs fixed assets. Brains trump brawn. But you're not alone if you haven't been paying attention to it. Eighty percent of the corporate investment in learning flows into formal learning, yet 80% of the results come from informal learning.

Universities that leave informal learning to chance are paying no attention to perhaps the most important asset they have in their competitive arsenal. No one is suggesting the elimination of formal learning. Rather, advocates of informal learning encourage universities to leverage the power of informal learning by understanding it, leveraging it, and simply letting it happen (Fig. 4.2).

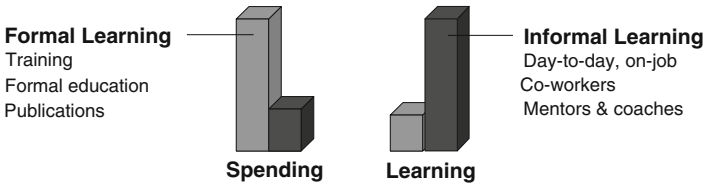

Fig. 4.1 The spending/outcomes paradox

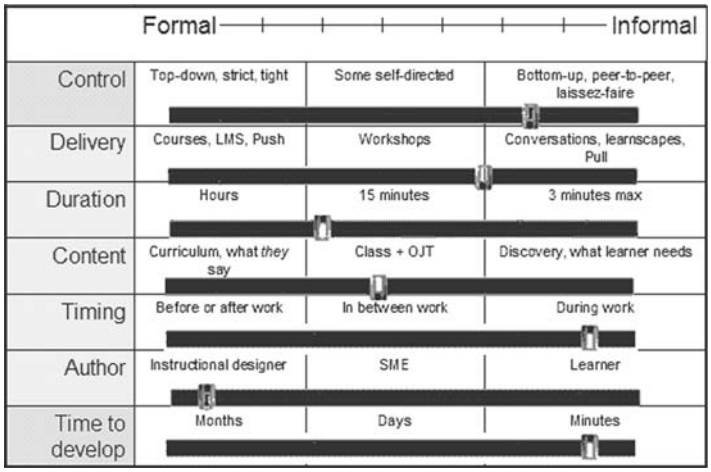

Fig. 4.2 The learning mixer

Informal and formal learning are not either/or. Rather, they are spaces on several scales. I don't know of any learning that's 100% formal or 100% informal. Formal learning is generally more appropriate for novices; informal, for experienced workers.

4.3 Accelerating Global Phase Change

Old-style training is obsolete before it's out the door. Everything is changing all the time. We live in an age of networks. Networks subvert authority. Information is power, and networks give power to the people. Organizational hierarchies are crumbling, and purposeful relationship networks are taking their place. The growth and self-organization of the Web are unprecedented in human history, but their major impact is yet to come. To-date, the Web has largely performed as a supplier of information. Websites were one-way media, like billboards, magazines, books, or television shows. Someone creates a website or resource; others look at it. The reader has little to say in the matter. This is like riding the bus of formal learning.

The Web is now becoming two-way. It's a "read–write" web. Participants can write, comment, join groups, give feedback, call up personal views of information, enlist services to alert them to events, make free telephone calls and online conferences, rate what they encounter so the good stuff rises to the top, and more. The web has become a vehicle for building and maintaining relationships. The array of options on the web is like the choices of the bike rider of informal learning.

The knowledge era rewards good thinking. Less than a100 years ago, workers were told "You're not paid to think." Now workers are paid to think. As they do so, they are assuming responsibility for decisions, for working with customers, for improvising solutions, and for making their time productive. For centuries,

Table 4.1 Learning vs. training

Old	New
Push	Pull
Training	Learning
Rigid	Flexible
Program	Platform
Mandated	Self-service
Formal	Informal

humankind has been accustomed to the opposite view, that knowledge is stable and can be passed along from one generation to the next, which authorities know better and are the natural source of know-how, and that workers will be more productive if they follow management's advice rather than their own. None of these is any longer true.

Change comes from the edges of an organization, not its center. Informal learning is "bottom-up." The goal of informal learning is to enable everyone to reach their full potential. Learning is our means of coping with change, and it is our route to survival and prosperity. These changes in the world call for entirely new approaches to help students to become competence for their futures, like Table 4.1 shows.

4.4 Creating Informal Learning: Learnscaping

Achieving the benefits of informal learning can't be realized within universities' senates solely. Well, perhaps a few changes can be made here and there, but the big turn comes from changes in attitude and universities' culture. Informal learning is more a worldview than a specific intervention. Who's in charge of ripping out cubicles and installing pool tables? Things like that undeniably increase informal learning but aren't the responsibility of a chief information or learning officer.

Informal learning is about situated action, collaboration, coaching, and reflection, not study and reading. Developing a platform to support informal learning is analogous to landscaping a garden. A major component of informal learning is natural learning, the notion of treating people as organisms in nature. Students are free-range learners. Our role is to protect their environment, provide nutrients for growth, and let nature take its course. Self-service learners are connected to one another, to ongoing flows of information, learning, and work, to their teams and organizations, to their collaborators, not to mention their families and friends.

Because the design of informal learning ecosystems is analogous to landscape design, I will call the environment of informal learning a learnscape. A landscape designer's goal is to conceptualize a harmonious, unified, pleasing garden that makes the most of the site at hand. A learnscape designer's goal is to create a learning environment that increases the universities' impact, longevity, and health, and the individual's happiness and well-being (Fig. 4.3).

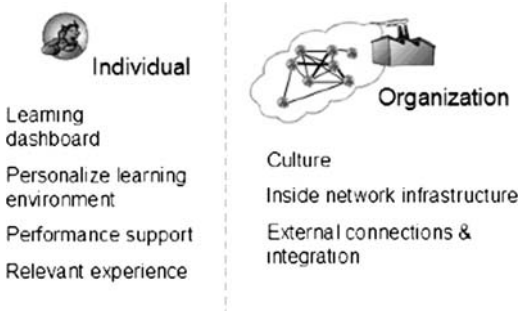

Fig. 4.3 Two sides of learnscapes

Informal learning is holistic. "Education is not my discipline" is no excuse for suboptimal learning environments and stressed-out students. Hence, learnscapes must address individuals. Helping everyone be all that they can be is not charity; it has to be a universities' goal. Gardeners don't control plants; educators don't control students. Gardeners and managers have influence but not absolute authority. They can't make a plant fit into the landscape or a person fit into a team. A learnscape is a learning ecology. It's learning without borders. You already have a learnscape. It's probably not all that it could be.

4.5 The Big Picture

Using visuals in lieu of words is an informal learning technique. After all, humans are sight-mammals, and we learn twice as much by appealing to both sides of the brain (Fig. 4.4).

Let's walk through a number of informal learning activities and concepts that come between the Great Wave of accelerating change (on the left) and the ascending path to greater performance (on the right). We'll take it one piece at a time (Fig. 4.5).

The most powerful learning technology, bar none, is human conversation. The give-and-take of humans conversing addresses both our needs and what we need to know. Conversation engages us. It shifts direction with our wishes. Credibility is built in. There is magic in it. Stifling conversation is generally a stupid thing to do. Facilitating meaningful conversation has the largest payback of any informal learning intervention but it's not as simple as you might at first think. Conversations require connections, and connections imply networks. As with any network, you work toward optimization. Are the right nodes hooked up? Is the bandwidth appropriate to the task? Are there gateways to other networks?

Networks self-organize, and sometimes the best way to encourage their positive growth is to get out of the way. Several CEOs ago, Hewlett Packard asked me to

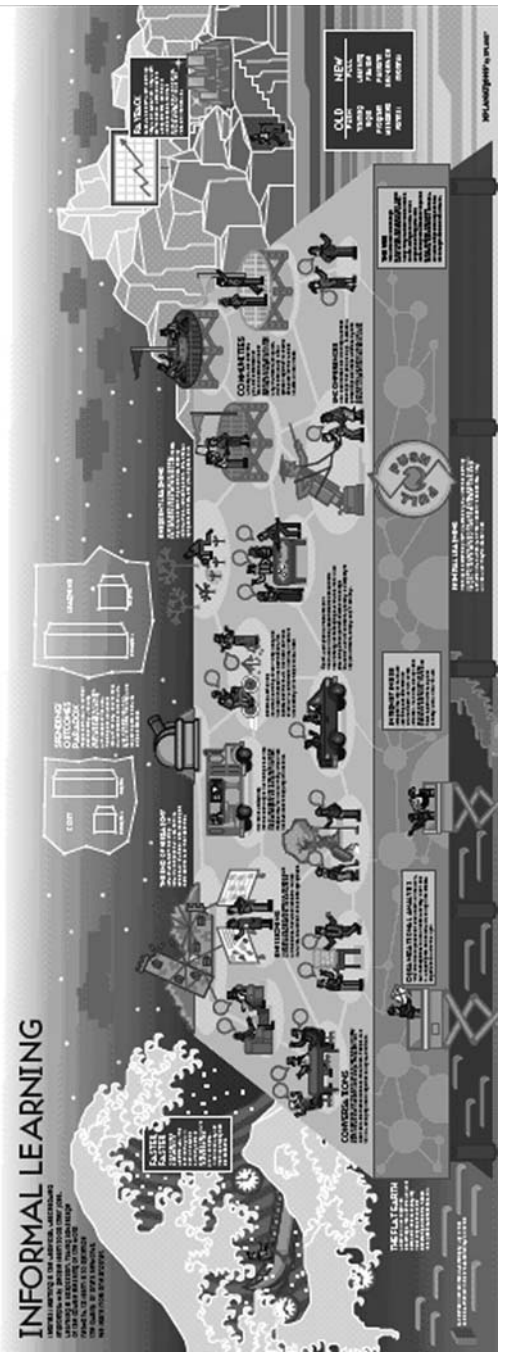

Fig. 4.4 Informal learnscape

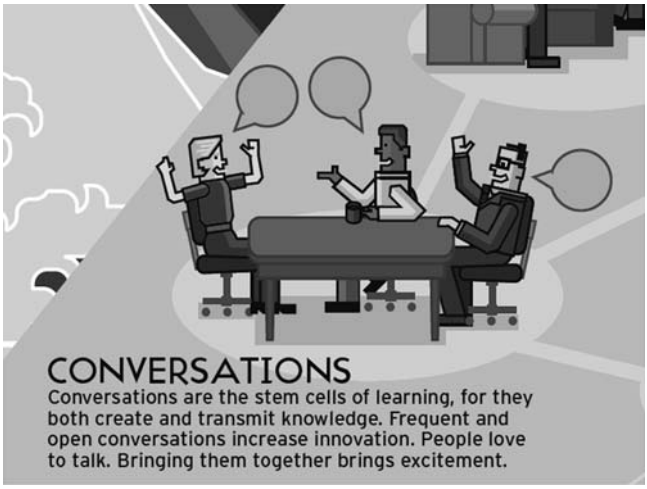

Fig. 4.5 Learning conversations

talk with a group of instructional designers. I was encouraging them to get people together, so they would naturally form spontaneous communities. The designers said they didn't know what to do. I could see out over a sea of hundreds of small cubicles. I suggested they replace a quarter of the cubicles with sitting areas with sofas and espresso machines.[1] Let's look at informal learning techniques, many of them designed to improve social connections and conversation (Fig. 4.6).

Learning is social. People learn from one another. Learning with others is human nature. Groups of people who identify with one another professionally form into loosely structured groups quite naturally. Be they chefs or customer service reps, they converse, share know-how, help one another solve problems, and help new members get up to speed quickly (Fig. 4.7).

Academic conferences and get-togethers become more participatory and improvisational. People attending conferences often report learning more in hallway conversations and coffee breaks than from formal sessions. Unconferences bring the talk from hallway back into the main conference room. An unconference begins with participants suggesting topics they want to present or hear about. The hosts post an attendance list for all to see. All this is generally coordinated on a wiki. Unconferences have a general theme but no set agenda and scant organization. Instead, the group collaboratively determines the direction of the gathering,

[1]Another Silicon Valley company had been pushing its 24 person development team really hard. The pressure had been on for months. The fact that it had relocated most of the team from Ireland, away from their families, made the situation worse. Emotions were running high. Fist-fights were narrowly averted. We set up a pool table outside the kitchen and stocked the fridge with Guinness. The team now had a place away from their computers to talk, blow off steam, and understand one another. The tension passed.

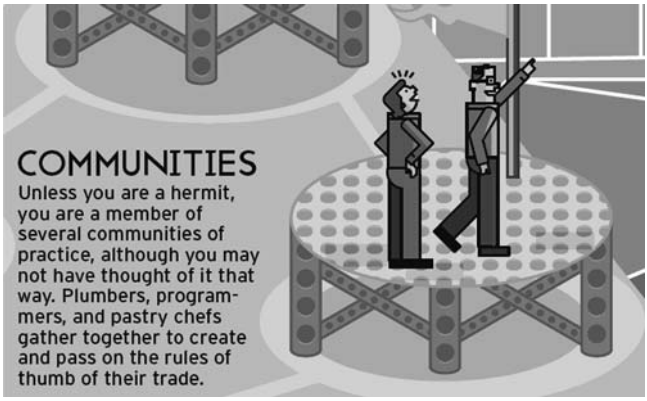

Fig. 4.6 Learning communities

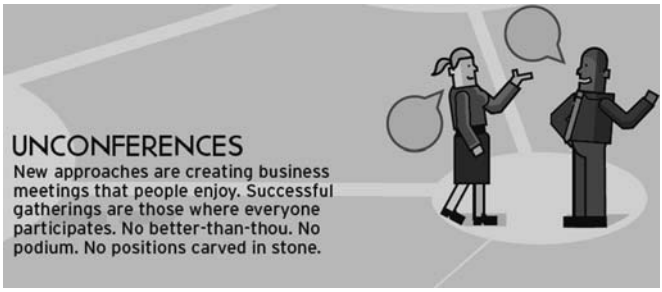

Fig. 4.7 Unconferences

creating an ad hoc agenda. There’s an organic, self-organizing, “bottom-up” feel to unconferences, which is why they appeal to software developers, many of whom are do-it-yourself-ers.

Unconferences do not have attendees and presenters; everyone is a participant. The assumption is that the people in the room know more than the people on the stage. Unconferences are born from people’s desire to share and learn in an open environment. They are intense events, chock full of discussions, demos, and interaction. The wisdom of crowds supplants the wisdom of experts. They maximize value for participants, not for organizers. They are often organized within a month and funded on shoe-string budgets. They replace slides with stories, information-sharing with collaborative learning, and instruction with discovery (Fig. 4.7).

The evolution of the Internet is partly shaping how work processes function and organizations think. Students have to be prepared to understand and lead these processes. People understand search; they know how to communicate instantly; they expect rapid responses. Corporate information technology is becoming more Web-like as it adopts service-oriented, modular, user-accessible architecture. New

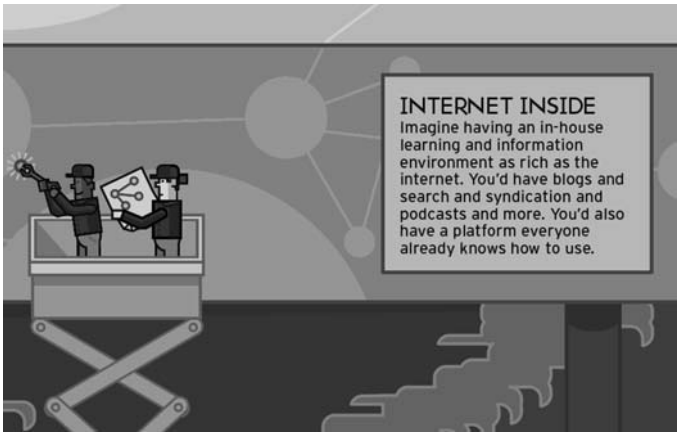

Fig. 4.8 Internet inside

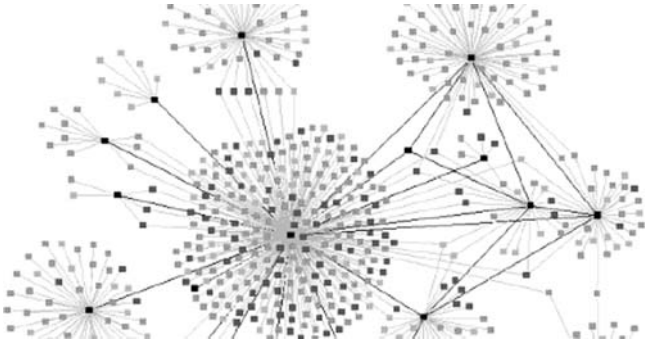

Fig. 4.9 Web 2.0

hires already know how to use browsers, blogs, wikis, and social software. Corporations in the vanguard are building in-house networks (intranets) that closely resemble the Web. Many of them run on variants of the same open-source software that powers the Web. Web logic enables them to put systems together incrementally, swiftly, and at low cost (Fig. 4.8).

Nothing virtual has the impact of face-to-face communication, but it's neither cost effective nor physically possible to bring people together in the same room for every interaction. The structure and tools of what is called Web 2.0 (Fig. 4.9) fit hand-in-glove with informal learning.

- *Email Lists* have been around for a long time but remain useful for coordinating group activities, sharing information, and archiving messages. Example: Google Groups.
- *Blogs* (weblogs) are Web pages that are generally created by a single individual, contain dated entries with the most recent on top, offer an option for reader to

make comments, and archive past entries in a searchable database. They require next to no technical expertise to set up and maintain and are often free. Blogs are a great way to share information.

- *Wikis* are collaborative websites. Any member may make or change or even delete any entry. One would expect chaos and vandalism but in fact these are rare. Wikis are an ideal tool for community building and sharing rules of thumb.
- *Web feeds* notify or deliver changes to blogs, wikis, or other digital entities on the Web to subscribers. For example, I receive a daily email with summaries of new things that have appeared on a dozen blogs I follow closely. Within an organization, Web feeds could enable a group of specialists to share news and project information.
- *Search technology* can work inside the firewall or on the open Web. No more looking for the needle in the haystack.
- *Podcasting* is like a blog in audio. Apple's iTunes service will capture and download podcasts into an iPod although you can listen to podcasts with any digital audio player. Portability is the major benefit of podcasts. People listen to them while commuting, exercising, or walking.
- *Tagging* is like sharing your bookmarks (or favorites) file with the world. You add informal keywords ("tags") to blog entries or articles you save for reference. You can see mine if I can see yours. When I look at the lists of tags and tagged material of someone with whom I share interests and vice versa, tagging becomes a social networking activity.
- *Digital video* was out of the realm of the novice at the end of the last century. Now it has become very inexpensive and simpler. Remember that talking-head video does not teach. Video is great for building technical skills or showing scenarios.
- *VoIP* stands for Voice over Internet Protocol. I use a service called Skype for all of my transatlantic calls and most of my domestic calls, too. If both parties are on the net, there is no charge. If I use my computer to call a regular telephone outside of my country, there is a minimal charge.
- *Instant messenger* (IM) first became popular with school kids who wanted to stay in touch with chums while doing homework. In many corporations, IM has largely replaced email and phone calls. IM is instantaneous. I send you a message; you reply in real time. IM frequently includes video as well as text.
- *Collaborative software* is any software that helps people work together. A typical package might include shared presentation space, shared screens, chat, persistent online office, and VoIP.

4.6 Conclusion

Universities are changing. They have to. More and more trendy terms come to surface: University 2.0, Networked university, and so forth. Whether these are the direction future universities will take, we do not know. It is clear that they have to

equip students to be self-directed and autonomous learners, reflective investigators, artists of networking and communication. It is also clear that most universities today are not positioned to live up to this challenge.

Strengthening informal learning opportunities make learners more autonomous. They become drivers of solutions rather than learners of problems. Web 2.0 provides a toolset which can be used by universities to start their path to become revolutionary leaders rather than staying traditional organizations.

Chapter 5
Transforming Universities

Roberto Carneiro

Abstract The article begins by proposing a theory of change to interpret and encompass the modern challenges of university transformation. Next, it moves into the discussion of four key levers of institutional change: the role of structure, culture, leadership, and governance. The last section establishes the relationship between effective transformation and meaning. In this respect, meaning is presented as the highest stage of a value chain moving upward from raw data and information to knowledge, learning, and meaning-building.

5.1 A Theory of Change

When looking into strategic change and innovation in higher education, we need to adopt a robust theory of change capable of providing the necessary analytical tools of interpretation. We propose using Kotter's framework to analyze change effectiveness (Kotter 1995, pp. 59–67). This conceptual framework consists of eight fundamental steps, which we shall describe in brief terms and illustrate by indicating major obstacles to University transformation.

5.1.1 Establishing a Sense of Urgency

Most change programs fail at this very first step. Resistance to change can reach dramatic levels at the outset of a reform policy, and comfort zones are extremely difficult to dismantle especially in organizations with a diffuse power structure.

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Universities are usually regarded as ultrastable homeostatic systems much more likely to rely on the "analysis-paralysis" attitude than on the "just do it" posture. Getting advanced learning institutions to understand the need of change and to establish a sense of urgency that is sufficiently strong to drive lasting innovation can be a formidable task. The drive to transform is commensurate with what E. Schein coined as the "anxiety of survival" (Coutu 2002, pp. 100–106) – unless such anxiety reaches a threshold level, universities will normally protract change for the sake of security or certainty.

5.1.2 Forming a Powerful Guiding Coalition

Effective change stems from a leadership of good will and solid commitment to shared objectives that grow over time. Seldom will sustainable renewal rely on the shoulders of a restricted apex of senior managers. This guiding coalition must normally motivate and mobilize nonformal and informal networks of people and create synergies among stakeholders. A clear strategy geared at the formation of a broad coalition of "change doers" is required. Difficulties to produce change and to overcome vested interests in universities cannot be underestimated. Change management alliances should cut across traditional boundaries and grant adequate voice to bodies that are not usually regarded as key players such as students and external actors. Excessive fragmentation of university fabric can work against the viability of strategic concertation and coalition formation.

5.1.3 Creating a Vision

A powerful vision reaches far beyond a mid-term plan or an outline of a strategic idea. Vision is a composite creature, made of a combination of dream, ambition, direction, analytical thinking, and realism, which go together hand in hand. Usually, an inspiring vision entails some form of institutional rebirth or refoundation. Alignment of resources and energies is the major consequence of a powerful vision. Transforming universities is to a great extent the challenge of building an inspiring vision. In order to reach a sensible vision, universities must nurture leadership: that is to say, a determination to produce change and to unfreeze somewhat deeply "frozen" cultures. Vision, alignment, inspiration, motivation, and new mental models are some of the outstanding ingredients of an effective leadership for change.

5.1.4 Communicating the Vision

Effective communication lies at the heart of lasting and meaningful change. Often, powerful visions fall short of motivating people because of a lack of appropriate

communication. Only credible leadership can deliver the inspiring message: change is urgent, necessary, and possible. Normally, change entails enduring short-term sacrifices and the willingness to move away from established practices. Communicating a transformative vision requires the ability to lead people to buy in a long-term perspective that is sufficiently attractive to make accept short-term sacrifices. Universities may prefer to act on strictly short-term gains, away from future-time perspectives that entail delaying immediate gratification. Hearts and minds of University faculty and staff are usually focused on maximizing immediate targets and getting over the near cycle of activities. As a consequence, challenging "short-termism" that could prevail among academics is the task of change agents and of true leaders.

5.1.5 Empowering Others to Act on the Vision

Successful transformation is never down to just one individual. On the contrary, the broader the constituency for change, the larger the numbers of stakeholders involved and the more likely it turns out that change will stick. Institutional renewal is the product of collective will and ownership. However, change momentum will arise only when people feel both inspired and empowered. Removing barriers to innovation and obstacles to participation in the overall movement towards change are necessary levers of meaningful transformation. Universities can be inorganic beings exhibiting anemic levels of social capital and trust. Therefore, sparking a collective aspiration to introduce innovation at the grassroots that is consistent with a broader transformative purpose requires an artful involvement of the different "orchestral components." Credibility is of primordial importance: this attribute is highly contingent on the ability to encourage others to act and take responsibility to effect change.

5.1.6 Planning for and Creating Short-Term Wins

Maintaining the momentum for change is a tricky job. Intermediate goals must be reachable within a reasonable time framework to nurture a feeling of achievement and to ensure a minimum threshold of enduring motivation. One key role of leadership will be to make evident outcomes and to celebrate the overcoming of hurdles that are meaningful milestones in a longer journey. Preferably, short-term wins can be visibly associated with recognition, premiums, or awards. An effective change plan encompasses analytical tools that lead into short-term goals. Moreover, a rewards system designed to encourage commitment toward achievement of tangible targets should be put in place. Tertiary learning institutions often underestimate the opportunity of running celebrative moments. Responsibilities are sparsely distributed, which makes recognition a tough job to undertake. However, change can be fun and measuring against the yardstick of concrete steps that are successfully completed is a good recipe for sustainability.

5.1.7 Consolidating Improvements and Producing Still More Change

Celebrating short-term wins should not be confused with early or precipitous declarations of victory. After the end of the war is officially announced, weaponry becomes heavy, energy undergoes a natural process of dissipation, the will to push further quickly erodes, and troops become weary. The danger is that transformation comes to a halt and the entire process risks reversal back to square one. Regression to the initial stage can be extremely detrimental to the institutional confidence to engage in new change experiments. Limited mandates in time horizons of universities may work against the consolidation of new cultures – the temptation to call the shots before change patterns are embedded fully into the university *ethos* is a common mistake especially when managerial continuity feels endangered. As a rule, important gains, however significant, remain fragile unless they are used to leverage further change.

5.1.8 Institutionalizing New Approaches

At the end of the day, change patterns must sink deeply into the organization avoiding any possibility of a return back to the initial state prior to the deployment of change efforts. Effective structural renewal is determined by a generalized awareness of benefits on which new behaviors and attitudes become "normal." *Declared* values, norms, and habits coincide with *espoused* and *rooted* values, norms, and habits. Both individual and corporate mental models shift to a new wavelength of social conformity, allowing the emergence of new ways of "getting things done." Universities are by design conservative institutions. This accounts for the fact that university corporations can easily offset innovative attempts and absorb most piecemeal change impetus. This is the case with particularly consolidated cultures, decanted over the passage of time and inherently resistant to change. The sheer fact that universities harness a great deal of "brainpower," which is a very distinct production factor, in contrast to the traditional "manpower" of the industrial assembly line, can be a liability to the extent that talent is often atomistic and inward looking. Notwithstanding, talent may also turn out a major asset provided leadership brings together the wealth of intellectual capital and fashions a powerful culture of change. Transformation is much more likely when this culture of change trickles down by capillarity to each and every portion of the university fabric.

5.2 The Role of Structure

Organizational structure is usually regarded as a potent determinant of the readiness to transform. The specialized literature on organizational typologies is rich and varied; one of the most acclaimed – and respected – descriptor of structural design

is the concept of "configuration" advanced by the Canadian academic Henry Mintzberg (1996). Mintzberg drifts away from the "one best way" approach, typical of a "scientific management" thinking, as well as from an "it all depends" theory, favored by a "contingency approach" to organizations. He prefers an architectural perspective on organizations that departs from six basic parts or components that may combine into different shapes or structural designs:

1. Strategic Apex (top management)
2. Middle Line (middle management)
3. Operating Core (operations, operational processes)
4. Technostructure (analysts that design systems, processes, etc.)
5. Support Staff (support outside of operating workflow)
6. Ideology (halo of beliefs and traditions; norms, values, culture).

Organizations, regardless of their particular design, have two opposing requirements: division of labor on the one hand, and coordination on the other. Mintzberg (2009) defines six basic coordinating mechanisms that are ultimate expressions of culture: mutual adjustment, direct supervision, standardization of work processes, standardization of outputs, standardization of skills, and standardization of norms (Fig. 5.1).

Thus, any possible configuration may be described as an aggregation, in different weights, of the six structural components compounded by specific cultures of coordination. Mintzberg proposes seven basic paradigms of organization: entrepreneurial, machine, professional, diversified, innovative, missionary, and political.

In line with Mintzberg's creative theory on organizational architectures, universities are primordially "Professional Organizations" (also called "Professional

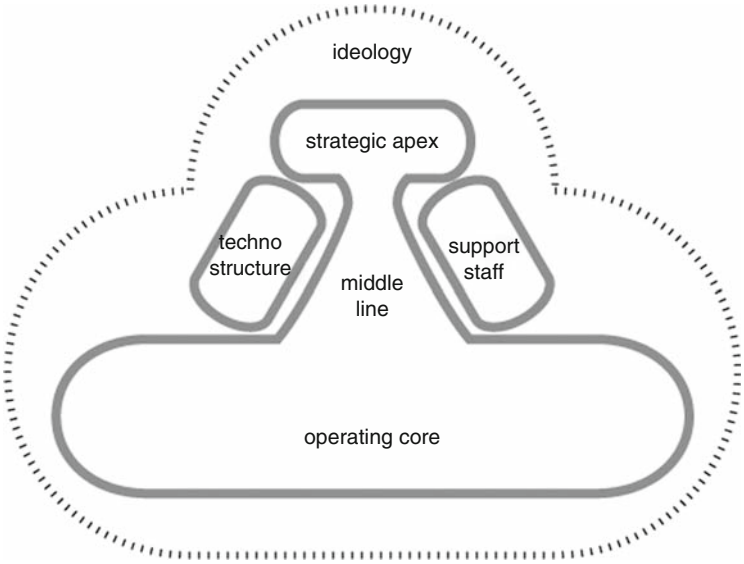

Fig. 5.1 Mintzberg's configurations, six structural components (Mintzberg, 2009)

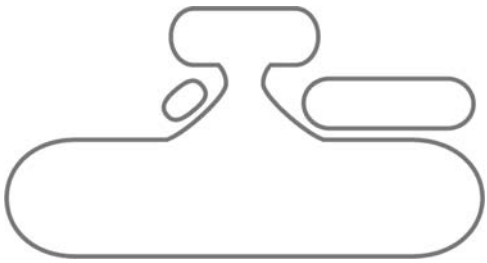

Fig. 5.2 Universities portrayed as professional organizations

Bureaucracies"). They rely on the standardization of skills, directed to standardized delivery of services to clients. Universities recruit highly educated personnel with a lot of influence and authority with respect to their own work. Faculty members perform their tasks independently, with few middle management, and a lot of support for the professionals. In short, universities tend to address complex and stable context and require a not regulating, not very sophisticated, but manageable technostructure (Fig. 5.2).

Empirical studies have thrown evidence on a set of difficulties displayed by professional organizations to unlearn old practices and to learn anew (Carneiro 2001). It does not come as a surprise to underline that universities epitomize one of the longest lasting guilds. Tradition throws its weight as a key force of conservation, and faculty members are well known to undergo great pains in order to maintain vested interests.

Research conducted on structural learning behaviors elicits professional organizations as examples of specialized learning involving highly skilled brainpower (Carneiro 2001). The constant pull to professionalize generates impediments to institutional change that stem from the rate of internalization processes to adopt new skills patterns or to renew ancient beliefs among professionals who perform their duties with broad independence and reduced accountability.

From this viewpoint, the challenge to transform universities coincides with the art of tilting towards change high-priced professionals who exercise considerable control over their work environments through powerful associations that select, protect, and co-opt membership with a good deal of self-government.

5.3 The Role of Culture

Broadly speaking, culture is a by-product of community, a reflection of how people relate to one another within an organizational habitat. These patterns of social interaction are a manifestation of shared interests and mutual obligations that tie together a multitude of organizational constituencies.

Organizations are increasingly seen as communities of people whose fate and happiness levels are closely related to the fate and happiness levels of the

organizations where they work and to which they pledge allegiance. Culture plays a central role in bolstering a particular organization's capacity to engage in innovation and to welcome transformation.

Goffee and Jones explain organizational differentiation through the lens of sociology. They analyze and plot two distinct dimensions of human relations within organizations: sociability and solidarity (Goffee 1996, pp. 133–148). In brief, sociability is a measure of sincere friendliness among members of a community. Solidarity/efficiency is a measure of a community's ability to pursue shared objectives quickly and effectively, regardless of personal ties. The result is four types of community: networked, mercenary, fragmented, and communal. None of these cultures is "the best" in the authors' assessment. Each is appropriate for different business environments. Goffee and Jones (1996, p. 134) express it in the following sentence (Fig. 5.3):

> In other words, managers need not begin the hue and cry for one cultural type over another. Instead, they must know how to assess their own culture and whether it fits the competitive situation. Only then can they consider the delicate techniques for transforming it.

Constantly adjusting the corporate culture to a rapidly mutant environment is the pivotal challenge posed to modern leadership. The authors place universities unequivocally in the fragmented quadrant: Low Sociability, Low Solidarity/Efficiency. The primary characteristic of a fragmented organization is its low consciousness of organizational membership seldom exhibiting the rites and rituals of high-sociable cultures. Professionals – notably faculty members – tend to work on their own and to discard accountability as mandatory requirement. Colleagues have difficulty in agreeing on common objectives and on critical performance standards. High levels of dissent may occur around vision statements and/or organizational priorities that collide with idiosyncratic work styles and professional autonomy.

Nevertheless, fragmented cultures may fare under a very specific set of conditions: when achieving high performance levels can be reached at the expense of interdependence; when innovation is driven by individuals; when standards are the result of input rather than process controls; when knowledge transfer and sharing takes place at highly decentralized levels.

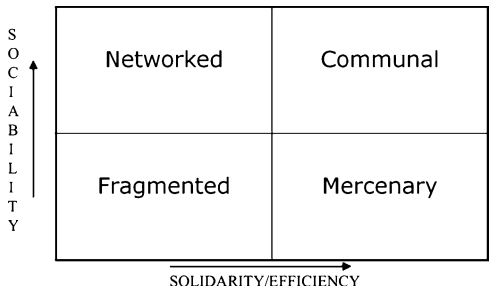

Fig. 5.3 Two dimensions, four cultures (Goffee and Jones, 1996)

We are fully aware of the danger of hasty generalizations. However, if some of the most common features of tertiary learning institutions lean toward cultures of fragmentation, there is a need for preventive measures and remedial actions to ensure that key change is not averted by adverse cultural conditionalities.

The move from fragmented to mercenary organizations is abundantly documented. In this case, change is catalyzed by an efficiency-driven reform that offers clear advantages to the benefit of key university groups and stakeholders. Right choices down this path are the consequence of effective communication combined with the creation of a winning culture that allows a full expression of individual values and preferences. The following challenge is whether, or not, universities would be able to move upward from mercenary to communal cultures of transformation and redemption.

While *cultures of resistance* will re-trench within close boundaries with a preference for "old" ideas and ways as well as risk-averse practices, *cultures of anticipation* will nurture experimentation, empowerment, emulation, and strategic thinking.

In sum, university "openness" would constitute a valid measure of the learning potential and a solid indicator of the institution's ability to cope with a necessary change momentum.

5.4 The Role of Leadership

The best-led universities are the best positioned to undergo transformation. By the same token, overmanaged and under-led institutions are less aware on the need to change and to adapt to new challenges. While leadership is the art of effecting change, management is about coping with complexity (Kotter 1990, pp. 103–111).

The problem is that universities are both "complex" institutions – demanding skillful management to introduce order and consistency – and highly "exposed" institutions to the rapid pace of change in information, knowledge, and globalization of talent. The net result is that tertiary learning institutions are faced with a double challenge: ensuring a high degree of efficient management and nurturing leaders and leadership practices that warrant decisive change whenever needed.

Kotters' article establishes a clear-cut distinction between one and another. While managers tackle complexity by minute *planning and budgeting,* leaders would cater for change by *setting a direction.* While management is concerned with *organizing and staffing,* leadership *aligns people* in the organization. While management ensures accomplishment by *controlling and problem solving,* leadership serves a vision by *motivating and inspiring* and appealing to peoples' values, emotions, and feelings.

Universities must find ways to train good managers and to develop excellent leaders at the same time. Zaleznik warns that what it takes to guarantee a good supply of seasoned managers may work against the development of great leaders (Zaleznik 1977, pp. 67–78). Likewise, the overwhelming presence of great leaders

may overshadow and undermine the role of managers who often find it difficult to cope with the degree of chaos and disorder that leaders typically generate.

Transforming universities is the primal role of leadership. But can universities create and develop cultures of leadership? Can leaders arise from the realm of "old" university cultures? Are university networks actively interested in tapping sources of new leadership and assisting in the emergence of bold "twice-born" personalities?

University leaders may have much more in common with artists, designers, scientists, and creative professionals, than they would have with managers who permanently seek to impose order and discipline in organizations. Universities that really seek transformative paths will do well to seek and nurture talented creative personalities who understand the urgency of change and the necessity of reaching out beyond the strict limits of the box. Leadership and change management is increasingly the art of moving beyond the possible and of releasing the innovative potential that lies beneath inertia.

5.5 The Role of Governance

Governance can be guided by different, even conflicting, sets of principles. For instance, if legality is the prime concern, then the main criterion orienting governance would be the *rule of law*. If managerial principles prevail, one would expect *efficiency* to emerge as the outstanding indicator of governance. If ethics champions above all other parameters, the overriding principles would touch on guidelines such as *codes of conduct and values*. Alternatively, if knowledge is the main attribute sought by governors and ruling bodies, *accuracy* becomes the metrics of good governance.

While seeking transformation, universities may elicit a distinct mix of guiding principles. Indeed, effective governance is by and large the ability to combine change and stability in complex environments. And, once the rule to address extreme complexity is self-organization, then effective governance demands unique competences to establish and communicate an inspirational vision while devolving the ultimate responsibility to enact the vision down to the grassroots of organizational networks whether formal, nonformal, or informal arrangements.

Having reached this point of reflection, it becomes evident that the philosophical foundation for leadership governance would be *wisdom:* a wisdom that rewards risk-taking, that provides proper incentives to experimentation, that tolerates failure, that understands the benefits of conflicting ideas and of adversarial debate, that has the ability to reconcile multiple interests, that pools wholesale knowledge in the university, and that negotiates change functions and distributes responsibilities at all levels of the institution.

Wisdom is not the outcome of intensive training, to the same extent that governance is not the product of numerous management techniques. Wisdom is

the juice of experience, the salt of life, the greatest gift an organization can expect to receive from its most mature members.

Universities in search of wise leaders: a motto that would constitute an inspiring policy and would lay ground for forward-thinking governance. These evolving institutions would keep morphing into successive stages of self-awareness, self-determination, and maturity: that is to say, that they take on board the challenge of climbing the transformational process conducive to the emergence of *learning organizations*.

The latter stages of this upward mobility elicit *generative learning* over mere *adaptive learning* as a goal: expanding capabilities rather than reacting to symptoms; enhancing creativity rather than responding to threats; finding new ways of looking at the environment rather than ducking risks; addressing underlying causes rather than addressing consequences; and thinking differently and anticipating futures rather than choosing flexibility as prime value.

The task of producing lasting change and ensuring quantum transformational leaps poses the formidable challenge of building a unified vision in an organization made up of qualified specialists.

Systemic thinking is the central attribute of learning universities. It is also the distinctive characteristic of the great symphony orchestra.

Over 20 years ago, Peter Drucker proposed a lively metaphor constructed around three types of organizations which in his expert judgment could be offered as advanced exemplars of the new twenty-first century organizations: the hospital, the university, and the symphony orchestra (Drucker 1988, pp. 45–53). All three are knowledge-based institutions composed of highly skilled specialists whose performance is constantly informed by feedback from colleagues, customers, and leaders.

When singling out the musical metaphor, he describes the unique functioning of a symphony orchestra in an enlightened and passionate way (Drucker 1988, pp. 45, 48):

- A large symphony orchestra is even more instructive, since for some works there may be a few hundred musicians on stage playing together. According to organization theory then, there should be several group vice president conductors and perhaps a half-dozen division VP conductors. But that's not how it works. There is only the conductor-CEO – and every one of the musicians plays directly to that person without an intermediary. And each is a high-grade specialist, indeed an artist.
- Because the "players" in an information-based organization are specialists, they cannot be told how to do their work. There are probably few orchestra conductors who could coax even one note out of a French horn, let alone show the horn player how to do it. But the conductor can focus the horn player's skill and knowledge on the musicians' joint performance. And this focus is what the leaders of an information-based business must be able to achieve.
- The quality of leadership exercised by a musical director and/or conductor is the core determinant of high-level orchestral performances.

- Additionally, the "intensity" by which the whole orchestra performs, which is a rare combination of knowledge and intuition in bringing the score "alive," weighs in the overall rating of artistic delivery.

Individual excellence coupled with team work – a function of the degree to which each musician is able to listen to the ensemble, without losing his/her personality – is a key factor in "transforming" personal talent, group/section cohesion, and orchestral alignment into a masterpiece of sublime musical interpretation.

Good – and wise – governance in universities may well find inspiration in the orchestra as paradigm. Effective change strategies are not dissimilar from timely and appropriate "orchestrations" of inner talents and energy pools that often subside under the diktats of university bureaucracies. And this predicament leads us directly into meaning as a fundamental asset for lasting transformation.

5.6 The Quest for Meaning

Meaning-making is part of our human predicament. Being human – in its deepest essence – seeks understanding of life and making sense of things. Our common pursuit of transformation is, no doubt, a search for meaning.

This is a world we no longer fully grasp and cannot control. The tension between our neat models of how the world works and our actual experience of its messiness is raising fundamental questions in key areas of human understanding. These questions challenge the place of consciousness and our core concepts of learning and put to test our educational designs.

The same applies to institutions.

No university can expect to find a path toward lasting transformation without embarking in some sort of soul-searching and value-added conducive to accrued meaning-making.

In past societies – stable, simple, and repetitive – memory dominated over project; principles were handed on as immutable; exemplary models were preserved as archetypes. It was the primacy of structure over genesis.

In the new society – unstable, inventive, and innovative – project is superimposed on memory; future dominates past; models are constantly questioned. It is now the primacy of genesis over structure.

The International Commission on Education for the Twenty-First Century presented its proposal for a set of *new learnings* consisting of four fundamental pillars: Learning to Be, Learning to Know, Learning to Do, Learning to Live Together (Delors 1996).

Learning to Be takes on the nature of a timeless priority, already recognized in the Faure Report in 1972, which takes on the inner journey of each and every one as a process of spiritual and existential broadening that bestows a final meaning on life and on the pursuit of happiness.

Learning to Know is a form of learning that lies within the scope of scientific and technological progress. This pillar appeals to the urgent need of reacting to the multiplicity of sources of information, to the diversity of rich multimedia content, to new ways of knowing in a society that is closely interconnected.

Learning to Do aspires at connecting knowledge and skills, learning and competence, inert and active learning, codified and tacit knowledge, and creative and adaptive learning. Learning by doing and Doing by learning[1] equip us to face an uncertain world and also the changing nature of work.

Learning to Live Together encompasses the extraordinary challenge to rediscover a meaningful relationship, to raise the thresholds of social cohesion, to make viable the sustainable foundations for community development. It contains the core values of civic life and identity-building within a context of multiple belongings.

To construct meaning is typically a culture-driven activity. As culture and its artifacts are products of both history and sociality, it is not surprising that by virtue of sharing its symbolic systems – our "communal tool kits" (Bruner 1990, p. 11) – education for meaning becomes embedded into the inner spheres of university life, drama, and transformation.

Universities must also better learn to learn to be, to know, to do, to live together.

In this respect, we advocate institutional transformations that aim at a complete value chain from raw data to information, knowledge, learning and meaning-making, bridging the gulf between information access, knowledge gaps, learning inequalities, and meaning-making disparities (Carneiro 2008, pp. 149–160).

This four-stage value chain allows ascending from a supply-driven information society to a demand-driven knowledge society. Moreover, getting stocks of knowledge accumulation to generate flux of learning is a subsequent path in the upward ladder of value creation. Finally, when learning and meta-learning ventures are capable of enhancing meaning to sort out complexity, institutions may well be equipped to fly above the "groundfloor of life" and dream with quantum leaps of quality in the direction of transformational paths (Fig. 5.4).

A truly inclusive education policy and purposeful learning strategy will overcome traditional dichotomies typical of a segregated long cycle inspired by an industrial mode of organizing school systems (Carneiro 2007, pp. 151–300).

Meaningful transformation can and will come alive when learning practices allow the ascending from simple to complex thinking, from the science of quantities to the science of qualities, from education as a product to learning as a service.

Are our universities willing to take the voyage of structural and holistic transformation?

[1]Landes provides a colorful description of a knowing strategy that was successfully applied by the Portuguese navigators in their fifteenth and sixteenth century voyages to the Indies in *The Wealth and Poverty of Nations* (Landes 1999).

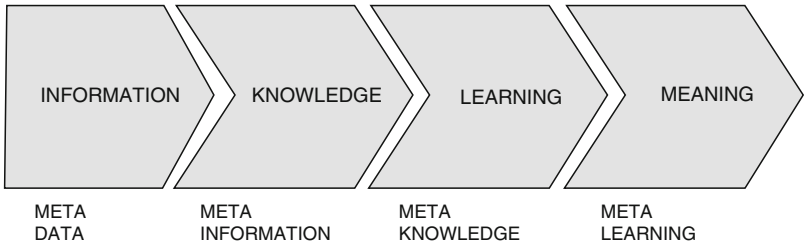

Fig. 5.4 Value chain of institutional transformation

An ancient Sufi proverb says: "To those who are already stirring, the morning bell is a call to awakening. To those who are sound asleep it is nothing but a nuisance."

Hopefully, our universities will listen to morning bells as an imperative to awakening.

Section A
New Strategies for a Culture of Change and Innovation in Universities

Section A presents a range of strategic approaches to support sustainable innovation in today's universities. The contributions reflect upon the underlying factors to implement a culture of change in universities, which combines top-down management governance and bottom-up faculty activities to facilitate the adoption of a technology-enhanced education. The creation of University 2.0 models depends on a holistic approach to change management, which identifies the main organisational barriers, enables an institutional change towards open and creative cultures and participatory decision-making, and creates an environment that allows unfolding the potential of established e-Learning tools and of web 2.0-based technologies for collaborative and constructive learning.

Chapter 6
Stories of Change: The University of Zurich, Switzerland

Eva Seiler Schiedt

The University of Zurich (UZH) is the largest university with the broadest range of courses in Switzerland.[1] The number of students in the Autumn Semester 2008 was 24,788, out of which, 56% students were women. They were studying at the Faculty of Theology (246), the Faculty of Law (3,519), the Faculty of Economy (3,055), the Faculty of Medicine (2,397), the Vetsuisse-Faculty (veterinary medicine, 650), the Faculty of Arts (12,015), and the Faculty of Science (2,906). The staff consists of 463 professors, 2,559 assistants and senior scientists, and 1,696 administrative and technical staff. They work in 160 institutes, seminars, and clinics in and around the city of Zurich,[2] most of them concentrated on three main campuses.

6.1 The Role of e-Learning at the University of Zurich

For the University of Zurich (UZH), the e-Learning era officially began in 1999 with an upcoming Swiss national e-Learning promotion program, the Swiss Virtual Campus, and with the institutionalization of a specialized e-Learning support center ("ICT-Fachstelle," since 2003 "e-Learning Center"). By 1999, a number of innovative professors at UZH using digital media for teaching and learning were already active. In 1998, the Vice-Rector for Teaching had initiated a survey among the university's academic staff to find out whether there were information and communication technologies (ICT) in use for teaching and learning within the faculties, how it was used, and whether there was a need to establish a support center for those activities. The results clearly showed that there was a considerable number of

[1] http://www.uzh.ch/about/portrait/portrait_en.html
[2] http://www.uzh.ch/about/portrait/figures_en.html

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professors active in and welcoming a centralized organizational unit to support their e-teaching activities.

6.2 Three Drivers of Change

Besides the individual motivations of professors to promote innovation, there were three major external drivers for change in teaching and learning at UZH:

1. First, the restructuring of curricula and study courses leading to a modularization of the courses, following the Bologna Process. Also, the Bologna goals of mobility and lifelong learning were explicitly formulated, opening perspectives that e-Learning could help handle those issues. Last but not least, there was the new requirement of assessing all modules of the courses, and there is hope that e-Learning methods will help handle the huge task by enabling e-assessment.
2. A second driver for change is the development of e-Learning itself, such as the opportunities for didactical improvement e.g., in large-scale seminars, or organizational improvement such as an effective management of teaching processes.
3. A third driver of change in teaching and learning is the requirement of quality management and quality development, both at the national and institutional level. All three of those drivers of change reinforce each other, giving e-Learning a chance to prove its usefulness.

6.3 How Did We Initiate Cultural Change in the Organization?

UZH organized its e-Learning Center together with other competence and support centers (for didactics, continuing education, study reforms, etc.) as a central service unit within a Vice-Rector's office. Thus, it was possible to provide services for all faculties equally. After a first phase of project funding in 2000–2004, evaluating the results was necessary to find out which scenarios worked best, and then, in consequence, it became important to find out about the concrete needs and everyday problems of the professors and the students in teaching and learning to design appropriate support and service activities. In 2003, the University Board adopted an e-Learning strategy, depicting the concept and setting the agenda for future developments. The board also decided about the funding and organization of the e-Learning support and its strategic control by an e-Learning Council, consisting of faculty members (today Vice-Deans for teaching the faculties).

The persistent problems of mass lectures, together with the new problems emerging with the study reforms, such as modularization, mobility, joint courses, quality issues, and assessment, just to mention some, opened fields of urgent action where e-Learning provides effective solutions.

Therefore, the e-Learning Center had to provide information (to publish in in-house media, to organize lectures, workshops and congresses, to lobby for e-Learning in meetings, to provide networking events, etc.). An important activity was then to motivate other organizational units to set up the necessary infrastructure (IT infrastructure such as a learning management system, networks, single-sing-on, students' hardware and software; Web-based information such as a central access page to Web-enhanced courses, enlarged didactical course portfolio with courses centered around e-Learning, integrated e-library services, etc.). Other activities included providing project funding, consulting, and courses for interested faculty members and setting up a network of e-Learning experts as support givers within every faculty enabling the central e-Learning Center to provide balanced services and support between the bottom-up and the top-down needs.

6.4 Three Recommendations

e-Learning experts often work in the context of a rather conservative institution, especially if working in a renowned, old, and successful university. In order to plan appropriate e-Learning support activities, aiming at initializing and accompanying an organizational and cultural change from traditional university teaching to an enhanced teaching and learning using the advantages of digital media, we suggest that you check the following recommendations:

- Before starting with the innovation process, make sure that you get the commitment of the leading management of the university. It might be a distinctive factor in favor of accepting the burden of a cultural change if you can cite your institution's leading management in the sense that it has the firm intention to support an innovative development in teaching and learning during the next few years.
- If you start to plan and implement new services, do start with an effort to find out where the problems of your future customers really lie. Listen to your clients and suggest solutions. As an e-Learning expert, you might be able to suggest an innovative solution your customer might never have come across of before.
- As soon as you do understand the needs of your institution and your stakeholders, set up an e-Learning strategy in line with the general, overarching strategic goals of your institution. An e-Learning roadmap with a step-by-step approach might be easier to accept than the presentation of a vision of the future university. Then concentrate your efforts to support projects that help to realize the goals of the e-Learning strategy.

Chapter 7
Shaping Learning Cultures: A Strategic Challenge for Universities

Dieter Euler

Abstract While there are strong stakeholders at universities arguing for increasing efforts to improve the research record, innovative actions for a corresponding commitment on teaching and learning are less frequent. In many cases, this issue is left to the discretion of individual teachers. In order to improve teaching and learning at universities, this approach does not seem to be appropriate. Rather, actions on different dimensions have to be organized, ranging from the individual, interactional, and institutional level of a university. The different perspectives on analysis and action are assembled in a construct called "learning cultures." This term covers the various dimensions impacting on student learning. The article provides a definition of "learning cultures," which will then be explained. Based on the explicated notion, a conceptual frame is put forward covering the key features of "learning cultures." Finally, some ideas are given providing some preliminary answers on how to shape learning cultures at the strategic level at universities.

7.1 Grievances and Lamentations

Grievances, lamentations, and complaints on "bad teaching" have a long tradition in higher education and come in many facets (Wissenschaftsrat 2008). Sometimes, language is traitorous: We talk about "freedom for research," but "teaching obligations." Incentives for conducting research are larger than those for excellent teaching, so it is hardly surprising that for many academics, creativity and energy flow into research rather than teaching. This is indicative of priorities and a difference in status and reputation: Universities strive for continuous innovations with regard to research findings, but they often follow tradition when it comes to

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teaching and learning. According to their self-concept, academics often teach subjects, not students. And with regard to their teaching, they are often interested in the knowledge structure of their discipline rather than getting to know how students learn and study today. Ask an academic on how she/he tries to get the main messages of the courses across: In most cases students will hardly be mentioned; they will talk about content and their own activities, but they will not comment on the way they think students ought to learn. Pedagogy then is on content and teaching rather than on students and their learning.

Correspondingly, the degree of professionalization and expertise on the part of the academic personnel is higher with regard to research than teaching. Teachers teach the way they experienced teaching by their teachers. That is why the practice of teaching often represents a prolongation of tradition rather than a culture of innovation. Offerings to improve teaching capabilities are available to some extent at many universities, but often not utilized by those who need it most. And sometimes, these offerings are not fine-tuned to the habits of their customers: Professionals such as professors are not keen on joining seminars and other events of formal learning; what they need are less formal opportunities to get feedback on their specific teaching behavior, provided by people they trust and respect.

In many faculties, one can observe a striking difference between the academic objectives displayed in the vision statements or the course descriptions and the teaching and assessment practices. They often preach high order cognitive processes, academic discourse, promotion of personalities, and test the ability to memorize and reproduce large amounts of content, content knowledge, rather than the ability to apply it for relevant problem solving.

What do students often miss? Research findings again and again point to the following areas (Bargel et al. 2008): They miss a substantial feedback by the teaching personnel; commitment, enthusiasm, and accessibility on the part of teachers; curricular coordination between different courses; pedagogical imaginativeness, academic challenges, and the experience of mutual respect in the courses.

But not all students really complain on disappointed expectations. John Merrow and Richard Hersh in their book "Declining by degrees" (2005) described something like a downward spiral based on a "non-aggression pact" between academics and students. Basically it works the following way: Teaching is presented on a pedagogically modest, but functionally still acceptable level. Academics promise predictable and manageable exams, so although students do not really feel adequately challenged, they do not complain as they feel comfortable to pass the exam. Expectations toward the quality of teaching remain low, but nobody bothers.

7.2 Who Generalizes, Generally Lies: Addressing the Right Questions

One could extend this list with many more considerations. But it is not my intention to paint a disastrous picture of teaching and learning at universities. Who generalizes, generally lies, so the different points raised may be true to some extent, but

they do not fully represent reality in other areas. Of course, universities are neither good nor bad – they are both at the same time. They have strengths and weaknesses, showcases and construction sites, good practices, and stubborn problems.

I do not want to play research off against teaching. In just the way that it is not a question each and every morning of either taking a shower or brushing one's teeth, it is not an either-or but an as-well-as situation. What I want to get across is: There are good reasons and even a high urgency to deal with the quality of teaching and learning with more rigor. Basically, there are two complementary reasons for that: (1) The environment and conditions for academic learning have changed – universities, students, and societal demands are different from what they were some time ago. (2) Academic teaching is not always up to the scientific knowledge with regard to adult learning and there usually is room for improvement.

Without going into depth, it seems to be evident that universities work under different conditions when compared to a couple of decades ago. The following catchwords may exemplify this transition:

- Universities have gradually moved from elitist institutions with a small number of homogeneous students mostly stemming from a privileged social background to an academic school with a large number of diverse students, many of whom have to earn their living while pursuing their studies.
- Due to technological changes, today's students of the so-called net generation (e.g., Oblinger and Oblinger 2005) pursue different avenues when it comes to information and knowledge that is available through literature, peers, and academic teachers.
- Despite intentions to the opposite, in many instances the so-called Bologna reform resulted in a more rigid curriculum driving students from course to course and exam to exam without leaving time for them to develop their personality. They are said to be better trained for working life but they lack creativity, innovativeness, originality, and individuality. Critics put forward that today's students have become passive customers in a market-driven world of higher education, demanding what fits best in their CV. This may sound exaggerated, but it indicates that today the student population enters university with a different set of values and expectations.

Although the context of modern universities has changed drastically, we still stick to study concepts which were introduced under different circumstances. For example, the classical German concept of unity between research and teaching, which dates back to Humboldt, worked all right in times of elitist universities but works no longer for the mass universities of today. Circumstances have changed, but pedagogical approaches still persist and evolve only slowly.

In order to move to constructive discussions, I would like to put forward the following questions:

- How can we formulate the educational ideal of high-quality teaching and learning (later referred to as "learning culture") at universities in a more precise manner?

- How can we contribute to the evolution of learning cultures at different levels within a university? How can strategic management in particular contribute to the advancement of learning cultures at universities?

7.3 Prescribing and Describing Learning Cultures at Universities

Mostly, discussions on teaching and learning at universities happen within a prescriptive frame: Advocates put forward their view on how teaching and learning at universities should take place. For example, proponents of a Humboldtian university regard learning as a way of exploration and research, teaching as a reflection of the own research, and the interaction between students and researchers along the lines of an apprenticeship. In contrast to that, modern learning theory contrasts old and modern perspectives on teaching and learning as a so-called paradigm shift. Conveying knowledge, directed learning, instruction, delivering answers, focus on teaching etc. are characteristics of the old perspective, whereas facilitating problem solving, self-regulated learning, collaboration, sharing ideas, focus on learning etc. represent a modern perspective on education.

One could quote many more such approaches outlining a prescriptive notion of teaching and learning. Each approach would provoke a discourse on what reasons the underlying normative position deserves support or rejection.

I am going to take a different route. I would like to suggest a term covering the various dimensions impacting on student learning and which can be used both for descriptive and prescriptive purposes. The term to be introduced is "learning culture." First of all, I will provide a definition, which will then be explained. Based on the explicated notion, I am going to elaborate on it by putting forward a conceptual frame covering the key features of "learning cultures."

"Learning culture" catches the view on and the attitude toward "good" learning, realized by actors on the individual, interactional, and institutional level of a university. A "learning culture" cannot be observed directly, but it may be derived from artifacts, symbols, actions, etc. serving as indicators.

Based on that definition, some further explanations may be useful:

- Put simply, learning cultures catch the view of different stakeholders at a university on how learning should ideally happen. Thus, they address an inner disposition which cannot be observed directly.
- In relation to universities, learning cultures can focus on different aspects: (1) The learning of students. (2) The learning of staff, i.e., the faculty, researchers, and administrative personnel (in analogy to the employees of an enterprise). (3) The organizational learning of the university. The following considerations refer to the first aspect mentioned.
- The etymology (lat. colare = to care, to cultivate) indicates that cultures grow and develop and that these processes can be promoted from outside. From this, one can derive three components of meaning: (1) What direction should the culture develop into? (2) How can the development be supported? (3) How do these processes of development take place in detail?

- Learning cultures focusing on student learning can be described and shaped with regard to three different dimensions. On the individual dimension, there are theories that either cover and typologize learning strategies and habits of the students (Isler 2006) or that focus on statements about characteristics of young people that are important for their learning (e.g., Prensky 2001; Oblinger and Oblinger 2005; Twenge 2006). On the interactional dimension, approaches emerge that derive from models and concepts of an ideal image of learning and teaching. As research tells us in many examples (Reusser 1995; Scheerens and Bosker 1997), the quality of interaction between teachers and students has a major influence on the result of learning. On the institutional dimension, there are different approaches exemplified by the terms "learning organization" (Senge 2006), "organizational learning" (Kluge and Schilling 2000), "organizational energy" (Bruch and Vogel 2005), or "corporate learning culture" (Sonntag et al. 2004; Friebe 2005). Organizational factors such as the appreciation awarded specific types of learning, resources devoted to it, incentives provided etc. also may have an effect on the learning processes of students.
- The question of how to define "learning cultures" more precisely is closely connected to the methodical way of grasping cultures. Thus, Neubauer (2003, pp. 73 ff.) distinguishes between the research strategies of the culturalists and the functionalists. While the culturalists in essence prefer ethnographic methods and regard the grasping of a culture as a form of casewise understanding of meaning, the functionalists' approaches pursue the idea that, starting from conceptual differentiations and operationalizations, specific cultures can be measured and quantitatively gauged.

The following conceptual frame should serve as a starting point for further elaboration on the construct of "learning cultures (Fig. 7.1)."

In this chart, learning culture is approached from three different perspectives: The institutional dimension takes up the views on learning by those responsible for the general conditions for teaching and learning at the university. This includes their expectations as well as the formal and informal regulations governing teaching and learning. The interactional dimension grasps the view on learning by those involved in the processes of formal teaching and learning activities in the programs and courses at the university. Finally, the individual dimension captures the view on learning by the individual students.

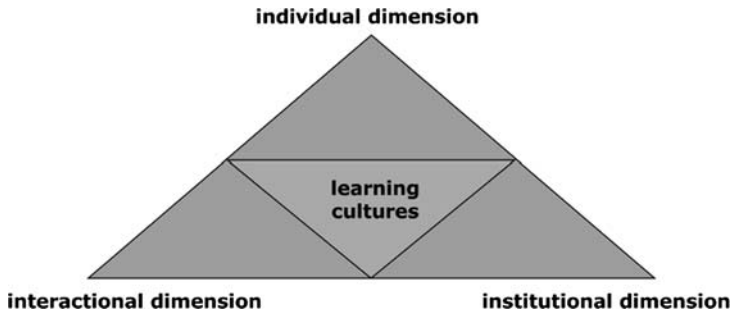

Fig. 7.1 Conceptual frame "learning cultures"

The following points need to be emphasized:

What ultimately counts is student learning and the results in terms of learning outcomes.

- The result of learning depends on the specification of the several dimensions, which in sum make up the learning culture within the university as a whole or within a faculty or in one of the various programs offered at the university.
- One step further, the conceptual frame is to be extended to provide a set of indicators making up the criteria to be used for analyzing learning cultures on a more concrete level.

The following charts provide some examples of further specifications regarding the three dimensions of learning cultures. Although they represent some degree of elaboration, they are not meant to be exhaustive. Each specification needs further elaboration, as they are all based on relevant theories. At this point, they are introduced as a heuristic frame to both illustrate the underlying line of argument and to inform reflection and further thinking (Table 7.1).

7.4 From Reflection to Action: How to Shape Learning Cultures on the Strategic Level at Universities?

The different dimensions of learning cultures not only provide a framework for describing the practice of learning within higher education institutions, but also, at the same time, they offer a lever for potential interventions addressed to changing existing learning cultures.

With regard to the different dimensions pointed out above, learning cultures may be an object of change efforts which involves different stakeholders on department, faculty, or university levels - such as students, teachers, program managers, leaders, and managers. Basically, the redesign resulted in less instructive but more complex courses (e.g., 6 ECTS rather than 2–3 ECTS), and less frequent but more challenging exams. Basically there are five different areas for strategic interventions:

- A comparatively soft area is interventions that raise the awareness for issues of teaching and learning at the university. Statements on different occasions may make people aware that there are certain expectations to be met and that there is still something to be done in order to fulfill these expectations.
- The area of empowerment addresses the requirement that the advancement of teaching and learning practices needs support in formal and informal ways to level up the teaching competences and practices, ultimately resulting in different ways of learning.
- Incentives are indirect ways of influencing the commitment of the teaching personnel to work on the improvement of their teaching practices.
- Interactive leadership addresses the fact that the support and encouragement for teaching should be ingrained in daily leadership practices and experiences within an institute or chair.
- Finally, the structural frame impacting on teaching and learning practices needs deeper consideration.

Table 7.1 Dimensions of learning cultures

Individual dimension	*View on/attitude toward learning from the individual perspective of a student . . .*
Learning motivation	Intrinsic vs. extrinsic
Definition of own role in the learning process	Self-responsible/proactive vs. consumerist/reactive
Expectations toward learning topic	Deep learning vs. surface learning
Primary learning mode	Actively constructing knowledge and competences vs. processing information
View on own learning	Reflective vs. episodic
Interactional dimension	*View on/attitude toward learning effective in social interaction within the learning process . . .*
Learning objectives	Meaningful vs. irrelevant for personal circumstances
Learning outcomes aimed at	Complex problem-solving competences vs. reproduction of learning content
Target setting within curriculum	Open corridors vs. narrow objectives
Learning tasks	Challenging vs. nondemanding
Knowledge structures	Coherent vs. fragmented
Consolidation of learning experiences	Sustainable vs. elusive
Mobilization of teaching support	Pull vs. push
Dedication of teachers	Enthusiastic vs. functional
Learning ambience	Encouraging vs. dull
Relationship student–teacher	Participatory vs. hierarchical
Use of media	Supportive vs. dispensable
Learning spaces	Flexible vs. rigid
Timeframe	Flexible vs. fixed
Evaluation/assessment/monitoring students' work and progression	Devoted to personal development vs. social selection
Institutional dimension	*View on/attitude toward learning expressed by the leaders and managers in charge of setting the context for learning within the university, a faculty, a program, etc. . .*
Awareness toward quality of learning processes	Outspoken vs. neglected
Appreciation of teaching and learning issues	High vs. low
Encouragement for bottom-up initiatives on innovative approaches to teaching and learning	High vs. low
Empowerment of teaching capacity	High vs. low priority
Faculty development	Demand driven vs. supply driven
Induction of new faculty	References to teaching quality vs. administrative issues
Experience sharing among faculty	Organized vs. accidental
Incentives for innovations in learning	Elaborated vs. missing
Introducing young academics into teaching	Systematic vs. by accident
Regulations for pursuing teaching and learning	Loose vs. tight
Quality assurance in teaching and learning	Development driven vs. control driven
Exams	Geared toward development vs. regarded as a selection instrument
Extracurricular commitment of students	Rewarded vs. ignored

Table 7.2 Instruments for influencing learning and teaching in universities

Awareness	Empowerment	Incentives	Interactive leadership	Structural frame
– Programmatic messages (vision statements, etc.)	– Formal offerings for faculty training	– Resources for innovative teaching projects	– Assignment in new areas of teaching (job rotation)	– Teaching points compensating for demanding requirements on teaching and assessment
– Putting learning issues continuously on the agenda (committees, media, etc.)	– Informal support for faculty (e.g., coaching, counseling, expert's feedback on exams)	– Initiatives for excellence in teaching (e.g., awards)	– Teaching as an element of annual target agreements	– Policy on quality development
– Commitment of the leadership (e.g., in speeches, interviews)	– Providing teaching materials and media	– Privileged access to attractive areas of teaching	– Coaching by superiors	– Teaching record as criteria for employments, promotion, etc.
	– Networks, sharing of "good practices," quality circles	– Highlighting and certifying outstanding courses	– Regular feedback on teaching and lectures	– Defining learning outcomes for programs and courses
	– Communities of practice (also with external participants)	– Sabbaticals to be used to develop demanding courses		– Assigning resources considering special needs for teaching
	– Analyses of courses in student's projects, feedbacks to teaching staff			

What follows is an overview on the potential instruments available to university leadership for influencing teaching and learning. From left to right, the influence exerted increases (Table 7.2).

In order to exemplify, some cases and examples on strategic initiatives taken up at the University of St. Gallen are introduced. These are not necessarily meant to provide the best practices, but approaches to be discussed and ultimately to be learned from. From a range of current projects, three strategic initiatives with reference to learning cultures will be selected:

1. One project is called "concentration of programs." Triggered off by the experience that students face a curriculum forcing them to attend up to 7–9 courses during a term, each one to be completed with an exam, a pilot was set up with the objective to redesign the study programs. The intention is to change the existing learning culture that results in a busy student schedule and predominantly surface learning toward providing a structural framework that allows for more self-regulated, in-depth studies. Basically, the redesign resulted in less but instructive more complex courses (e.g., 6 European Credit Transfer and Accumulation System (ECTS) rather than 2–3 ECTS) and less frequent but more challenging exams. At the same time, courses were adjusted to provide a higher proportion of self-organized learning facilitated both by tutors and professors. Starting from the well-founded assumption that the exams govern the aspiration level of a course (e.g., Shepard 2000), much emphasis was put on the development of exams addressing complex and demanding competences. Consequently, additional resources for developing and grading such exams were provided (although some academics state that it is not proportional to the additional workload generated). The strategic initiative was meant to compensate for some of the problems following the Bologna reform. It aims at improving the quality level of both studying and assessing. The new concept was tested in one of the Bachelor's and one of the Master's programs and is now on the verge of being transferred to other programs. One of the lessons learned is the fact that the incentive and resource structure have to be taken into account when introducing pedagogical innovations. As long as resource allocation does not value investments in teaching, it remains with the individual professor to decide whether he changes his teaching practice in line with the strategic initiative.
2. Therefore, another strategic initiative introduces a new system of resource allocation. Each school has the opportunity to receive an additional 5% on top of their regular budget by improving in self-defined areas. Thus, the school has to define objectives, operationalized by indicators, to be achieved over the coming years. There is a formal agreement on these objectives between the President of the university and the Dean of the school. Additional resources will then be provided if these objectives are met. As regards the objectives, each school is basically free to choose them according to its strategy. There is one constraint, however, namely, that the objectives have to address the four main strategic areas for the advancement of the university as a whole. One of the four areas is the development of quality teaching and learning. In order to obtain the additional resources, the school has to define pedagogical objectives and then invest some effort to reach them.

3. Another type of strategic initiative works in a similar way. In order to create excellence in defined areas, the university funds a limited number of so-called lighthouses. Each lighthouse deals with a particular topic and strives for international recognition based on an independent assessment. Again, it is up to the school to decide what topic is appropriate and who is going to take responsibility for the initiative. Each school may propose such lighthouses, and some may focus on excellence in research areas while others may deal with the ambition to advance certain programs up to an outstanding level of quality, addressing the pedagogical profile of the program.

To give one final example, almost every university puts forward some effort to evaluate its programs and courses. Often, student evaluations are an integral part of these efforts. Up to the point of collecting the student views on the course and to inform the teachers on the results of the course evaluation, everything runs more or less in a standardized way. The key issue is what to do with results on the teaching performance of faculty members much below average. On one hand, something has to happen, as students only take such evaluations seriously if they lead to discernable consequences. On the other hand, this is a sensitive issue, as effects may be counterproductive if faculty members are simply condemned and dispraised. It is highly likely that they will not invest their energy in the improvement of their teaching performance but rather carry out symbolic actions and regard the whole issue as a matter of strategic communication with the intention to shift away the blame from themselves.

So the message resulting from critical student evaluations is not to denounce or even stigmatize the teacher, but to provide additional resources to reconsider and possibly improve the teaching performance. Among others, two approaches are taken at the University of St. Gallen: (1) A colleague is selected to assist as a critical friend in discussing the concept of the course, attending some sessions, and providing feedback. (2) A focus group of students is set up, also attending some sessions and providing detailed feedback on the teaching approach.

7.5 Stopping, but not Finishing ...

The advancement of quality in teaching and learning at a university requires approaches at different levels. "Learning culture" may provide a conceptual frame integrating initiatives and changes at the individual, interactional, and institutional level. The considerations put forward in this article are meant to further develop this construct in order to embrace different aspects and stimulate both analytical and practical ways of advancement of teaching and learning at higher education institutions. Of course, the approach taken here requires further elaboration and, most of all, a transfer into concrete research and action designs.

This contribution describes the meal, but it does not provide the recipe on how best to cook it. As with any good meal, there are many ways to make it delicious. It may take some time to discover the right ingredients and taste for a specific university – that is why I stop without finishing the topic.

Chapter 8
Faculty Development in Context: Changing Learning Cultures in Higher Education

Mònica Feixas and Franziska Zellweger

Abstract At present, research on the effectiveness of initial training programs for novice faculty is limited, and results fail to offer apparent evidences on the impact of such programs in changing teachers' practices and, at a larger scale, teaching and learning cultures at universities. In addition to faculty development initiatives, the wider organizational context should be considered in order to foster transfer of acquired teaching competences into teaching practice. In this article, we suggest a conceptual framework that includes a description of prevailing teaching cultures in European higher education; a discussion on what we mean by faculty development and its relationship to teaching cultures; a definition of learning cultures; and a framework of the environmental factors affecting learning transfer. Among the outcomes, we expect to adapt Holtons' model to the higher education context and design a set of instruments to identify primarily environmental factors influencing the impact of faculty development. Results might show the necessity to pay greater attention to the conditions under which novice teachers teach, the importance of peer and coordinator support, and all aspects that contribute in the end to changed teaching and learning cultures in higher education.

8.1 Introduction

In recent years, many higher education institutions (HEIs) have put faculty development centers into place to assist faculty in improving their teaching skills. Still, there is widespread lamenting about the quality of teaching. Many centers focus on training for a "new" learning culture in which students acquire relevant

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competences instead of memorizing content and take responsibility for their own learning and in which frequent and meaningful interaction between students and faculty is standard.

Although there is some research that evidences the effectiveness of university teachers' training and a range of positive changes that occur in teachers' approaches to teaching and their students' approaches to learning as a result of a pedagogical or initial training program (e.g., Gibbs and Coffey 2004), often faculty members face cultural and structural barriers to more seriously invest into the quality of teaching.

'The aim of this article is to discuss which organizational factors need to be carefully analyzed when studying the impact of faculty development in shaping learning cultures in higher education. Faculty development can promote changes in university learning cultures, but its contribution is dependent on what faculty finally implement in their teaching practice. In order to better understand such relationships, intermediate steps need to be explored. First, faculty development's primary role is to contribute to the enhancement of a teaching practice among higher education staff that is responsive for effective student learning. Faculty development can "touch" the university teaching culture because it has the potential to shake many consolidated routines and beliefs. This raises the second question of how a particular teaching culture can be adopted by faculty, especially by novice teachers. Learning transfer is mediated by many factors that may hinder or promote effective teaching practice, and this practice can change learning cultures if appropriate conditions and measures are set. The organizational factors can serve as a catalyst or barrier for the effectiveness of faculty development.

This article is not a report of an empirical study but rather provides an introduction of a research design about to be realized. The project follows the frame as outlined in Fig. 8.1.

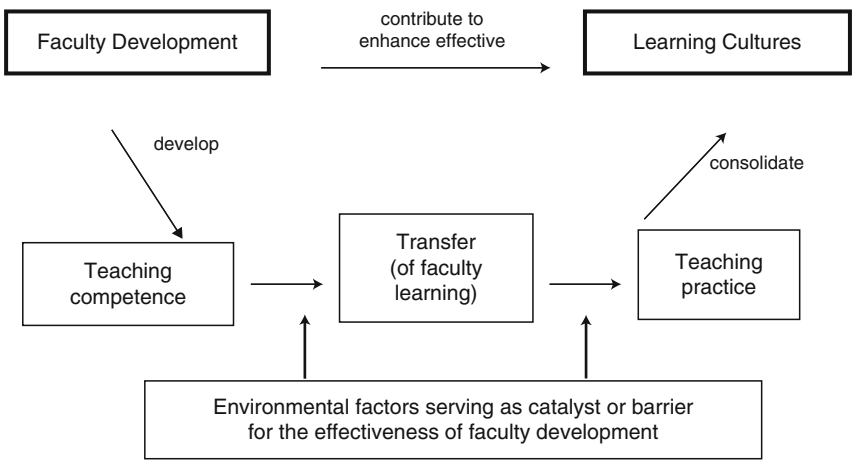

Fig. 8.1 Conceptual framework of the research project

These are some of the questions that could be addressed.

- What is the state of the art in research on faculty development effectiveness?
- How can faculty development programs promote a particular teaching culture?
- Is it possible to have faculty in HEIs changing their teaching and learning concepts through faculty development? Is it possible to engage more faculty in improving their teaching competences?
- What are the environmental factors influencing transfer of faculty learning to their teaching practice?
- To what extent do teaching practices consolidate a particular learning culture?

Taking this framework as a reference, we narrow our focus on environmental factors. The topics that we cover in this article are related to the changing context of teaching in higher education, the contribution of faculty development programs in shaping the new learning culture and, in particular, the environmental factors that may serve as catalyst or barrier for its effectiveness.

Therefore, this article is structured as follows: First, a case is made for the urgency of a more comprehensive approach toward faculty development by describing how teaching has proved to be remarkably stable although significant societal changes exert influence on the work of faculty. A cultural approach is suggested to overcome this inertia. Then we discuss the important role of faculty for the quality of student learning and provide an overview of the current state of faculty development and how its impact is measured. On this basis, then, in line with a cultural perspective, a more holistic approach is suggested discussing an instrument to measure learning transfer systems. We conclude with an outlook on what can be expected from a data-driven approach to impact the teaching culture in higher education.

8.2 Teaching in Higher Education

Higher education is facing new challenges that are influencing the way faculty teach and students learn. These changes put, among others, deeply rooted practices into question such as placing the teacher at the center of the learning process, the individualistic organization of work, and the use of innovative resources. In this chapter, we highlight some of the current challenges for teaching and discuss the consequences for the role of faculty and their work.

8.2.1 New Challenges for Teaching

The environment for teaching and learning in higher education has changed drastically in the past decades. In the following, some fundamental societal developments and adjustments of the higher education systems are described to argue for a need of rethinking of higher education teaching and learning cultures.

8.2.1.1 Massification of Higher Education/Widening Access and Participation

In a system of mass education with 15–50% participation of an age group, higher education is no longer seen as the privilege of an elite but as the right of many. Universities have taken on the task of preparing students for a career in professional life, and together with the democratization of knowledge, access to higher education is widening. Teichler (1996, p. 97) identifies two important factors responsible for the increasing student body: (1) the scientification of employment and work and (2) the fact that the recipient of higher education is no longer member of a social elite.

However, during this transition universities did not change their fundamental principles and modes of operation, although the increasing student numbers imply an escalating workload for professors in order to deliver high-quality teaching. Simultaneously, the incentive structure has not been adjusted and professors still get evaluated almost exclusively on their achievements in research (Boyer 1990).

8.2.1.2 Changing Student Characteristics

As universities are widening access to a greater number of students, diversity of all kinds increases. In many university systems with an open access from secondary to higher education, there is an increase of nontraditional students (Choy 2002). The challenge for faculty is to cater for the diversity of students' learning needs while enhancing quality learning outcomes for a greater number of students.

Today' students are part of the so-called Net Generation; usually people younger than 25, who are "busy instant messaging, blogging, downloading music and videos, and playing video games with an international network of friends and acquaintances" (Moore et al. 2005, p.11.1). According to Reinmann (2007), this exposition to technology also alters student learning. Despite being considered digitally literate, the Net Generation might not possess the full complement of the knowledge and skills they need to use technology wisely and well.

8.2.1.3 Technological Innovations

Technological innovation such as the invention of the Internet and the ubiquitous accessibility to personal computers and mobile devices have had a fundamental impact on how information is created and distributed and how people interact in the business as well as in the personal sphere.

Enthusiasm for the potential to improve education through technological innovations and the later disenchantment is a recurrent feature over the past centuries (Gumport and Chun 1999, pp. 6–7; Reiser 2001). Although since the advent of the Internet the use of technology in education has exploded, critical voices expect a similar fate for e-Learning as it has occurred with earlier technological achievements in education (e.g., Cuban 2001; Zemsky and Massy 2004). Reiser (2001, p. 62)

concludes that over the next decade, computers, the Internet, and other digital media will bring greater changes in instructional practice and place additional demands on faculty; however, these changes are likely to come about more slowly than most media enthusiasts predict.

8.2.1.4 Bologna – Implied Challenges

In recent years, virtually all European faculties have been involved with adjusting their courses in shaping Bologna-consistent curricula with the aim to create a more transparent and permeable European higher education area. Beyond this temporary burden, the new curricular structures seem to have effects on the work of the faculty (Kehm and Teichler 2006; Reichert and Tauch 2005; Crosier et al. 2007):

- It is observed that there is an increase in assessment activities, as every module needs to be closed with usually a summative exercise (e.g., test).
- Where modularized and flexible curricula were implemented with a considerable degree of freedom of course choice, faculty deal with more heterogeneous student groups as study paths become more differentiated.
- The internationalization agenda of Bologna faces the faculty with an increasing demand of English teaching.

8.2.1.5 Accountability/Autonomy Issue

In many countries in Europe, quality management procedures have been installed in the process of giving HEIs more autonomy. Along with the massification of higher education and tighter state budgets, HEIs face the pressure to demonstrate efficiency regarding all their activities (Huisman and Currie 2004). It is this environment that gives rise to systematic course evaluation (e.g., Marsh and Roche 1998; Rindermann 2003) leading to transparency of faculty's achievement in teaching. Accreditation of quality teaching, as has been research, is now on the university's agenda.

All these trends have affected teaching in higher education, and faculty members are expected to adjust their work style.

8.2.2 Steady Teaching Cultures

Taking these fundamental changes into account, it needs to be stated that the way of teaching and learning in HEIs over the past decades proved to be remarkably stable. Teaching and learning cultures in research universities have been dominated for a long time by students attending lectures and seminars held by faculty. Emphasis has been on the acquisition of knowledge transmitted from professor to students and students passively receiving information. Teaching is primarily about the delivery

of information aiming at the coverage of the discipline and students listening, reading, and engaging in independent self-study. It is focused on the delivery of courses, and only to a limited degree, faculty take on the responsibility for the resulting student learning. This teaching-centered model fails to address current challenges in higher education. Despite diverse disciplinary needs, goals and, thus, approaches to teaching and the enormous engagement of a considerable part of university teachers, among pedagogical researchers it is uncontested that a more student-focused model is necessary.

Barr and Tagg (1995) raised the discussion of a need to shift from teaching to learning in higher education, a learning paradigm focused on a student-centered pedagogy. In this sense, teaching is about "creating environments and experiences that bring students to discover and construct knowledge for themselves" (Barr and Tagg 1995, p. 3). It is the professor's role to coach and facilitate learning in a cooperative, collaborative, and supportive culture (Allen 2004).

The confrontation of a teacher-centered versus a student-centered model of learning often goes hand in hand with the promotion of normative stances of "good" teaching. Furthermore, the discussion in general takes place in reference to a formal university course. But, when we take the student perspective seriously, we have to explore student learning experiences more broadly taking into account, for example, the requirements raised from multiple courses in a semester and also consider informal learning along with formal learning. Jenert et al. (2009), in an attempt to capture relevant dimensions and indicators of learning cultures in higher education in a nonprescriptive way, point to further relevant issues such as the curricular design of courses (learning objectives, learning outcomes, student–teacher relationship, management of time, media and spaces, assessment, etc.), the accessibility of faculty, peer networks for learning, or the consistency of norms and values they perceive to be important at the HEIs.

Even though many know what is desired, why is it that instructional practices prevail? One possible argument is that changes in teaching cultures, as well as any other cultures (organizational, learning cultures…), come across very slowly as they imply inferences on knowledge, values, and norms for action of teachers and managers.

What do we know about how teachers acquire a cultural repertoire in teaching? How is it possible that teachers share certain feelings or views of their work? How do the norms that govern teachers' interactions with students, administrators, etc. evolve?

There is no easy answer to these questions: We know that, according to Feiman-Nemser and Floden (1986):

- There exist many teaching approaches**:** Teachers teaching *students* and teachers teaching *subjects*.
- Research on the teaching and learning cultures is not easy due to the diversity of the teaching and student population.
- Practical knowledge is difficult to describe. Teachers or researchers do not have an adequate vocabulary for describing it, much of which is tacit.

- Knowledge, beliefs, attitudes, values, norms, the focus of teachers' culture, cannot be directly observed.

Teaching cultures are difficult to change, and even the external pressure mentioned, shaping learning cultures needs more than faculty development. In order to move from a teacher-centered to a more student-centered pedagogy, a more holistic perspective is necessary to understand why faculty seem to be reluctant to change their practice. We suggest taking a cultural perspective to better understand the drivers and barriers to a changed teaching practice as well as the characteristics of the learning culture to be achieved.

8.2.3 A Cultural Approach to the Study of Learning Cultures

There is an abundance of literature dealing with the question of how to create a "new" learning culture within an individual course (e.g., Achtenhagen 2004, in the German speaking context, or Zabalza 2002 in the Spanish one) or at the level of the disciplines (Huber and Morreale 2002; Lindblom-Ylänne et al. 2006). However, it needs to be stated that many efforts to change teaching practice accordingly end in talk, and the traditional learning culture with all its shortcomings is very persistent.

Next we attempt to define learning cultures and identify its main characteristics and areas of influence:

According to Euler (2008), there is yet no coherent concept to specify teaching and learning cultures at universities (see also Chap. 7 in this book). One could narrow its definition by stating that the teaching and learning culture is the conveyance of a number of common values, norms, beliefs and attitudes of the institution, programs, people who considerably influence the perception, decision, and action of the organization's teaching and learning processes and find expression in physical manifestations as well as in artifacts an symbols such as new curricular resources, innovative teaching projects, publications on teaching and learning, etc. (adapted from Sonntag et al. 2004).

Collie and Taylor (2004), define learning culture as (1) processes to promote learning and (2) a climate of openness, trust, and collaboration to support learning. James and Bloomer (2001) use the term learning culture "to include the time and space within which learning occurs and, also, those persons or material conditions whose presence impinges upon learning whether they are the subject of formal prescription or not. It thus includes conventional class meetings of recognized student groups and their tutors, but it may also include work experience, private study, recreation, family life, personal relationships and other cultural experiences" (p. 9).

Furthermore, learning cultures are influenced by the wider context of the educational community. To Hodkinson et al. (2007), learning cultures are not only influenced by the communities from which learners come, but also the life histories, dispositions, and practices of learners and staff. In addition, learning cultures are

not just shaped by the learning relationships within organizations but also by the relationships between the organizations and the wider world of higher education.

In the study of learning cultures, James (2002) adverts about the negative consequences of locking the term culture to a particular academic disciplinary traditions. If we want to understand cultural activity (such as the production of meaning), "we must develop explanations that cross, link or disrupt disciplinary boundaries" (Wertsch 1998, p. 5). Learning cultures transcend disciplinary territories to recognize the contribution of everybody's cultural and intellectual perspectives in the enhancement of students' learning.

An understanding of the *habitus* of the learner (in Bourdieu and Passeron 1990; Bourdieu and Wacquant 1992; in James and Bloomer 2001) can contribute to the comprehension of the ways in which the experiences and practices of both students and faculty are shaped, and shape in turn the learning cultures which emerge. "Habitus can be seen as social structures operating within and through individuals, rather than being something outside of us" (Hodkinson et al. 2007).

Finally, Hativa and Goodyear (2002, in Entwistle and Peterson 2004) indicate that the design of a teaching and learning environment to improve quality learning can show different pedagogic traditions in each subject area, which are built up over time within each specific academic community. The course design is, therefore, affected by past departmental practices and the resources made available by the institution. As a consequence, choices on the content and teaching methods, as well as the environment provided for the students, are affected by the university teachers' subject knowledge and their knowledge and beliefs about teaching and learning.

Having reviewed different approaches, the following are *key characteristics* of the term learning culture:

1. A learning culture is seen as a part of the organization's culture. An organization culture "ties into bundles a number of common values, norms and attitudes, that considerably influence the perception, decision and action of the organization's members and find expression in physical manifestations as well as in artifacts and symbols." (Sonntag et al. 2004, translation by author).
2. A learning culture can manifest itself on different levels of aggregation which can be a point of reference to analyze or design teaching and learning: the institutional level identifies influences on teaching and learning from an organizational point of view and the didactical level focuses on the pedagogical interaction, whereas the individual level puts the experiences and practices of individual students and faculty at the center of interest (Euler 2008).
3. Within an organization, learning cultures consist of shared and contested meanings whose perpetual evolution lies at the very heart of learning processes. They are developed partly through a negotiation with rules, norms, and expectations associated with the wider higher educational organizational culture (James and Bloomer 2001).
4. Learning cultures are influenced by the communities from which learners originate, and their life histories, dispositions, and practices (Hodkinson et al. 2004).

5. They are characterized by a high level of synergy, an important element in securing change within a learning site (Postlethwaite and Maull 2007). Synergy is possible when there is a learning relationship based on communication and interaction (Mayes and Crossan 2007).

The definition of Hodkinson et al. (2007), who consider that learning cultures are about the relationship between how people learn and the contexts or setting in which they learn, is useful in this research project. Learning cultures are rooted into deep assumptions, practical knowledge, implicit norms, and individual beliefs, which are not always clearly manifested. However, learning cultures transcend the individual dimension to include the group dimension (where students learn influenced by peers, other teachers, and nonteaching personnel) and the organizational dimension (related to the promotion of a clear teaching and learning strategy).

8.3 Faculty Development Shapes Learning Cultures

In the earlier sections, it is argued why a new learning culture is needed. Faculty plays a key role in changing learning cultures. Thus, this section explores the role of training programs, in particular training programs for novice teachers, to support faculty in changing their practice. Furthermore it is explored how the effectiveness of those efforts is assessed.

8.3.1 Faculty Development for Novice Teachers

Historically, faculty development was associated with professional growth of faculty within their respective disciplines. In today's higher education climate, greater attention is paid to teaching effectiveness. Faculty development began moving in this direction in the 1970s. In the 1980s, teaching and learning centers were established on campuses, focusing on the development of faculty and their teaching expertise (Lawler and King 2000, p. 3). Today, most research universities have teaching and professional development centers staffed by full-time professionals (Rhoades and Sporn 2002, p. 16) and participate in wider national and international networks.

One of the core activities of the faculty development units is the organization of a training program for novice faculty or teaching assistants who wish to develop their skills and become more effective teachers. The programs usually feature workshops related to the planning, development, and evaluation of teaching and learning strategies in higher education. Methodologies are based on collaborative strategies, and assessment is usually continuous and by means of a final portfolio. Material resources may include cases, audio and video

podcasts about teaching topics, video journals created by new teachers, etc. Workshops tend to complement departmental teaching both peer- and mentor-supervised.

However, these programs differ in the underlying theory for faculty development. Pill (2005) discusses four methodological models: reflective practitioner, action research, novice to expert, and meta-cognitive approaches. Faculty development programs differ whether they primarily target at internal changes in thinking (e.g., reflective practitioner) or focus on changed teaching practice (e.g., novice to expert). These processes are of more implicit (e.g., novice to expert) or explicit nature (e.g., action research).

Knight et al. (2006) support the importance of formal faculty development. However, they also point to several issues preventing faculty from actually transferring this knowledge to the workplace. Due to this transfer problem, they emphasize the importance of informal learning.

8.3.2 Assessing Faculty Development in Higher Education

We next present the latest research on the assessment of university teachers' training programs (3.4.1). A review of models for learning transfer is presented in Sect. 3.4.2, which, contextualized, may be of great help to improve measurement of the learning transfer of knowledge and skills of novice teachers in the working place.

8.3.2.1 Assessing the Impact of Faculty Development Programs

Research on university teacher's training in higher education and its impact has increased in recent years. It mainly aims at understanding the extent to which teachers' training contributes to the improvement of the quality of teachers' practices and, in turn, the quality of students' learning in higher education. However, there are still a number of open questions, as systematic impact evaluation of educational development is not common or is very superficial (Kreber and Brook 2001); rather descriptive than evaluative (Gilbert and Gibbs 1999); and usually restricted to immediate event evaluation of participants' satisfaction or other specific scales: for instance, teachers' approaches to teaching.

We can summarize the recent findings on faculty development as follows:

Rust (1998) found some evidence of pedagogical training workshops' effect on teaching practices. Ho (2000) described a series of exercises during a training program to support conceptual change of faculty and showed that the program also had a positive effect on students' approaches to studying. In coherence with previous studies, Ferman's (2002) also revealed that lecturers benefit from a variety of different strategies in their professional development, but the activities have to be focused directly on work-related issues.

In contrast, Norton et al. (2005) considered the effect of teachers' training in higher education questionable due to the lack of clear evidences in the literature and as a result of their research in the United Kingdom. We found only little evidence that training would have an effect on teaching behavior. They found that there were no significant differences in teachers' beliefs and intentions between two groups of teachers, one group of teachers with training and the other without it.

Gibbs and Coffey (2004) studied the effectiveness of university faculty training in 22 universities across eight countries. In their frequently cited research, a training group of faculty and their students were studied at the start of their training and 1 year later. A control group of new faculty received no training and both they and their students were studied in the same way. By the end of the 4–18 months' training, the training group became less teacher-centered and more student-centered; their teaching skills improved significantly, as judged by the students, and their students took a deeper approach to learning, although this change was small. However, they were not in a position to demonstrate whether it was the training itself that resulted in the positive changes.

With the aim of contributing to the debate, Postareff et al. (2007) followed a similar research at Helsinki University. They explored the effectiveness of teacher training by looking at the approaches to teaching and at the self-efficacy beliefs of four groups of faculty who differed from each other in terms of completed pedagogical training. They reached similar results as Gibbs and Coffey (2004): Changes in teaching approaches are slow. Teachers who started their studies in pedagogical courses scored even lower on a student-centered approach than teachers who did not have any pedagogical training. It seems that shorter training courses make teachers more uncertain about themselves as teachers, but after a long training process, a shift from teacher-centered to student-centered approach is possible; it may take a 1-year-long training process (30 ECTS) until positive effects emerge. In another study, Lindblom-Ylänne et al. (2006) also showed that approaches to teaching were related to the teacher's discipline. Teachers from "hard" disciplines were more likely to report a more teacher-centered approach to teaching, whereas those representing typical "soft" disciplines were more student-centered. Once more, this research shows that the effect of pedagogical training is not linear.

Kezar and Eckel (2002) write that faculty development needs several approaches and theoretical underpinnings in order to implement, explain, and further develop innovations and change programs. It should combine individual, interactive, and organizational aspects in order to foster a systemic and sustainable approach in the context of higher education (Knight 2002; McAlpine and Emrick 2003). Therefore, as long as an approach to promote change in faculty teaching has to combine these three dimensions, the evaluation of its effectiveness should also consider the same elements from a comprehensive and holistic perspective.

In the light of this complexity, we can maintain that it is a great challenge to prove to what extent faculty development has an effect on teaching and learning and that further research in this field is needed.

8.3.2.2 Assessing Learning Transfer Effectiveness

The assessment of training effectiveness in higher education has still been under-researched. In the area of human resources' training, however, transfer of learning and the assessment of the learning's quality have long been investigated. Not only that, in today's technology-rich and globalized world, it is an accepted priority. Such an increase of impact assessment models has led to the development of varied assessment strategies, which have come from very objective and hierarchic models to approaches of more qualitative and flexible nature (Baldwin and Ford 1988; Olsen 1998; Kirkpatrick 1998; Kozlowski et al. 2001; Holton III and Baldwin 2000).

Our objective here is to shed light on what is relevant of the learning transfer literature that could be useful in developing a proposal of university teachers' training effectiveness assessment. Some important lessons can be learnt:

The assessment of training impact can be considered a learning process focused on finding out the repercussions that the assessment object has in the organization in terms of qualitative, quantitative, or economic benefits, with the idea of finding out the effectiveness of the assessed object for the organization (adapted from Pineda 2000). To Olsen (1998) "transfer is the evidence that what was learned is actually being used on the job for which it was intended" (p. 61). Other authors concur that the analysis of the impact that an action, program, or process has must include a study of the working plan, that is, the expression of the original intentions and its aims; an analysis of the resources put into work and their suitability in front of the expressed aims; and a recount of the obtained results after a prudential time (Villaveces 2005). Therefore, impact assessment is the measurement of results as well as the consequences of the action that has been carried out in order to know if the desired degree of attainment has been achieved.

In the past, assessing training effectiveness often has entailed using the four-level approach developed by Kirkpatrick (1998), whose evaluation model essentially measures reaction, learning, application, and business impact. All these measures have been widely recommended for full and meaningful evaluation of learning in organizations, although the application of such an encompassing perspective increases complexity, and usually cost, through the levels from 1–4. Since Kirkpatrick established his original model in 1959, other theorists like Phillips and Phillips (2007), and indeed Kirkpatrick himself, have referred to a possible fifth level, namely return on investment (ROI), which compares program benefits to the costs.

Since Baldwin and Ford's (1988) literature review, considerable progress has been made in understanding factors affecting learning transfer. Based on Kirkpatrick's model, Olsen (1998) points out the importance of the following factors: "integration of training to the work setting rather than as an isolated occurrence, cues and reinforcement, a connection to the reward system, close and frequent supervisory (coaching and nurturing) feedback, group dynamics, employee attitudes about the work and the organization, the type of training conducted, and consistency between what is being trained and its applicability in the real job

setting" (p. 65). Therefore, to improve transfer, he suggests focusing on the following activities: coaching, better simulation between the training and the work setting, more practice, training closely linked to the job, and a culture that supports training efforts.

Along with the development of Kirkpatrick's model, Holton's evaluation model (1996, 2005) is also providing new evidence by means of his Human Resources Development (HRD) Evaluation and Research Model. He proposes a comprehensive framework for diagnosing and understanding the causal influences of HRD intervention outcomes. "The model addresses one of the biggest risks of the four-level model, specifically, that any failure to achieve outcomes from an intervention would be attributed to the intervention itself when it could well be due to moderating variables" such as environmental factors (Holton 2005, p. 237).

According to Holton et al. (2003), previous research has focused on training designs that influence transfer; on factors in the organizational environment that influence individuals' ability and opportunity to transfer; on individual differences that affect the nature and level of transfer; and lately, on instruments to measure transfer and its antecedent factors in the workplace. However, they have not investigated how those factors might be effectively changed or managed. They also unveil one of the most relevant aspects to our research, and this is how learning transfer systems differ across organizational settings. "Cultural variations across organizations suggest that not all of them will or should build the same types of transfer systems" (p. 460).

Holton and Bates (2002) introduced the Learning Transfer System Inventory (LTSI), taking into account that transfer is influenced by a system of factors (the learning transfer system). The LTSI includes 16 constructs that provide a comprehensive assessment of factors that influence transfer:

1. The training-specific realm, with 11 constructs, includes constructs believed to influence a specific training session or intervention (program-specific). These include learner readiness, motivation to transfer learning, personal outcomes-positive, personal outcomes-negative, personal capacity for transfer, peer support, supervisor/manager support, supervisor/manager sanctions, perceived content validity, transfer design, and opportunity to use learning.
2. The second domain includes more general, less program-specific, factors that may influence any or all types of training: transfer of effort–performance expectations, performance–outcomes expectations, resistance/openness to change, performance self-efficacy, and feedback/performance coaching.

The model recognizes that learning, individual performance, and organizational performance are the primary outcomes of training. Individuals are expected to acquire learning during training. This learning is expected to improve performance on both the individual and organizational levels.

Three classes of factors are believed to be the primary variables that interact to affect the transfer of learning from the training environment to the work environment (Holton and Bates 2002):

1. The ability of participants to use the learned skills in the job setting
2. Their motivation to use them
3. Work environment supporting their use

The model also includes secondary influences (trainee characteristics) that affect learning transfer through their influence on motivation.

We can conclude that participant perceptions of transfer systems differ due to situational variables (for example, organizational culture, organizational type, and training type), and interventions should be tailored to the specific situation (Holton et al. 2005). Indeed, the environmental factors such as support of the supervisor, peer support, personal outcomes, performance coaching, and resistances/openness to change may be very different from one context to another and do not allow to derive general guidelines about transfer systems.

8.4 Towards a Holistic Perspective on Faculty Development

Holton et al. suggest that those researchers wishing to improve learning transfer must be able to diagnose and study the whole system of factors. Therefore, although the primary focus is on the environmental factors affecting learning transfer, trainee characteristics and ability factors are also considered as long as they contribute to the achievement of a particular learning culture.

In this chapter we would like to suggest the designing of a study to better understand the limited reach of faculty development and develop a more holistic perspective on how to support faculty in working towards a new learning culture.

8.4.1 Environmental Factors Affecting Learning Transfer

Focusing on learning transfer from training to the workplace, Holton III et al. (2000) consider organizational factors to be of great importance. In the following, we discuss how well Holton's environmental factors fit to the context of higher education, as it is assumed that the this group of factors of a transfer system requires substantial contextualization.

Environmental factors have a powerful impact on facilitating or inhibiting learning transfer (Khasahnew 2004). Research suggests that a post-training environment can either encourage or discourage the application of newly acquired skills on the job: the more positive the organizational transfer climate (e.g., more supportive context, especially from supervisors in the form of reinforcement and feedback), the more likely the employees will use the skills on the job (Richman-Hirsch 2001); argued from a different angle, the more negative the organizational transfer climate (e.g., task constraints), the less likely trainees will be motivated to transfer and apply the learned skills on the job (Noe and Schmitt 1986).

Table 8.1 Environmental factors affecting learning transfer (Holton III et al. 2000)

1. Supervisor/Manager support or sanctions	Heads of departments and other academic managers' involvement in clarifying performance expectations after training, identifying opportunities, setting realistic goals, working on problems, providing feedback
	Heads of departments and other academic managers' opposition to the use of new skills, lack of assistance, provision of inadequate or negative feedback
2. Peer support	Peers mutually identify and implement opportunities to apply skills, encourage the use of new skills, display patience with difficulties or demonstrate appreciation
3. Personal outcomes	Positive outcomes: increased productivity and work effectiveness, personal satisfaction, additional respect, increase in salary or reward, further career development plans, advance in the organization
	Negative outcomes: reprimands, penalties, peer resentment, likelihood of not getting a raise
4. Feedback/Performance coaching	Reception of constructive input, assistance and feedback from people in the work environment when applying new abilities or attempting to improve work performance
5. Resistance/Openness to change	Work groups' resistance to change, willingness to invest energy to change, degree of support provided to use new techniques

Holton III et al. (2000), offer a set of descriptors to identify the environmental factors impacting learning transfer (Table 8.1):

According to Holton III et al. (2000), some of the most influential variables in the work environment that influence transfer include *supervisory and peer support*. Supervisors can be either supportive or nonsupportive of new learning. The supervisors also play an important role in maintaining learning on the job through proper rewards and prompt feedback.

This seems to be also evidenced in higher education. Ramsden (1996) indicates that the quality of leadership is the single most important factor in the success of educational institutions and equates their culture with Senge's notion of "learning organizations." He contends that similar processes are at work in academic departments and that the key factor is "the staff member's perception of the context of academic work" (p. 63). Ramsden also draws on the transformational leadership model terms of the impact of such leadership behavior on lecturers and students perceptions. To Ramsden, a departmental leader should consider recognizing achievement, performance management, developing people through feedback on performance and dealing with difficult people, conflict, and underperformance.

However, it needs to be recognized that departmental leadership in a European context finds different basic conditions. In the German and Spanish context, often departmental leaders are elected for a relatively short period of time (2–3 years) from the faculty and they often do not have the resources or adequate instruments to assert certain standards in teaching. Nevertheless, their behavior has a clear impact on the learning culture of a department, for example, whether they are supportive of faculty development training or not.

Another important category, emphasized by both Jenert et al. (2009) and Holton, is the visible manifestations of peer support in departments and faculties which aim at improving teaching and become another form of continuous training. Sometimes this participation takes place unconsciously or is invisible to its members who do not perceive how it affects their thoughts and practices and is therefore difficult to detect. The university as a workplace is a community of practice and as such people interact with one another. They establish norms and relationships of mutuality that reflect the interest for the improvement of the institution (Wenger 1998). Communities of practice are considered a social community where people belong to, participate in their activities, and construct identities in relation to them. Communities of practice rely in peer support to exist.

Related to the exchange with deans and colleagues are the two personal outcome categories (positive/negative). Many faculty members enjoy being good teachers and receive considerable satisfaction from the exchange with students. However, investing too much time into teaching distracts from research, which is the most relevant promotion category. Jenert et al. (2009) discuss this aspect to the issue of valuation of teaching at the institution.

Holton III et al. (2000) consider these first three categories to be *training specific* and they add two more *general* scales to capture environmental influences on transfer. When applying new abilities on the job, the feedback category captures how well the person is supported with constructive input, assistance, and feedback. The final category assesses the degree of openness of working groups toward trying new things.

8.4.2 The Specificity of the Context in Assessing Learning Transfer

If we want to comprehend whether what was learned at faculty development programs designed for novice university teachers can be transferred to daily teaching practice by means of identifying similarities and differences between the programs and learning cultures of the two HEIs, some further contextualization is needed beyond the organizational scale, as important elements of the specific context of faculty development in higher education are missing:

- In general, faculty decide rather freely on their priorities and are in a short-term perspective only to a limited degree, directly dependent on a supervisor or on peer support. Basic conditions for teaching need to be explored in more detail. For example, some of Holton's ability factors seem to be of great importance. Generally, faculty in their early career attend faculty development programs. Often, they teach a course section and only have limited influence on the course design (opportunity to use). Another important aspect is the amount of teaching load, the number of students, or the many other tasks faculty are expected to master leaving only limited personal capacity for transfer.

- Novice teachers sometimes teach seminars or partial courses; therefore their teaching and learning conceptions and practices not always match those with whom they work (performance coaching). Large groups of students, infrastructure, and material resources can also limit the possibilities of applying learnt knowledge and skills (work environment factors not considered in Holton's model). Instead, clearer guidelines for teaching, if they match well with what faculty have learnt in the training, may have an easier transfer.
- By no means is learning transferred if there is no motivation to apply it. The intensity and persistence of effort toward utilizing a certain technological application, teaching method, or learning strategy is key in the transfer (motivation to transfer learning), as well as the expectation that the effort devoted may lead to changes in students' learning (transfer effort).
- Faculty development as understood by the authors is not a simple skills training but also aims at challenging concepts of learning. Thus, it is important to assess whether the training affects only the use of specific techniques in teaching or the overall attitude.

Finally, some of the wording needs to be adjusted to match with the context of higher education. Such adjustments require a careful validation of instruments to be developed.

8.4.3 Research Interest

This research project is going to be realized at the University of St. Gallen (Switzerland) and the Universitat Pompeu Fabra (Spain), a deliberate selection of two universities that run a comparable faculty development program mostly attended by doctoral students or postdoctoral staff. In roughly 300 learning hours spread across seven modules of 2–3 days, they acquire the knowledge, skills, and attitudes linked to the teaching competences of the university teacher. It is an essential objective of teachers training to evolve a shift from teacher-centered approach towards a more student-centered approach to teaching (see Chap. 2).

It is the interest of this research to better understand if what was learned by teachers in faculty development programs can be transferred to their daily teaching practice. In the core of the research, there will be the identification of similarities and differences between the training programs and learning cultures of the two HEIs and the environmental factors influencing learning transfer. The following questions guide this research project:

- To what extent are the faculty development programs for novice teachers changing the perception of faculty regarding teaching and learning?
- To what degree are the faculty development programs for novice teachers changing the teaching practice of faculty (transfer)?
- What organizational factors influence the degree to which innovative teaching approaches are put into practice?

Although in the end the interest lies on changing learning cultures experienced by students, in this research project the narrower focus is on the issues of transfer and the organizational conditions to foster it. In order to be able to study the transfer effect, it is important to take into consideration the efficacy of the faculty development program and to control for individual factors. However, the core of this research is the better understanding of environmental factors, which is also in line with the broad concept of studying learning cultures.

8.5 Concluding Remarks

Teaching encompasses a wide range of activities undertaken by a faculty that impact student learning. What teachers do is very important, but its significance can only be understood in relation to the other influences listed. Often, major changes in teaching and learning arise not from the faculty but elsewhere, so that they have to accommodate them as well as possible. Some changes in teaching require faculty to change themselves, not simply adopt new techniques. For all these reasons, improving learning entails much more than helping faculty teach better in the way that this is conventionally understood.

Our approach aims at contributing to a more nuanced and robust understanding of the range and consequences of faculty training that contribute to the shaping of particular learning cultures. Understanding learning cultures can be a valuable *approach* in that it offers greater recognition of the nature of the practices and purposes of faculty training that tend to be taken for granted. In particular, taking the organizational environment into account helps to overcome a narrow focus on the assessment of faculty development.

We try to combine this cultural perspective with the elaborated research on learning transfer. Through the identification of an instrument to assess learning transfer, we should be able to shed more light. The outcomes of this research topic will provide valuable insights into how faculty development can support the development of the "new" learning culture in higher education.

This research attempts to contribute to a more comprehensive understanding of faculty development in higher education. To have an impact on the quality of teaching in research universities, it is time to take a more data-driven approach. Although we believe that it is possible to impact on teaching cultures, the complexities of HEIs ask for much more than simple faculty training programs.

Chapter 9
Open Content, Open Learning 2.0: Using Wikis and Blogs in Higher Education

Steve Wheeler

Abstract This chapter focuses on the use of open content social software (wikis and blogs) as online supporting and enabling tools for students in higher education. The chapter presents arguments from both strategic and pedagogical perspectives and focuses particularly on the reality of pedagogical change where self-directed and self-organized "informal" learning, open content, and open learning are challenging the traditionally accepted roles of both students and teachers. The chapter describes approaches used to promote best practice in the use of blogs and wikis for reflective practice, knowledge creation, and the promotion of a culture of sharing and collaboration. It introduces a new five-stage model of online learning activities presented as an adaptive framework and a second model which has been created to enable visualization of Web 2.0 tool integration. The chapter argues that open content tools present opportunities to promote positive changes in university education to enhance quality and extend access, by encouraging student-generated content, knowledge creation, and self-organized learning processes, wherever students are located.

9.1 Introduction

The changes currently witnessed across the entire spectrum of education are far reaching and are impacting upon practice at both institutional and individual practitioner levels. The relentless evolution of new information and communication technologies and the emergence of freely accessible social software on the Web have been instrumental in repurposing the manner in which pedagogy is conceived and delivered in schools, colleges, and universities. Yet, these are the first wave of a sea of changes

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teachers can expect, and opinions are divided. For many who are observing from inside the educational system, change does not come fast enough. For other observers, change is not welcome at all. The inevitable tensions caused by change and the disruption it creates can be problematic for schools and universities alike. Change is therefore an important process to manage effectively for the future success of education.

I will argue here that changes that are required are not only needed at an institutional level, but must also occur within the "hearts and minds" of all actors in the process – the tutors and the students. Successful use of open content software requires a shift in perceptions and a leap of imagination for teachers and students alike, so this chapter identifies and outlines several strategies that have been employed to encourage pragmatic use, in an attempt to successfully embed wikis and blogs within established curricula.

9.2 Management of Change

Educational institutions are notoriously slow to adapt to change. With the best will in the world, the most enthusiastic professional practitioners can only hope to effect localized change, if the institution does not sanction such change. When an entire institution does accept and implement wholesale change, it can either be held up as an exemplar, or viewed as anachronistic, depending on the prevailing societal mood. In large institutions, change can be embraced and resisted equally, leading to uneven adoption of innovation and the problems of inconsistency this brings. Change, when it is adopted widely, is generally something that is imposed upon the institution from above. Yet, in the age of open access and democratization of knowledge through the Internet and other social media, change of a different kind is beginning to emerge. Referred to as "viral" change, this is generally a self-organized and organic response to the imposition of structure and constraint and is based on the ability of the Web to connect like-minded people, enable them to gain quick access to up to the minute information, and self-organize themselves.

Pedagogical change is rooted in age-old debate over the conditions within which people learn. It has been forged in the heat of centuries of philosophical argument. The tension between inertia and impetus grows as some teachers resist while others adopt new ideas. The management of change in such situations is required to be sensitive, yet responsive to the needs of the entire learning community.

To claim that most of the recent change in education has been technologically driven would be an oversimplification. Other factors such as economic stringency, globalization, and democratization of education have of course played their parts in the changes now being implemented across all sectors of education. Yet, it is often the change that has been brought about by the introduction of new technologies that looms largest and most threateningly in the minds of teachers. Often teachers balk at the prospect of having to learn how to use new technologies, due to lack of time, risk of embarrassment, or challenges to professional integrity. Some are particularly worried that their students may know more about the technology than they do. Yet,

new technologies have changed not only pedagogical practices, but significantly, also teachers' perceptions and expectations.

One of the most significant changes to the business of teaching and learning in the past four decades has been the introduction of "open" forms of learning.

9.3 Open Learning

Open learning operates at a number of levels. It offers an approach to learning that gives students flexibility and choice over what they learn and the location in which they learn it. Open learning also promotes flexibility to enable students to decide at what pace they learn, and when they learn. Students could therefore study in a combination of campus, home, and mobile learning and could take long breaks in between their study to attend to other matters such as family and work commitments. In the last few decades there has been an increased demand for flexibility in education and training, as more mature students return to participate in lifelong learning. There has been a rapid increase in open universities around the world, and there are no signs that this trend is slowing down.

The first truly open forms of organized learning were introduced in the mid-1960s when the mega universities – those with more than 100,000 students enrolled at any one time – began to emerge. The University of South Africa and the British Open University are notable examples of open mega universities – institutions who welcomed anyone through their doors to enable those who had been deprived of a full-time higher education to achieve their degree as mature students. Early public perception of open learning through open universities was that degrees were being devalued and that open universities were second class due to their policies of open access for anyone to study regardless of qualifications. However, as the open universities have striven to create and maintain quality programs of study and have established large and sophisticated support structures for their remote students, public perception has shifted. Open universities are now generally viewed favorably by much of the traditional academic community. Quality has become the byword for open learning, and over the years the early open universities have developed a tried and tested method of mass distance education which has since been emulated by much of the traditional academic community.

What changes has open learning brought to education? One of the trenchant problems of education is the widening of participation. Many are excluded from pursuing studies in higher education due to economic and social barriers, while many more self-exclude due to perceptions that they are incapable of studying at this level. Open learning of the kind delivered by the open universities offers students a "second chance," enabling access to education which is not contingent on previous qualifications, geographical location, or even in some instances the ability to be able to afford the course fees.

Moreover, open learning systems also make resources available that would be inaccessible to traditional on-campus learners (Lane 2008). These might include

local organization of tutorials and study groups, as well as distance support provided by remote tutors. Web-based technologies can offer students rich media content wherever and whenever they study. Nomadic learners – those who find themselves constantly on the move – can now benefit from mobile access to Web resources through ubiquitous and pervasive technologies and wireless services.

9.4 Negotiation of Meaning

According to constructivist theories, people learn by constructing knowledge through social interaction. People learn within social contexts, building upon their existing knowledge through exposure to new ideas and information, often introduced to them by others. The co-construction of knowledge is often based upon conflict and resolution, necessitating continual negotiation between the interlocutors. The synthesis of knowledge arising from this negotiation of meaning can be powerful. Construction of this kind of knowledge is mediated not only through interaction with others, but also by maintaining internal dialog, through the process of reflective thinking (Vygotsky 1978).

9.5 Reflective Thought

Reflexivity is an important concept in all spheres of education and training. It is widely acknowledged that there is a need to develop and nurture learners who are reflective and critically aware. Reflective students tend to think more about what they are doing while they are doing it (Schön 1983), leading to an ability to think quickly and can apply previous learning to new situations. In a society where knowledge goes out of date very quickly and new skills are required "just in time," it is clear that students need to develop reflective skills simply to keep pace with change and survive. Schön argued that the approach to professional training which loaded students up with knowledge that could later discharge when they entered into employment was not a good description of how professionals "think in action." Where professionals are required to continually update their knowledge, learning without reflection is clearly inappropriate for professional practice in a world of constant change.

9.6 Web 2.0

One of the most significant yet poorly defined developments of the Web is the social web. The social web is now referred to commonly as "Web 2.0" (O'Reilly 2005), which for some signifies a second iteration of Web 1.0. However, the term "Web 2.0" has been challenged by Web pioneer Sir Tim Berners-Lee (Anderson 2006)

who points out that most of the social tools now attributable to Web 2.0 have been in existence since the early days of the Internet. If Web 1.0 was the "read only" web, then Web 2.0 must be seen as not only the read/write web, but also the listening/speaking and doing web, because it demands and attracts a great deal more participation than has been previously observed. Web 2.0 is not a revolution, but rather an evolution from previous web activities. It is more about community involvement, interaction and sharing than it ever was in the past. It has been a gradual transition from "the quagmire of stickiness" to "the architecture of participation" espoused by the likes of Tim O'Reilly (O'Reilly 2004) and other Participatory Web champions.

Web 2.0 then, is more indicative of the new ways in which people are using the Web than it is about the tools. Because "Web 2.0" is universally understood to represent these social dimensions of the Web, it is the term which will be employed throughout this chapter. As we shall see, the notion of "2.0" lends itself not only to a reconceptualization of how web tools can be used, but of learning *per se*. Hence, we will also refer to "Learning 2.0" as a spectrum of pedagogical approaches that draw heavily upon Web 2.0 tools and services. Web 2.0 encompasses the emerging sociable web which hosts a continual stream of new services, while Learning 2.0 draws upon participative, democratic, and collaborative methods.

Blogs and wikis and other hosted services enable users to generate and broadcast content, share resources, connect into communities of interest, and generally communicate more effectively to a potential worldwide audience. The potential of this "architecture of participation" is gradually being harnessed by teachers worldwide to promote deeper and more engaging learning within socially rich and collaborative online environments.

9.7 Open Content

Open content software has been available since the inception of the first word processor. Teachers have used open content software such as PowerPoint to good effect, creating content for presentational purposes. Since the advent of Web-based media, content can now be made available for students to access any time, any place. Yet, teachers will miss a vital opportunity to transform the learning experience if they stop there. One of the changes that some teachers find difficult to countenance is the concept of learners generating their own content and becoming managers of their own learning. This increasingly applies to all sectors of education and therefore to all age groups. The old adage of the "sage on the stage" stepping away from the center of the learning process to become the "guide on the side" is an exemplification of the humanistic and democratic student-centered learning philosophies espoused by the likes of Dewey (1916) or Rogers and Freiberg (1994). It presupposes that students are self-motivated and are able to assume ownership and responsibility for their own learning. Such proactivity however is not always forthcoming, so teachers often revert to behavioral, didactic, and instructional techniques to draw reluctant students back into learning. The argument for self-directed learning

is that such learners engage more deeply when they are facilitated but are more superficial in their approach when being led.

Open content tools can play a significant role in the promotion of student-centered learning in a number of ways. Firstly, tools such as blogs enable learners to create their own online reflective journals which they can then choose the share with an audience of authentic readers. Secondly, the use of photo-sharing services such as Flickr can encourage learners to be more creative in their image-making and presentational skills. Thirdly, the abundant availability of free hosted services including podcasting and audio broadcasting tools, photo- and video-sharing sites and associated services has allowed a myriad of small self-organized communities of learning and interest to coalesce. Finally, open content tools such as wikis are able to promote collaborative writing within shared online spaces. We shall return to evaluate the contribution of some of these open content tools to open learning later in the chapter.

Ultimately, such groupings lead to the generation of a host of digital artifacts, many of which can be of great interest and use to not only the groups themselves, but also to individuals. It is inevitable that individuals will reuse and repurpose photos, videos, texts, and audio resources for their own personal learning purposes. This is the essence of what has become known as "Learning 2.0."

9.8 Learning 2.0 and Self-Organization

As previously indicated, Learning 2.0 is representative of the many ways in which learning (and teaching) is changing as a result of the introduction of Web 2.0 tools and services. It reflects learning in a new digital age where new practices are emerging and where the openness of learning is increasingly pre-eminent. That students are able to participate in a democratic, self-organized form of learning that is often outside and beyond the boundaries of conventional education is central to the theme of Learning 2.0. Self-organized learning not only connotes students taking responsibility for their own learning, but also points up a radical change in the role and function of teachers. They become less central to the learning process in Learning 2.0 and begin instead to adopt the roles of resource and mentor for learners. In Learning 2.0, teachers provide their students with the environment and resources to learn and assess learning, but they are no longer exclusively responsible for the delivery of content – instruction makes way for facilitation.

Another important influence on Learning 2.0 can be ascribed to connectionism – hailed as a new learning theory for the digital age. Siemens (2005) holds that within our new knowledge economy, the ability to form connections between sources of information and thus develop useful information patterns is essential. Our social connections and knowing how and where to find the information we require, he says, are the most important skills of the information society. The connectionist approach, he believes, enables new forms of knowledge to be framed in a time of

significant change and upheaval. Siemens argues that many of the learning processes from traditional learning approaches can now be offloaded onto, or supported by, new technologies. There is an assumption behind this theory that technologies can act as mind-tools, to enhance, extend, or even amplify the capabilities of the human mind.

Finally, Learning 2.0 presupposes that students are continually engaged with informal kinds of learning, gaining knowledge and skills outside of the formalized settings of school, college, and university. Informal kinds of learning can come from almost any extracurricular activity, but notably through handheld games, casual internet surfing, and visual media viewing. Informal learning is a driver for the adoption of individualized digital learning environments – those which are now commonly referred to as personal learning environments or PLEs.

9.9 Personal Spaces for Learning

PLEs can take almost any form imaginable, through the use of contemporary digital technologies and tools. Indeed, digital tools and environments can be combined with other resources to create PLEs too. Creating spaces for learning that are personal, whatever they are made of, is essential to the doctrine of student-centered education.

For many living in the digital age, personal learning environments consist of a number of online social networking tools, blogs, and communication tools. Social bookmarking and tagging become important for those who wish to create useful and unique pathways through the morass of information that is found on the Web. Probably, the most important feature of the PLE is the communication tool – this can be simply an e-mail account, but increasingly learners are turning toward the personalizable and multifunctional social networking tools such as Facebook, MySpace, or Ning for their needs. An issue of critical mass is present. Many users would argue that it is easier to network and keep social contact alive and functioning, particularly if the service of choice is populated by all of the user's community of interest. Other tools such as the microblogging tool Twitter, a sort of short messaging service for social networking, are becoming increasingly popular and are on the verge of going main stream as an essential part of many people's personal learning spaces.

9.10 Social Connections for Learning

It has long been argued that people rarely learn within a social vacuum. From the early days of Socratic discourse, where learning was evoked as a direct response to questioning from another, through to the more sophisticated trappings of the online social network, people learn as a response to challenges, discussion, and collaboration. Learning that takes place within a socially rich environment is no longer specifically dependent upon "the other" though. Digital learning

environments enable learners to also call upon resources and artifacts that have been created by "the other" and enable learners to share their thoughts and reflections through the same tools and spaces, thereby forging valuable and sustainable dialog through audio, text, and object-based conversations.

Such social connections work at a number of different levels. Some represent weaker social ties than others, but all connections, whatever their strength and extent, empower the learner with the capability to tap into a vast and seemingly endless supply of opinion, knowledge, skills, and resources that go beyond anything a single individual would be able to muster. It would also be reasonable to argue that such benefits surpass those offered by even the most highly resourced institutions. Web 2.0 tools, when integrated into a PLE, can offer connections that are immediate, rich in dialog, and archived for later retrieval.

There are a number of generic tools that occupy the space in which reflective learning and collaborative learning can interact. These include the wikis and blogs themselves, but also tools such as micro-blogs, image sharing tools, and podcasting facilities. Such tools enable learners to generate their own content and share it with their peers, so that reflection, dialog, and collaboration can be triggered by these artifacts. Students in one study reported that exchanging artifacts strengthened social ties and facilitated more effective collaborative learning later in the course (Minocha and Roberts 2008).

9.11 Adaptive Frameworks

One of the quests for teachers in the digital age is to try to create combinations of tools that provide learners with the best possible learning environments. Combining the reflective approach to learning with collaborative activities in which students engage collectively with learning materials has been one of the approaches taken by the author.

Figure 9.1 presents a conceptualization of how reflective and collaborative tools such as blogs and wikis could be combined and the resultant potential for co-construction of knowledge and learning within a community of interest. Note that the most powerful region for change through negotiation of meaning and the resultant co-construction of new knowledge is at the nexus between spaces – the point where students may be uncertain about how they will proceed or what stance they should adopt.

9.12 Blogs

Students use their personal blogs to create a running commentary on their learning journey, as well as to communicate their ideas to their peers. They can also pose questions, challenge concepts, and post comments on other people's blogs. Because of the asynchronous nature of the posting and commenting, blogs are an ideal tool

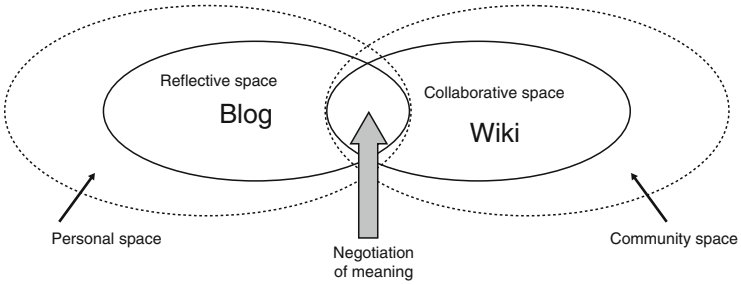

Fig. 9.1 Negotiation of meaning within shared spaces

to promote reflective forms of learning. Ostensibly, blogs are recognized as personal tools that resemble diaries, but in online format, and made available for others to read.

Most regular bloggers are acutely aware of their audience of readers and tend to write carefully to present a favorable impression. As social beings we are naturally aware of our social context and take care to present our "best side" to others. Goffman (1959) suggests that individuals tend to carefully manage their impression by presenting a "front stage" version of themselves in public, which can greatly contrast with the self that is seen "back stage." It is highly likely that evidence of impression management might be present within the written postings of students on blogs, due to the potential for large, unseen audiences made up of casual web visitors. Such a phenomenon has already been observed in previous studies of students using blogs (Miller 1995) and also on social networking sites (Wheeler et al. 2008). It is therefore possible that some students could be reluctant to participate if they perceive the need to adapt their writing styles, or open their ideas up to scrutiny from a hidden audience. Students may be resistant to their tutors asking them to post regular blogs, seeing it as an extra imposition which may have no immediate reward. If blogs are to be successfully integrated into the learning process, tutors should ensure that they are viewed as nonthreatening (Ojala 2005), not directly imposed upon students (Farmer et al. 2007), and as having a real pedagogical purpose and measureable outcome (Kop 2007). This may require blogging to be assessed as a formalized assignment requirement.

9.13 Wikis

Rich in its collaborative potential, the wiki can be located firmly within the sphere of community. Wikis are websites that can be edited and added to by anyone who has been given access. Bruns and Humphreys (2005) like the idea of a nonlinear, evolving, complex, and networked environment which is created and sustained by multiple authors. These conditions, they suggest, provide opportunities for increased collaboration, argument, and interaction between group members.

Several recently published studies have highlighted the advantages of using wikis to promote collaborative learning (Trentin 2009; Bruns and Humphreys 2005). These studies also suggest that there are difficult issues to be addressed, and that some aspects of wikis may not always be welcomed by students. Wheeler et al. (2008), for example reveal that although many students readily posted their own content to the wiki (usually in the form of useful hyperlinks and brief descriptive annotations), they were often more reluctant to edit the content posted by their peers for fear of causing offense. Such a constraint negates a major affordance of the wiki – that it can be used as a shared space to encourage cooperative activities between all group members. Furthermore, sustaining students' activity on Web 2.0 tools in formalized setting can be a struggle. With both wikis and blogs, students often experience difficulty keeping their engagement going. They may post content, read, and comment initially, but more often than not, interest and involvement tails off after a short time, due to lack of time, loss of impetus, or simply a perception that posting new content is a waste of time. The last issue rarely arises if other students respond to posts with comments, providing the learner with encouragement to post more. Another issue that created barriers for students was the inchoate and chaotic nature of the wiki.

9.14 The Five-Stage Wiki Activities Model

To enable wiki activities to be presented in a structured way, a five-stage model was devised by the author in direct response to the problem of lack of engagement. The five-stage model encourages a progression of engagement from solo inquiry to group collaboration through increasingly complex skills acquisition and application (modes). It also illustrates the journey from superficial technical, social, and academic content through to deeper levels of skills and knowledge construction (activities). There are elements of reflection present throughout the entire process, because learners are expected to contextualize each activity into their everyday professional practices.

Those who intend to teach using collaborative online tools might adopt a progressive activities approach to draw students into using wikis. For example, an Exploration activity might involve students posting a simple short biography "About me," which can then be shared with the rest of the group. Students can be asked to upload a picture representing them. Although this is a simple task, it serves several purposes; students learn how to upload images, post, and save content on the wiki. They also read other students' "About me" contributions, and learn more about their peers. They begin to engage with the tool and also with each other. At the second level, students can Exhibit some of their discoveries – sharing a useful hyperlink with notes onto the "Useful Links" page for example. At a deeper level, students might be required to offer Explanations – they can explain for example, why they prefer one particular theory over another using the discussion

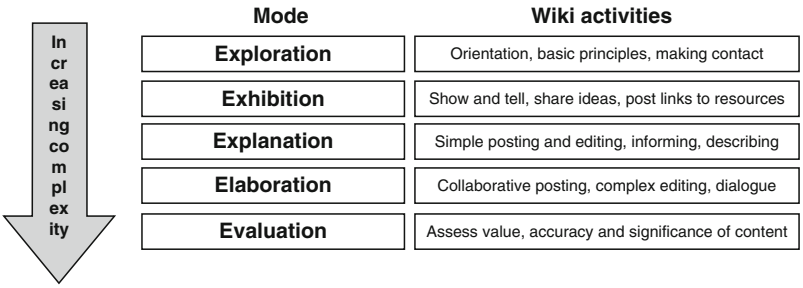

Fig. 9.2 Five-stage wiki activities model

boards – and defend their explanations against any challenges. At an even deeper level of engagement within the wiki, students may need to Elaborate on their decisions, postings, or contributions within collaborative writing exercises. Progressive writing tasks can be assigned to pairs or small groups, in which the students research and present their mini projects and justify their decisions. Finally, an Evaluative element can be brought into wiki activities to encourage students to assess, challenge, and question the value, accuracy, and relevancy of all content on the wiki. Recent studies by the author and colleagues report that such activities have been welcomed by students and have produced quality learning outcomes such as better academic writing (Wheeler et al. 2008; Wheeler and Wheeler 2009). The full model is presented below in Fig. 9.2.

9.14.1 Benefits

The wiki activities provided a form of scaffolding, giving students an initial template and guidance on how and what to add to the space, and a sequence and timescale within which to complete each task. Issues of critical mass (McPherson and Nunes 2004) did not exert a noticeable influence on engagement, possibly due to the reasonable group size (average = 18), and the fact that regular face-to-face sessions supplemented the wiki activities, which maintained the impetus of the students' wiki usage. After each face-to-face session, wiki activity subsequently increased and then declined after a few days. Coupled with the structure and naturally progressive nature of the wiki activities, students were observed to maintain their own momentum, both singularly and collectively. Within the first two terms of the academic year (October to March), the 14 groups of students between them ($n = 237$) generated in excess of 65,000 wiki transactions including more than 1,000 message postings and over 3,000 page edits. Some teacher trainees were so impressed by the concept of the wiki as an online shared learning space that they implemented similar projects with their own students.

9.14.2 Limitations

Many students resented using the wiki however, due to a common perception that working online to create their own content was yet another task they needed to complete in an already busy program. This was, however, more a reflection on the demanding structure of the general program of study than it was on the wiki. There were problems with the implementation of the wiki, though, including lack of initial training on accessing the wiki, page editing, and using discussion pages. Most students succeeded in overcoming this through trial and error and supporting each other. Some unfortunately disengaged after several unsuccessful attempts. A greater problem was inadvertent deletion or overwriting of someone else's content. Invariably when this occurred, technical intervention was required to roll back the page to its previous version to restore earlier content.

Generally, the wikis were used successfully to create useful repositories for professional knowledge, and some students found these engaging. Most students were reluctant to edit the work of others, but consensus was reached over much of the content they created, using discussion and a wiki activity in which the group decided on "wikiquette." Further problems arose when two or more students attempted to edit the same page simultaneously, frustrating those who could not access the page to complete their work. As a collaborative tool then, the wiki was not directly successful, but due to the additional tools such as discussion groups, students were able to use the wiki to collaborate indirectly. The wiki activities were useful scaffolding to encourage students to use the space and maintain impetus. Future use of wikis in teacher education should take these effects into consideration (Wheeler 2008).

9.15 Conclusions

There is a clear indication in the preceding text that there is a place for Web 2.0 tools such as wikis to be used as shared, collaborative spaces to enable students to create and discuss their own content. It is also apparent that blogs can play a particular role in encouraging reflection in learning. Both have been used successfully in authentic teaching and learning contexts, and both have a great deal to offer in an age of digital communication. What is less clear, but starting to emerge, is the many ways Web 2.0 tools can be used in combination to promote more holistic forms of learning which encourage personal reflection and group cooperation. This chapter was written to illustrate some of the work that has been undertaken to attempt this approach. There have been mixed responses, some successful, some less so. Many factors militate against the successful use of Web 2.0 tools in education, including lack of skill and knowledge, insufficient technological infrastructure and support, and reluctance by some to enter into areas of significant change. Most issues can be successfully addressed, but this author believes that the most trenchant issue will remain resistance to change – a problem that will need to be carefully and sensitively managed if Web 2.0 tools are to become mainstream educational resources.

Chapter 10
Stories of Change: The National University of Ireland, Galway

Iain Mac Labhrainn

The National University of Ireland, Galway, was founded in the 1840s and is now one of seven universities in the Republic of Ireland. It has over 14,500 students and about 700 academic staff in five Colleges spanning traditional and modern academic disciplines. The location is a small but very vibrant city which is making a lot of efforts to preserve the Irish culture and tradition. This is an aspect which is also reflected in the university's ethos. Its research specializes in areas such as Web technologies, biomedical sciences, environment, humanities, and applied social sciences and its research funding and output have increased dramatically over the last 10 years, in itself producing a large shift in institutional culture.

10.1 From Teaching to Learning and the Role of Technology

With the establishment of the Center for Excellence in Learning and Teaching (CELT) in late 2002, the university signaled a strategic priority to improve the status and quality of teaching and learning, partly to redress the imbalance with regard to the dramatic increase in research activity. Also, it provided an opportunity to upgrade the teaching and learning environment with the advent of a range of new technologies both within and beyond the classroom, the most obvious of which was the support of a central institutional course management system (Blackboard), which was also being used to expand distance-learning course offerings.

The training and development of academic staff in adapting to this new technological landscape was recognized as of critical importance, but it was felt that simply offering traditional training workshops was likely to be only of minimal effectiveness and it was essential that the pedagogical affordances of the

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technology should not be lost. Presenting technology as an "add on" component rather than embedding it as a key component of the broader educational experience could jeopardize long-term sustainability and waste an opportunity to fundamentally re-examine the nature of course design and student intellectual engagement.

The challenge of the new technologies, of course, is that they provide an *information-rich* environment where the temptation might be to focus more on the delivery of content rather than in promoting discussion, debate, and active learning engagement. Certainly, it is a common experience in most institutions that when a system such as Blackboard is made available, the most typical use is for lecturers to post copies of their lecture notes or slides online, leading to a very passive experience for students and effectively acting as an expensive photocopying solution!

10.2 "In at the Deep End": Lecturers as Students

In CELT, we have attempted to address these issues by running training programs based on "e-moderating," i.e., the skills required to initiate and sustain valuable online discussion between students and tutors and within groups of students. The training itself is through the Blackboard system with no face-to-face contact, ensuring that the participants obtain first hand experience of being online students, having to overcome all the problems and stress that real students deal with. This can be unnerving, but ultimately leads to a greater understanding of the issues and an appreciation of the strengths and weaknesses of technology and particular pedagogical approaches. Given our initial relatively low numbers of staff when the center was first established, the best solution to provide training was to use the well-regarded and professionally delivered services of "All Things in Moderation (ATImod.com)," a company established by Prof. Gilly Salmon in the United Kingdom. Their courses have proven very popular with our academic staff and they are delivered over a 4- or 5-week period with an external tutor working with 15 participants at a time and conducted through online discussion tools. Participants were also provided with copies of Gilly Salmon's books and other relevant materials.

Evaluations of the program have been very positive and it is clear that the experience has led to both a greater appreciation of the student experience and a richer and more considered integration of such technologies within courses and modules. Interviews with participants (undertaken by Christina McDonald-Legg as part of the European e-Competence Initiative) shed some light on what they went through. Some examples illustrate their learning:

> Very often as tutors or course directors, we forget or have this idea that students are just here to do nothing else but learn, that they don't really have a life outside your particular course, and they do. So the time constraints I was under as a "student" in the e-moderating course brought that home for me!

> There was an element of floundering around, so that you understand what students go through . . . I've got to be much more explicit in terms of what I want from students.

10.3 Institutional Cultural Change

Clearly, then we have been able to use such training not just to improve technical skills but also to start institutional debate about the nature of learning. This has complemented our other training and support activities which now include

- a flexible, modular series of professional qualifications in "Academic Practice";
- an annual conference on teaching and learning;
- new processes for academic staff promotion based on *Teaching Portfolios*; and
- a new institutional *Learning, Teaching, and Assessment Strategy* which outlines priorities for the next few years and which seeks to shape shared conceptions of academic practice for both staff and students.

Of course, the training approach has only been a small part of this development, but it illustrates the Center's philosophy of encouraging academic staff to rediscover the joy (and frustrations!) of learning as well as establishing a greater sense of professional community. It is not uncommon for lecturers to feel isolated in their role as teachers. They often have lively and effective communities of practice in terms of their research and other scholarly work, but traditionally, teaching is a solitary activity and not one which is widely discussed. Over the last five or so years since our programs have begun, we have seen very significant change in this aspect, considerable debate, discussion, and interaction. Teaching methods are also beginning to shift, and there is a shared concern over the issue of student participation, commitment, and a realization of the need to encourage students to work more collaboratively but also to develop greater meta-cognitive awareness (i.e., a clear understanding of their own individual progress as a learner.

Technologies clearly will not resolve all these issues, but they do have a role to play and, from our experience, we are strongly of the opinion that they need to be fully embedded within strategies for teaching and not seen as an additional layer added onto an existing system. They have a potentially transformative experience, but one which is perhaps more subtle than is realized, acting as a catalyst for change, a means of extending communication within and beyond subject boundaries, and as a channel for delivering continuing professional development.

Chapter 11
Strategic Integration of Open Educational Resources in Higher Education

Objectives, Case Studies, and the Impact of Web 2.0 on Universities

Sandra Schaffert

Abstracts Open Educational Resources (OERs) can be seen as social movement but are also implemented as strategic measures in higher education institutions (HEIs). This chapter describes the current aims and experiences of OERs in HEIs. Starting with definitions and milestones in respect of the current status, this chapter gives an overview of projects and implementation objectives and it describes two concrete case studies, i.e., the Massachusetts Institute of Technology Open CourseWare project and the OpenLearn project at the Open University in the United Kingdom. The aim of this chapter is to give a comprehensive overview to decision makers and policy drivers within higher education organizations, and thus it develops a blueprint of an implementation model.

11.1 Introduction

A free and open usage of educational resources such as books, tools, and lectures is not possible for the majority of people. From the universities' perspective, the accessibility of learning materials is traditionally limited to students who have subscribed to a special course. Now, open content materials are available and distributed via the Internet and gain a lot of attention from international organizations as well as educational institutions. In the last few years, there have been a number of high-profile international initiatives promoting Open Educational Resources (OERs) and the use of Open Source Software tools for learning.

This chapter describes the current goals and experiences with the implementation of OERs in higher education. Starting with definitions and milestones in respect of the current state of OERs, this chapter presents an overview of projects

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and implementation objectives and describes actual case studies. Additionally, the impact of Web 2.0 on the OER movement is described. The aim of this chapter is to give a comprehensive overview of OER implementation for decision makers and policy drivers within higher education organizations.

11.2 Definitions and Examples of Open Educational Resources

Much attention has been paid to OERs in recent years, for example through the extensive media coverage of the Massachusetts Institute of Technology's Open CourseWare initiative (ocw.mit.edu), the work of the increasing number of organizations promoting Creative Commons licenses,[1] and the success of Open Source Software applications such as Moodle (moodle.org) in the education sector.

Nevertheless, an authoritative definition of OER has not yet been agreed upon. Stephen Downes writes that "there is a great deal of debate extant concerning the definition of open' resources" (Downes 2007, p. 299). However, the UNESCO International Institute for Educational Planning (IIEP) Forum formed a consensus that OERs include Open Course Content, Open Source development tools, and Open Standards and licensing tools (cf. International Institute for Educational Planning/UNESCO 2001). Open therefore means that the content (inclusive of meta-data) is provided free of charge; that the content is liberally licensed for reuse, favorably free from restrictions to modify, combine, and repurpose; and that it is produced in open format and designed for easy reuse and developed and hosted with open source software (Geser 2007, p. 20).

In the following section, we concentrate on the aspect of open content as one part of OERs, and disregard Open Source Software for educational purposes. This list illustrates the variety of formats of OERs available on the Internet:

- Slides and other lecture materials
- Reading materials and assignments
- Research papers and other scientific publications
- Figures, tables, photos, and other illustrations
- Tools of e-assessment, such as online questionnaires, tests
- Videos of presentations or "how-to" material
- Collaborative work, for example, developed with the wiki technology
- Communication spaces or applications for learners, for example discussion forums, mailing lists, groups within social network applications, also language learner networks
- "Interactive" materials such as Web-based trainings
- Descriptions on how to use materials, didactical approaches

[1]Creative Commons is one of the most popular licensing schemes for open content that offers/allows a clear description of the author's and user's rights, e.g., the re-usage and modification of the materials, see http://creativecommons.org.

- Software and applications with educational relevance
- Meta information about the materials
- Sources of information as encyclopedias or news sites.

However, in reality, educational resource repositories and projects following the idea of OERs are often not fully compliant with the above-mentioned criteria or the definition by UNESCO: Hence, the meaning of "open" is often reduced to (1) a free access to resources and (2) the possibility of use without authorization to modify them. According to the OER definition, materials should also be liberally licensed, so that one is allowed to use, or modify, and republish them. While the legal rights in the United States provide the possibility of a "public domain," this is unknown in other countries. This relinquishment of the intellectual property rights in favor of the public is not possible in European countries like Austria or Germany. That means, for the European Union (EU), that before using, copying, or modifying learning materials created by someone else, one has to obtain prior permission of the copyright owner and enter into a contract with him/her. With open content licensing, there is a clear description of the rights of the author(s) and the users in the handling, reuse, and, if wished, modification of materials. For example, the Creative Commons license "does not mean giving up your copyright. It means offering some of your rights to any member of the public but only on certain conditions" (Creative Commons 2006).

11.3 Milestones of the OER Movement and Exemplary Projects

The OER movement has its roots in and also connections to the movement of Open Software and Open Access for scientific publications. Therefore, the founding of the "Free Software Foundation" by Richard Stallman in 1985, the release of the Open Source operating system "Linux" in 1992, which later became one of the most prominent examples for the new software development process, the release of the Creative Commons License (2001), and the Berlin Declaration on Open Access to Science (2003) can all be seen as important for the core OER movement, too. Concerning the discussion on and around OER, the UNESCO initiative "free educational resources" was the initializing milestone in 2002, which brought a broader public interest in the topic. In 2003, the MIT Open CourseWare project was another milestone. Afterwards, several important initiatives and projects were implemented, and OERs started to be one of the important topics in several weblogs and forums of educationalists. The Organisation for Economic Co-operation and Development (OECD) has published a study (2007) about OER based on the results of an international survey, and the William and Flora Hewlett Foundation have undertaken a review of the OER movement (Atkins et al. 2007). The European Commission has also started to fund projects focused on open educational content and Open Source tools (e.g., OLCOS, Bazaar).

There are several projects and repositories where OER for higher educational institutions (HEIs) are developed and/or collected and presented. The following list gives some examples.

- MERLOT (Multimedia Educational Resource for Learning and Online Teaching, www.merlot.org): MERLOT is a growing catalog of peer-reviewed online learning materials, organized by disciplines with currently more than 20,000 resources.
- OER Commons (www.oercommons.org): OER Commons is a teaching and learning network offering a broad selection of high-quality OERs, using Web 2.0 features such as tagging and rating with currently nearly 15,000 materials and 2,500 libraries and collections.
- Open CourseWare Finder (OCW Finder, ocwfinder.com): The OCW Finder shows results from several collections and brings together materials from more than 200 international HEIs.
- WikiEducator (wikieducator.org): WikiEducator is a Wiki for collaboratively developed OERs for schools and HEIs with nearly 6,000 registered users.
- Connections (cnx.org): Connections supports the collaborative development of OER organized in modules under a Creative Commons license and has currently more than 4,500 modules.

Other comprehensive overviews are provided by the OER-Wiki of the UNESCO (2009) or within the WikiEducator (2009).

11.4 Reasons for Institutional Involvement in OER

According to Hylén (2006), the following points are possible reasons for an institutional involvement in OER:

- Sharing knowledge is a good thing to do and also in line with academic traditions, ultimately supported by the United Nations Human Rights Declaration which states that "everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages" (Article 26, citation).
- Educational institutions should leverage on taxpayers' money by allowing free sharing and reuse of resources developed by publicly funded institutions to prevent double work and reinvention.
- By sharing and reusing, the costs for content development can be cut, and the quality would improve compared to a situation where everyone starts from the scratch.
- Institutions to be engaged in OER will profit from good public relations; the materials can function as a show-window attracting new students.

Besides these altruistic, political, and financial arguments on why and how institutions should invest in the involvement in OERs, there are several arguments that build on the possible influences and effects of OERs on learning and teaching and organizational culture in general. For that, we point out possible changes and challenges regarding the three aspects of education known as the "didactical triangle," i.e., the subject, the learners, and the teachers.

Concerning the subject itself, the accessibility of OERs perhaps seems to of no big importance. But indeed, OERs can lead to richer and more varied use of materials in lectures that a single teacher has no possibility to provide and develop, or is legally not allowed to use. The above-mentioned materials give a lot of possibilities to diversify lecturers and learning in the sense of multimedia usage or creative content.

Concerning the learners, OERs have several consequences:

1. First of all, the materials are available free and normally more easily than through copying and buying books. (Nevertheless, especially in an international context, the possibility to access these materials is restricted to computer and internet access, which cannot be taken for granted for students in many countries.) In general, students become less dependent on materials developed by their own lecturer.
2. Additionally, people interested in a certain university can get insights into the quality of the learning materials provided by a (potential) institution. Last but not least, students can participate in the development of OERs or create own learning materials, together with other students, and also lecturers. As known from pedagogical psychology, the possibility to serve as a tutor for other students pushes the student's learning enormously, and the possibility to publish these materials can be additionally attractive.
3. The third aspect is the teachers or lecturers within higher education: With OERs, they have the possibility to get attractive and inspiring materials for their own lectures easily and quickly, at least more easily than through normal channels (e.g., books in their library). Developing OER can also lead to an intensive cross-institutional exchange, collaboration, and inspiration, as well as reputation.

The consequences of the sketched changes and influences concerning subject, learners, and teachers are also seen as having the potential to a shift of educational settings and didactical changes towards a new institutional learning culture. OERs can take very different forms within educational settings as multimedia "click and learn" offers on one hand, and source and result of a collaborative development within an arrangement of cooperative learning on the other. The latter approach can be seen as one form of an open educational practice also known as "open learning," which follows a competency-focused collaborative paradigm of learning and knowledge acquisition. Within open educational practices, priority is given to learning communities instead of teacher-centered education, and development of knowledge and skills required to tackling and solving problems instead of subject-centered knowledge transfer (see Geser 2007, p. 38). Generally, this demands an active, constructive engagement with content, tools, and services in the learning process. OER is also to be seen as one (but not the only) crucial factor to develop these learning and teaching approaches and fitting organizational learning cultures. The knowledge society demands competencies and skills that require innovative educational practices based on open sharing and evaluation of ideas, fostering of creativity, and teamwork among the learners. Collaborative

creation and sharing among learning communities of OER can be regarded as an important catalyst of such educational innovations. Therefore, OER should become a key element of policies that aim to leverage education and lifelong learning for the knowledge society and economy (cf. Geser 2007; Schaffert and Geser 2008).

Obviously, OER leads to new challenges, too. Students and staff who want to use or develop OER need certain competencies in the research of adequate resources and in using several application and licenses, as well as media competence in general. Nevertheless, the development of these competencies goes along with the demand of lifelong learning and new media competencies. Another critical issue is that the quality of these materials can not be guaranteed.

11.5 Examples of OERs in Higher Education

There are several organizations within which OER was already implemented as strategic measure on an organizational level. In the following we will describe case studies from the United States and the United Kingdom, the MIT Open CourseWare, and the OpenLearn at The Open University. The following information is based on the self-description on the institution's homepage if no other sources are mentioned.

11.6 MIT Open CourseWare

The Massachusetts Institute of Technology, known as MIT, is one of the universities in the United States with a large-scale OER program. Following the description on the Webpage, the MIT considered the use of the Internet in pursuit of the of MIT's mission, which is described as "to advance knowledge and educate students." In 2000, the Open CourseWare (OCW) project was proposed and in 2001 it was announced in the New York Times. Open CourseWare represents complete course materials, including, for example, a syllabus, timetables, lecturer slides, assignments, or video recorded classes. A pilot version of the OCW project goes online with 50 courses 1 year later. In 2003, already 500 courses were published as part of the official launch. In 2004, OCW adopts a Creative Commons license. In that year, Spanish, Portuguese, and Chinese translations were made available and a first mirror site was established. Other institutions collaborated with the MIT and started to create their own OCW. In 2005, the OCW project won a dozen awards, published 1,250 courses,and formed the OCW consortium. Since 2008, audios, videos, and photos are available via popular content platforms, such as YouTube, iTunesU, and FlickR. Today more than 1,890 courses from 33 disciplines are available. The resources are totally institution-based in the sense that all materials

originate from MIT staff (Hylén 2006) and follow a "producer–consumer" model (Mora 2008, p. 62).

What were the objectives in implementing OER? How is their implementation supported and financed? Concerning the first question on objectives, the MIT homepage names two aims, i.e., to provide free, searchable access to MIT's course materials for educators, students, and self-learners around the world and to extend the reach and impact of MIT OCW and the "Open CourseWare" concept. Additionally, the OCW project is very often mentioned as an example of how OERs can serve as a public relations measure (e.g., in Hylén 2006).

Whether there was concrete implementation plans or strategies and how the OER idea was disseminated within the MIT remain somewhat unclear. In 2000, a faculty committee proposed the idea, but nobody was forced to publish OER within the OCW project: nevertheless, the vast majority, over 90%, of the faculty had already voluntarily contributed.

Concerning the financing, it is known that the MIT OCW initiative was funded jointly by the William and Flora Hewlett Foundation, the Andrew W. Mellon Foundation, the MIT, as well as a software company. Nevertheless, the costs of the project – currently just under $4 million a year – brought up the need for additional financing. The MIT asks for donations on their homepage, "We need and genuinely appreciate your personal donation to OCW."

The MIT and the other members of the OCW consortium try to continuously evaluate who their users are. A report states that the majority are learners, typically with a bachelor's or master's degree (48%), followed by students (31%) and educators (15%) (Carson 2005 in Hylén 2006).

11.7 OpenLearn at the Open University in the United Kingdom

Contrary to the OCW project of the MIT, which follows a prosumer–consumer model, our next case study, the OpenLearn project, follows a co-production model which includes external volunteer contributors (Mora 2008, p. 62).

The OpenLearn project at the Open University in the United Kingdom is located in a distance-learning university. In April 2008, 5,400 hours of current content through over 450 study units ranging from 1 to 50 hours in study time from all academic levels, was available in the "LearningSpace," which was mainly aimed at learners. Additionally, 8,100 hours of archived content of almost complete courses are available in the "LabSpace," which serves as an enhanced learning environment with various tools and technologies (e.g., chat, video conferencing, video blogging, knowledge mapping), including materials that came from outside the Open University (Lane 2008). In April 2008, 60,000 registered users were using the "various social computing tools and technologies to make forum posts, create knowledge maps, book video conferences and keep learning journals as well as simply studying the Units" (Lane 2008).

Lane (2008) describes, as a direct result of the emergence of OERs as a new activity, most notably the launch of MIT's Open CourseWare project, that "strategic discussions were promoted by the Vice Chancellor and a Review Group convened to assess how the University should adapt to something that fits so closely with the University's mission" (Lane 2008). A reviewers' report was fully supported by the academic board and council in mid-2005, so a planning group was established to make proposals to submit to the William and Flora Hewlett Foundation.

The William and Flora Hewlett Foundation granted the University a "substantial sum" to establish an Open Content Initiative called "Open Learn" over 2 years in 2006. The objectives of the project were enhancement of learning experiences for users of OERs; a greater involvement in higher education by under-represented groups and empowerment for various support networks that work with them; and an enhanced knowledge and understanding of OER delivery and thereby an enhanced understanding of sustainable and scalable models of OER delivery (see Lane 2008).

Internally, the following aspects are summarized as results (Lane 2008): In general, the OpenLearn project has demonstrated that the Open University can cope with rapid and large-scale changes, and that it can implement the Web 2.0 philosophy of perpetual beta, release changes often, and release early. According to Lane (2008), the project also attracted new students and brought the university into the "forefront of open education and web based learning" (Lane 2008), which led to an enhanced external web presence and new (international) partnerships and cooperations (Lane 2008).

OER is now seen as an established feature of the Open University and as the strategy for sustaining the development and the usage of OER gets into the focus, the current strategies are being built upon the following three strands (Lane 2008): (1) to embed OER in all existing activities, where possible; (2) to secure additional recurrent and project funding; and (3) to investigate new business models and potential revenue strategies (p. 10)

11.8 Envisaged Organizational Changes Through Strategic Implementation of OERs

As we have seen in the case studies, different reasons for introducing OERs in higher education exist. The following figure distinguishes currently envisaged organizational changes through strategic implementation of OER in higher education. Therefore, altruistic motives are not listed; this focuses on organizational processes and change (Fig. 11.1).

On one side, the focus of the implementation lies in the optimization of existing things or change and development of new things. On the other side, the implementation can be directed at existing and new target groups. The following four forms of envisaged changes can be distinguished.

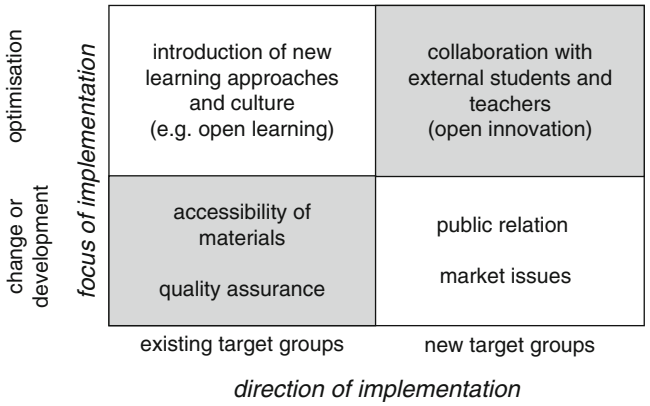

Fig. 11.1 Envisaged organizational changes through strategic implementation of OER (Annotation: The basic idea of this illustration is derived from a figure in Euler and Seufert (2005), about innovations through e-Learning)

- OER is implemented as catalyst of the development of a new learning approach and culture for and with existing students and teachers within their own organization.
- OER is implemented to create new (better) materials and approaches in collaboration with external learners and teachers through "open innovation."
- OER is implemented to optimize the accessibility of materials and to ensure the quality of educational resources developed for existing students and teachers.
- OER is implemented to attract future students as part of public relation measures, as described in the example of the MIT. Additionally, the OER implementation can be a consequence of the contract specifications of sponsoring bodies. For example, the Hewlett Packard Foundation or European Commission tends to support or demand explicitly the development of OER. Therefore, OER is also implemented through market issues.

In reality, organizations focus often on more than one of these envisaged organizational possibilities for enhancement and innovation.

11.9 Blueprint of an Implementation Model

There are several good and convincing reasons why OER has been implemented in educational institutions, especially in higher education. Nevertheless, the introduction of an OER model on an organizational level is challenging and also involves costs. Thinking about an implementation, the institutions should give answers to the basic questions of organizational change: "What happens, if we will not introduce OER?" and "Why now?", to clarify how urgent and worthy its implementation is.

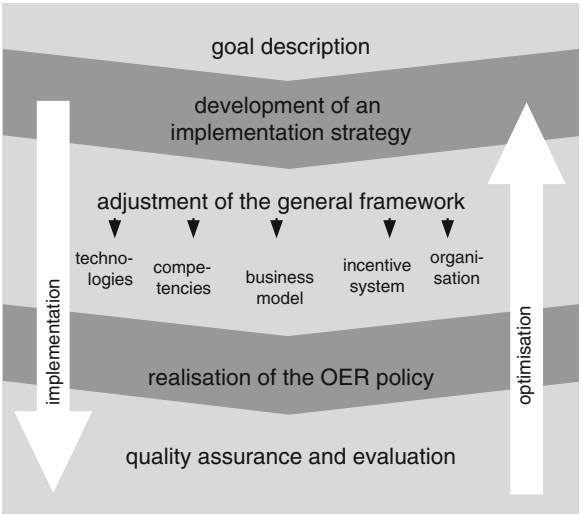

Fig. 11.2 Implementation model of an OER policy

According to Lane (2008), organizations have to decide whether OER implementation is to be "central or marginal to the existing mission of the organization and whether it is there simply to maintain existing activity, albeit in a new form, or to act as an incubator or test bed for a new activity that serves the mission in previously unthought-of ways. In other words – how do OERs fit both with organizational strategy and with organizational practices?" (p. 2).

The following implementation model is a blueprint, describing crucial steps and aspects that a successful strategy should imply. It builds on the experiences and descriptions of implementation in HEIs, e.g., the case studies described previously (Fig. 11.2).

As described above, several aims for the implementation of OERs exist. In the first phase, these aims should be clarified and discussed, because they influence all further steps, e.g., the evaluation of the process and its results.

The sketch of the implementation strategy describes these aims and how the framework has to be adjusted and who is responsible for what. As a comparison of OER projects and Open Source development shows, the OER projects are usually started more top-down institutionally driven than bottom-up (cf. Mora 2008).

The following aspects concerning the adjustment of the framework seem important. The technological infrastructure (e.g., the homepage or repository and also the computers of the staff) within the organization has to be adapted. The use, development, and publication of OERs need the development of new competencies for the majority of the staff, courses. The implementation of OER at the organizational level is also a question of money: Cost–benefit analyses and financing strategies have to be developed. The aspect of "business model" includes the necessary development of alternative business models where the learning materials was

traditionally paid for with students' fees. Another aspect is the possible incentives for the creation of OER within the organization. How can teachers be motivated to actively support the new policy? Last, but not least, an OER policy needs also a number of arrangements on an organizational level, e.g., librarians in universities have to take over new tasks and responsibilities. Finally, the implementation of the OER strategy will be accompanied by continuous quality assurance and evaluation activities to optimize the impact.

Further recommendations on the implementation of OER, also at the level of educational policies and internationally as well as for the direct practice of usage and development of OER were produced within the European OLCOS project. It explores possible pathways towards a higher level of production, sharing, and usage of OER and provides recommendations on the required measures to support decision making at the level of educational policy and institutions. In particular, educational policy makers and funding bodies should demand that academic and educational resources that have been fully or to a larger part publicly funded are made freely accessible under an appropriate license (e.g., Creative Commons or similar) (see Geser 2007, and the OLCOS tutorials via www.olcos.org).

11.10 The Impact of Web 2.0 on OER

Web 2.0 is the active development of perpetual betas, so that content and tools are always seen as unfinished and under construction, combined with new software applications, which makes the contribution to the Web and the collaboration with others easy.

OER is not a result of the new development of a "Web 2.0," but it deeply influences the technologies, policies, strategies, and materials of OER. For example, the variety and accessibility of tools and materials, e.g., Weblog postings, grassroots videos in YouTube, or liberally licensed photos in FlickR, and the possibility to integrate and to mesh up these materials and services are impressive. The huge amount of resources and tools leads to the demand of new concepts of virtual learning management and the concept of a "personal learning environment." Concerning our two case studies, the OpenLearn project was directly built on Web 2.0: Lane (2008) argues that it has implemented "the Web 2.0 philosophy of perpetual beta, release changes often and release early," and additionally new tools are used and the co-creation with learners and external developers is supported.

Not surprisingly, the majority of the younger OER projects build on the Web 2.0 philosophy and tools. This includes more interactive and collaborative development of OER, including other teachers and learners. Examples are the Curriki project (a Wiki with educational material for K-12, www.curriki.org), the LeMill project (a social network and enhanced Wiki system for teachers, lemill.org), and the WikiEducator project (a Wiki with educational materials focussing on technology enhanced learning, wikieducator.org). This new development has

several consequences for institutions dealing with the idea of introducing OER as strategic measure. The Web 2.0 practice and tools deal more with unfinished materials and a lot of material "snippets," compared with the complete Open CourseWare materials, including bulky and not-easy-to-modify (if allowed) materials (e.g., pdf). Web features such as tagging, rating, comments, reviews, and social networking are additionally implemented, for example, at the OER Commons project (oercommons.org).

This Web 2.0 influence in the OER development also includes the use of distributed tools such as several Wikis, Weblogs, media portals (such as FlickR or YouTube) as well as social networking sites (such as MySpace or LinkedIn), and a new concept should probably include such developments. Future institutional offers of OER will mesh up these distributed resources.

11.11 Conclusions and Outlook

There are several reasons and objectives why institutions in higher education should be or are engaged in the development and use of OERs: for example, altruistic motives to share knowledge, or the possibility to gain positive PR, or projects granted by sponsor institutions, which favor OER initiatives. From our point of view, the possible changes, concerning learning and teaching activities and the learning culture within a university, especially if collaborative developments of OER are supported, should gain more attention.

If universities think about a strategic integration of OER, they should think not only about implementation issues, but also on the general fitting of OER into the current organizational culture and structure.

Despite considerable investment in technology-enhanced teaching and learning, there is little evidence of profound changes in educational practice. In particular, the idea that the use of ICT would promote student-centered and collaborative approaches to teaching and learning has not been fulfilled. Instead, there appears to be a growing mismatch between institutional approaches to teaching and learning and strategies and practices of knowledge development and implementation in the world of work. In addition, there is also a growing gap between institutional practice and the way young people are using technology to communicate and for "creative activities, writing and posting of the internet, mixing and constructing multimedia and developing their own content" (Lenhart and Madden 2005).

OER may form a key element in policies aimed at leveraging education and lifelong learning for developing a knowledge society and economy. Simply incorporating OER within a model of teacher-centered knowledge transfer will have little effect in equipping teachers, students, and workers with the competences, knowledge, and skills to participate successfully in the knowledge economy and society.

The introduction of OER policies in higher education is important, but should be accompanied by the development of fitting open educational practices based on a

competency-focused, constructivistic paradigm of learning to promote a creative and collaborative engagement of learners with digital content, tools, and services in the learning process. The Web 2.0 in general and its influence in the OER projects towards more collaborative development of OER and an even more liberally licensed approach could support this.

Chapter 12
New Directions for Higher Education: Challenges, Opportunities, and Outcomes

Marta Cleveland-Innes

Abstract Within the last few decades, pervasive technology and significant social and economic development have forever changed our society. Social and economic change has made it increasingly difficult for higher education to operate in insular ways; attention to changing demographics, global economies, and new social mores is required (Keller 2008). The potential reach of technology seems limitless and has already changed higher education institutions in "the way we organize ourselves, our policies, our culture, what faculty do, the way we work, and those we serve" (Ikenberry 1999, p. 63). Change in higher education to accommodate broader societal changes requires new ways of thinking about economic issues, accountability, technology, and the teaching–learning process. This chapter makes the challenges currently facing higher education explicit. It outlines the leadership traits and behaviors that are moving higher education into a hybrid version of traditional and distance institutions. Six principles of sound strategic planning for creating a new higher education enterprise are reviewed.

12.1 Introduction

Traditional methods of operating in higher education date back to the monastic schools of the seventh century A.D. and European schools of the early thirteenth century. The time lapse alone provides an impetus to assess and revitalize systems of higher education still employing these methods. Education philosopher John Dewey (1933) suggested the so-called transmission method of education, in which content is shared in ways that allow it to be exactly absorbed, which is not an appropriate education model in democratic and open societies. In addition to increasing numbers

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of democracies, a complex system of emergent, dynamic, and opposing stagnant forces have created a kaleidoscopic social context within which higher education now must create, present, and maintain itself. Changes in technology, economics, global connections, and social awareness are imposing on all societal institutions, including higher education. The requirement for systematic, strategic effort to deconstruct and reconstruct higher education has never been more important.

The call for change in higher education can be heard from within and outside the institution. However, the academy's resistance to change is well documented; nothing less than systematic development processes under intense pressure to transform will do (McGuinness 2005). "Critics of higher education lament that technology has changed, the economy has changed, families have changed, religious values have changed, race relations have changed .... [yet] colleges and universities have remained relatively unchanged" (Keller 2008, p. 4). Existing organizational realities must give way to new structures and new pedagogical models as technology, new roles, and current socioeconomic trends become part of higher education.

Many types of institutional change processes are documented and they distil into three basic types: procedural change, technological change, and systemic change (Schlechty 1997). Systemic change means culture shifts through structural and functional change. The institution's intent, purpose, and, ultimately, work change. Procedural change follows logically, as the way things are accomplished are realigned with new structures and purpose. Technological change is implemented to support structural and procedural changes; new devices and mechanics are deployed to get newly defined jobs done efficiently.

Specific processes must be implemented in the deconstruction and restructuring of an organization wishing to realize all three types of change. First, identify challenges that make current ways of operating difficult or impossible. These challenges point to social and economic pressures imposed upon higher education and can point the way to new directions or organizational redesign to meet these challenges. Secondly, leadership practices must be in keeping with the culture of the organization, as it currently exists in combination with the skills required to move in structures, procedures, and technology in ways that will overcome challenges and move institutions in new directions. Third, this leadership practice must support continuous strategic planning. Discussed below are current challenges, necessary leadership requirements, and strategic planning principles for higher education.

12.2 Challenges

Challenges in education emerge when "neither the purpose, the methods, nor the population for whom education is intended today bear any resemblance to those on which formal education is historically based" (Pond 2002, n.p.). These challenges then provide the focus for updating the academy, indicating what changes are on the way or at the door step, and what is not or will not work because of these changes.

Common institutional challenges fall under the headings of economics issues, changing demographics, the demand for accountability, new teaching and learning models, and emerging technology.

12.2.1 Economic Issues

12.2.1.1 Global Economic Change and the Current Recession Means Scarce Resources for Higher Education

The global economy is a corporate structure without representation from either the general public or countries with little power or economic infrastructure. Global economic policy is created by organizations such as the World Bank, the World Trade Organization, and the International Monetary Fund. Input from transnational corporations generates economic policy, without input from organizations that represent the citizenry. Before the current global economic crisis (starting in 2008), an economic crisis was occurring in pockets around the world. Ignored were groups that hold little or no value in the larger economic scheme; the consequential human condition was not considered as policy was put in place.

Those least educated are the most vulnerable in turbulent economic times. In addition, the education system itself can fall victim. Education loses financial support during difficult economic times; the system warrants little attention as a nonprofit system second in line for revision during economic recovery. Institutions of higher education have two choices: to look for innovative ways to self-fund, or create corporate models that bring in monetary investment.

Even the most creative financial strategies with the most optimistic predictions of recovery present a picture of long, slow economic revitalization. Government deficits, competition for public funding, limited corporate funds, and diminishing philanthropic activity combine to paint a picture of flat, if not diminishing, budgets for higher education (McGuinness 2005).

12.2.1.2 Funding for Higher Education Has Been in Decline Since the Post War Era

The issue of funding for higher education spans decades and is much greater than the current economic downturn. The National Center for Public Policy and Higher Education in the United States recently issued a press release regarding the tuition crisis and a significant loss of college opportunities. While the value of postsecondary education in society is not recognized, the erosion of public support causes tuition to rise to a level beyond the reach of many. Another group graduates with debt that effects lifestyle that could last a lifetime. Many students now work and study – this is a trend which represents a change in the immersion and broader individual development that used to be part of postsecondary education.

Education institutions are forced to spend time resolving such issues; spending valuable teaching and research time as resolving these challenges takes up large amounts of time and energy. Without adequate and continuously increasing numbers of student enrolments, institutions cannot sustain themselves. This creates a market-driven environment for education institutions, institutions that should be immune to market forces and focused the development of knowledge and the citizenry. Both private and public institutions, a dichotomy losing its distinction as public funding decreases, must make program development decisions based on demand rather than the needs of society and knowledge.

12.2.2 Changing Demographics

Existing higher education systems will not satisfy the growing demand, in quality or quantity, for enrolment as the college-aged population increases, the aging population increases, and these lifelong learners enrol in increasing numbers.

A combination of changing student characteristics and rising enrolments will change the culture and climate of higher education in the next decade. Growth in the college-age cohort and increased participation means that current enrolment opportunities are not adequate. Since attendance in higher education is no longer restricted to this traditional age, cohort demands for program and course space will continue to increase. Add to this the need for programs for seniors and lifelong learners, and governments are recognizing that more students will seek higher education than current facilities can accommodate (Oblinger et al. 2001; Hanna 2007).

Accommodating the rampant individualism in the twenty-first century culture will be required (Keller 2008). This social fact, in combination with increasing participation of older adults in higher education, requires greater attention to individual needs. This means creating course and program schedules that are flexible, convenient, and accessible. The development of learner-centered curriculum structure and instructional delivery is now imperative (Cleveland-Innes and Emes 2006).

12.2.2.1 Globalization and Intercultural Relations

Learner-centered curriculum must take into account this changing student body and, in particular, the globalization of society and learning environments. Globalization refers to operating in reference to, or ensuring application to, the whole – in this case, the whole world. This is a daunting prospect. While clear understanding of cultures from around the globe is not likely for most students, an awareness of the importance of cultural differences is. The University of Calgary in Alberta, Canada, requires that all undergraduate programs include an international component. The required outcomes are:

- Awareness of international, Canadian multicultural, or Canadian aboriginal perspectives

- Understanding of international relationships and issues
- Content on benefits and challenges of interaction of peoples, cultures, and environments around the globe

This could have far-reaching benefits for students who are afforded such experiences. Geographic mobility, immigration, and education technology mean intercultural experiences are part of daily student life. Institutions face the requirement to create a *culture* and *climate* that offer respect and support in all aspects of learning for every student, regardless of language background, nationality, race, gender, and culture.

12.2.3 Demand for Accountability

The demand for accountability is pervasive in the twenty-first century, far beyond what was expected in the mid-twentieth century. This applies to government and business as well as education, but has a particular transforming impact on education where autonomy is sacred (Scanzoni 2005). According to Pond (2002), "the dissolution of traditional educational hierarchies and other systems designed as much to exclude certain populations as they were to assure 'quality' have opened the higher education 'club' to vast new populations" (Pond 2002, p. 2).

The 1990s found higher education responding to questions from external bodies about issues such as dropout rates, the value of curiosity-driven scholarly research, and teaching quality. Accreditation agencies began to ask for outcome measures rather than reports of inputs. There was demand for graduate competencies and levels of knowledge and skills appropriate to the field of study. Some government agencies tied outcome measures to funding envelopes, promising increased support as measures improved.

Various assessment processes were proposed and attempted. Higher education did not respond favorably to the idea that what they did through their own volition to develop knowledge and prepare students for adult life experiences could or should be measured in the same way industry measures the output of production. However, while it may vary in character, external relationships with accreditation and government agencies include incentives and controls that monitor the extent to which institutions meet agreed-upon obligations.

12.2.4 Teaching and Learning

12.2.4.1 Changing Faculty Roles Increases the Need for Faculty Development and Support

Currently, faculty members serve as content experts, selecting disciplinary content that aligns with universal requirements. In addition, they set standards for

learning outcomes and create assessment procedures to determine students' skill and knowledge. Unfortunately, most faculty members do so with limited knowledge of pedagogy, technology, or learning evaluation. This means that teaching and assessment strategies used by instructors vary widely. Based not on the art and science of teaching, teaching is based on personal preferences, the discipline and the epistemological position in which it is grounded, and models drawn for the reconstruction of their own learning experiences. Without direction from the institution, teaching quality is not systematic but sporadic. "The absence of a common basis for understanding and evaluating teaching makes it more difficult for members of the academy to agree on what good teaching is" (Zemsky et al. 2005, p. 125).

12.2.4.2 Information, and Knowledge, is Growing Exponentially

The proliferation of new information makes the job of teaching more dynamic and constructive than ever before. Information growth is a fundamental element in Western industrialized societies; information's half-life has grown in ways we only just begin to understand. Once predicted to be doubling every 10 years, projections suggest it now doubles every 4 years (Aslanian 2001). Information involves the communication of knowledge or intelligence (Webster's Collegiate Dictionary 2002), as does teaching. Knowledge proliferation has increased demands on professors and administrators to keep content current, eating up resources already in short supply.

12.2.4.3 Instruction Must Become More Learner-Centered and Self-Directed

Pedagogy, or the art and science of teaching, has been ostensibly absent from delivery models in higher education. To say a pedagogical shift is occurring within higher education is a misrepresentation. The best we can say is that since inception of higher education institutions, knowledge has been transmitted to students. This transmission model is evaluated harshly in light of constructivist and meta-cognitive models of teaching and learning.

Embedded in this demand is the notion of a learner-centered approach. Applying learner-centeredness to teaching and learning models will allow students to participate more fully in the arrangement of their own learning experiences. Curriculum objectives will expand to learning about learning processes, strategies, and methods, i.e., "meta-learning." Students will then be able to participate in the shaping of learning experiences and meet their needs as a learner. Individual education plans will emerge: plans created by the student in consultation with the teacher, rather than by the teacher in consultation with the student (Cleveland-Innes and Emes 2005).

12.2.4.4 The Role of Faculty as Teacher and Student as Learner Must Change

Students view his or her role as learner and that of the professor as teacher differently than professor's view of the role of the learner and their own role as the teacher. Role ambiguity exists systemically in higher education. In the transition to a learner-centered curriculum, roles for faculty and students will be agreed upon and explicit, embedding role clarity into a new curriculum structure.

For the students, required behaviors, attitudes, and values as a participant in higher education must translate into the role of the independent, continuous, active learner. This role will emerge as an outcome of higher education curriculum as long as this curriculum includes the knowledge and skill required to support lifelong learning. In other words, higher education must accept the responsibility of developing individuals able to design and manage their own learning and growth.

For the faculty, the current role of teacher is highly variable across institutions, disciplines, and faculty members. In addition to well-developed content expertise, faculty must be well versed in the tenets of supporting learning. An adjustment to behaviors, attitudes, and values more considerate of students is required. For example, faculty will include strategies that foster deep rather than surface learning. In addition, faculty will support increased responsibility for students with a change to include guide and preceptor of the learning process.

12.2.5 Emerging Technology

Technological advancement has a dramatic effect on everyday life and its many social institutions, from the workplace to entertainment. Higher education is not immune to these changes, but "the nature and scope of such changes is still contested" (Gumport and Chun 2005, p. 395). This is so for managing the infrastructure of the institution and for one of higher education's central mandates – teaching and learning. In the past two decades, higher education has, if not embraced new technology, at least reached out to utilize the Internet and other forms of technologically mediated learning. This has transformed interaction opportunities among students and between students and teachers, affecting both program management and the teaching–learning experience. This integration of technology has occurred in both traditional and distance learning institutions.

12.2.5.1 Technological Opportunities for Higher Education is Becoming More Diverse and Ubiquitous

Information and communication technology is transforming human activity and social organizational structures broadly; higher education is part of this

transformation. Infrastructure has increased in size and efficiency as the technology increases in speed and decreases in cost. High-speed networks offer expanding connections. “New technology will transform higher education as we know it today” (Oblinger et al. 2001, p. 2).

12.2.5.2 There is Huge Growth in Internet Use

Technology is not only ubiquitous; more people from more nationalities, age groups, and lifestyles use it competently. The number of Internet users was approximately 500 million worldwide in 2003 and doubled by 2005. This opportunity to network and access information is a significant change in the way people approach, use, and share information. This is not without problems, uncertainties, and complexities. Higher education, in the business of vetting, creating, and disseminating information in the form of knowledge, has to both engage and analyze internet practices and progress.

12.2.5.3 Technological Fluency is Becoming a Graduation Requirement

Technology will continue to increase options available for learning to more people if the development of technological literacy accompanies this growth. According to Creton (2003) “computer competence will approach 100% in US urban areas” p. 6). Technology literacy and fluency are both requirements to succeed in education and a graduation requirement; individuals will need such skills to function in a global, networked world (Oblinger 2000). “Universities are beginning to list the fluent use of technology as an outcome skill, encourage students to take online courses, and even requiring students to take at least one online course before they graduate” (Howell et al. 2003, np).

12.3 The New Higher Education

Change in higher education is evident in sporadic revisions of old practices (McGrath 2002). Some universities post results to publicly accessible sites as part of increased and systematic evaluations of teaching. The development of inquiry-based courses and curriculum redesign occupies the agenda of many Vice-Provosts. Centers of excellence in learning and teaching (that address all aspects of teaching and learning including the integration of technology) have become as common as university libraries, and university libraries have become highly connected and integrated centers of information. Technology is driving change, and learners are in turn changing: an outcome demanded by the technology and other forces present in our changing society. Allen and Seaman (2004) cite results of the Sloan Survey of Online Learning that 81% of all institutions of higher education in the United States

offer at least one fully online or blended course, and 67% recognized online education as a critical long-term strategy for their institution. In the United States, enrolment of online learners grew to approximately 3.5 million, a 21% increase since 2002 (Allen and Seaman 2007). An original form of distance education, changed by technology into distributed learning, can be more current and credible. Mainstream universities can link with flexible and open pedagogical model in a not-so-distant but distributed model of higher education.

This distributed model of higher education can resolve multiple barriers to higher education, and thus create more opportunities for students, update pedagogical practices, add to institutional enrolment, and increase numbers of those educated in society. The first barrier is one of sparse population, where prospective students span a wide geographical area, without easy access to a bricks and mortar institution. The University of the Arctic is an example of this type of problem and response.

The second occurs when large populations have access to a limited number of "seats" in conventional institutions. This is the case in many countries, and is a growing challenge. Mega-universities and distance-teaching universities with 100,000 students or more have already developed as a partial solution. Examples of mega-universities are Indira Gandhi National Open University (IGNOU), with an estimated 500,000 students and the Open University of Hong Kong (OUHK), with over 400,000 students. In these cases, a lack of physical access presented a need that distributed learning could address.

The third barrier exists for adult learners whose complex lives restrict opportunities to access to traditional education. This includes full-time employees, full-time parents, family caregivers – those who need the convenience and flexibility of learning and studying at a time and place convenient for their schedules.

The ongoing evolution of digital communication tools that students use in daily life has created a disruptive technology in terms of education. A fourth barrier is emerging. Many learners are not so much seeking access to education as they hate making a choice to use new technology for learning. This will include learning through personal communication devices. The devices are becoming a preferred way of learning as learning that aligns with acquired information-age skills. This so-called mobile learning will reduce barriers and create changes as this new way of learning is addressed (Ally 2007).

According to Rubin (2003), "traditional universities are becoming more like distance learning universities and not the opposite" (p. 59). This tenor of change and difference makes the new higher education, well, new. Many students are ready to embrace online learning and the technology that goes with it. At the same time, society needs technology-enabled lifelong learners. "The needs of an information-and technology-based global economy, the complexities of modern life, the accelerated pace of change and the growing demands for competent, high-skill performance in the workplace require (sic) that we produce much higher numbers of individuals – whether high school, community college or 4 year graduates – *prepared to learn their way through life*" (emphasis added; W.G.H.E. 1993).

12.4 Leading Toward the New Higher Education

Research and scholarship regarding higher education leadership takes a back seat to discussions of school leadership. In addition, traditional theories of leadership have largely focused on hierarchical relationships in which there is a clearly delineated power structure with a small minority of individuals in leadership roles and a great number of individuals in the follower role. Highly trained academics exist in an environment of self-governance and expect shared leadership models. In this arena, leadership must go beyond central administration to include the rank and file. Relationships between and among administrators and faculty must be collaborative and communicative if the challenges outlined above are going to be addressed (Cleveland-Innes et al. 2001).

Adjustment in the way of doing business and producing newly identified outcomes in higher education will not proceed smoothly without new types of leadership; i.e., leadership is a key ingredient in the successful transformation to a new higher education. For the purposes of this discussion, leadership is a set of characteristics and behaviors that together enable organizations, and the individuals in them, to create optimal organizational conditions for realizing organizational goals (Beaudoin 2007).

The higher education leader of the twenty-first century will exhibit strong character, well-developed personal skills, and the ability to create and communicate vision (Garrison and Vaughan 2008). In addition to these personal traits, this new leader will be willing and able to listen to and assist stakeholders, maintaining and enhancing relationships between the institution and relevant internal and external groups.

In a study by Latchem and Hanna (2001), innovative leaders in open and distance education demonstrated characteristics that relate to traits and skill regarding organizational *and* individual management and change. These characteristics and behaviors allow leaders to deal with both the macro-structural and micro-individual levels of the organization (Alexander et al. 1987). The following chart outlines characteristics and skills found in leaders of innovative education institutions, related to both intra-institutional factors and external connections to important agencies and stakeholders (Table 12.1):

In addition to demonstrating these valuable characteristics and behaviors, we need "leaders who have reflected on their experiences and internalized understandings about their own capacity to lead" (Beaudoin 2007, p. 391). In other words, the reflectiveness identified as important in the above list includes reflection on one's own leadership. In this way, leaders can evaluate, and where necessary, adjust to drive, implement, and sustain necessary changes.

Leadership behaviors and personal characteristics contribute to sound leadership. Personal characteristics are internal attitudes and information processing traits demonstrated in everyday activities. This is not to espouse trait theory of leadership, which "has been thoroughly debunked" (Cronin 1995, p. 30). Leadership is known to be situational, contextual, and collaborative, not a set of characteristics held uniquely by an individual. These characteristics, then, are valuable attributes used

Table 12.1 Innovative education leadership characteristics and behaviors

Personal characteristics	Persistent
	Takes risks
	Patient
	Tolerates ambiguity
	Accepts role as a controversial, public position
	Reflective
	Flexible
	Persuasive
Behaviors	Models continuous learning
	Considers timing, exercises judgment when setting new direction
	Affirms the value of others
	Can foster trust and respect
	Selects good leaders on leadership team
	Considers the reality of humans and change
	Balances vision with reality; change with stability; influence with humility
	Willing to end leadership when necessary, appropriate
	Engages opportunities and problems
	Sets direction and blocks ineffective pathways
	Drives change
	Sets the agenda
	Stands up to political influence
	Communicates effectively
	Capitalizes and builds on success
	Identifies and engages allies
	Engages "outsiders" to foster internal change
	Is a team player
	Utilizes individuals to contribute to organizational goals
	Reframes organizational goals as necessary
	Pays careful attention to form, process, and goals

Adapted from Latchem and Hanna (2001), pp. 236–237

in the thinking and doing of leadership such that followers engage. Followers enable and sustain change in organizations.

Behaviors refer to the important things people do. This list is a research of Latchem and Hanna (2001) on the behaviors of innovative education leaders in open and distance education. This list is not unique, however; these behaviors can be found in bits and pieces throughout the literature (see, for example, Kotter 1995; Lussier and Achua 2004; Yuhl and Chavez 2001). What is important about Latchem and Hanna's work is identifying both traits and behaviors plied in innovative open and distance education institutions, where deviation from the past and significant change in education are evident.

12.5 Strategic Planning as a Leadership Tool

Leaders have the authority over and access to resources (such as they are) to foster and support planning. The value of planning lies in the ability of the resulting plan to achieve desired results, not in the planning process itself. Effective leaders understand this and guard against making planning itself a central characteristic of the institution. In education institutions, planning must ensure that what the institution is doing is adding value to key stakeholders: faculty and students, the fields represented at the institution, the community in which the institution resides, and the larger society. In contemporary society, rapid ubiquitous change means institutions must have the capacity to change quickly, in ways that are productive and effective. Higher education, not known for organizational agility or excellent change management, must now be capable of rapid evolution to serve a continuously changing world (Duderstat 2002). The practice of strategic planning is one opportunity to guide the processes and decisions that create change and innovation. According to Rose and Kirk (2001), strategic planning is almost intuitive for effective leaders.

Sound strategic planning for higher education includes the following principles.

12.5.1 Strategic Planning Starts with Detailed Assessment

The first step involves large-scale engagement of individuals who critically assess the external environment and internal situation in which the institution is operating. This assessment, or environmental scan, involves identifying current trends, anticipated developments, key strategic issues, and the impact on the institution of these trends.

The critical task of a situation assessment is to collect, analyze, and synthesize the right data into meaningful and succinct conclusions (Rogers et al. 2001). It is not about gathering and dumping large quantities of data on the decision makers. Definite institutional change requires discussion and consensus building; the sharing of, and building on, ideas to create solutions to challenges, as well as forward-thinking, desired change (Cleveland-Innes et al. 2001). Large-scale involvement of faculty, staff, and students, with full ownership of the change process is critical to implementation and maintenance of organizational change. This is so whether the change is procedural, cultural, or technological.

12.5.2 Strategic Planning Focuses on the Future

Scoping future conditions of the institution involves making decisions fundamental and directional in nature, with long-term implications. This means considering the

current state of the challenges outlined above, in light of predictions for the future. For example, transitioning from a traditional face-to-face institution to one that offers online and blended learning as part of its mainstream offerings is fundamental change in services provision. The shift to distributed learning is the harbinger of the new higher education.

12.5.2.1 Critical Issues

Strategic planning pulls critical issues to the surface and charges leaders with making choices based on the best available information. Planning alone does not produce results; however, well-developed plans increase the likelihood that the day-to-day efforts of the institution will be sequenced, coordinated, and integrated for the overall benefit of the institution. A situation-based, needs-assessment provides a detailed presentation of the current state of central aspects of the institution: the system, the procedures, and the technology. The demands on the institution, the desired ends, and the assessment act as a systematic point of comparison. Gaps between institutional realities and current requirements and demands set the direction for planning.

Allen and Seaman (2003) found that 59.6% of academic leaders surveyed agree that their faculty accept the value and legitimacy of online education. This evidence suggests that there is agreement on this critical issue. It also suggests that there exists a critical mass of faculty from which to recruit participants in the planning process.

12.5.2.2 Strategic Planning Documents

A strong strategic planning document supports strategic change. A well-written plan clearly summarizes the institution's desired future direction, its distinguishing characteristics, and the action priorities required to move toward that direction and unique position. The plan includes a limited number of performance indicators and milestones to measure and monitor progress. It also includes information that differentiates the institution from others for the stakeholders.

12.5.2.3 Strategic Planning Differentiates the Organization

In the increasingly competitive arena of education, successful institutions have a clear institutional position that differentiates what they stand for and what value they deliver to learners relative to other institutions. Differentiation is the result of an institution understanding the needs of the learners it can best serve, aligning programs, policies, and processes to deliver benefits specifically targeted at selected learners needs, and being able to effectively and efficiently communicate and reinforce this focus with existing and potential learners (Rogers and Finley 1999).

Online learning supports new roles for students and faculty; a fact such as this has the capacity to enhance institutional positioning. As a new role of the learner in relation to a new role for faculty emerges, our understanding of learning options will likely change. Prospective students looking for new ways of learning in higher education will be attracted to and retained in this environment. Clearly differentiated institutional position on the merger of traditional and online learning enables an educational institution to optimize the resources required to not only recruit learners, but to recruit researchers, faculty, and funding, and achieve high levels of satisfaction within these groups.

12.5.2.4 Successful Planning Prepares the Institution for the Future

The process will broaden perspectives to help understand the current and evolving needs of stakeholders better and determine how the institution can best address those needs. It will synthesize individual perspectives with institutional perspectives for the institutional strategic direction, values, and priorities. (Cleveland-Innes et al. 2005).

12.6 Conclusion

The relationship between higher education and society is changing. The value and demand for learning is escalating; individuals need opportunities for accessible quality education for life; and new technology and pedagogies are reaching learners previously not considered in education models.

In his inaugural address, American President Barack Obama said, “we will transform our schools, our colleges, our universities to meet the demands of a new age” (Obama 2009). The *we* in the statement is ambiguous, as is the direction of that transformation. Those who study and work within higher education need to guide and direct this transformation, not resist it. Higher education will meet its current and future challenges, not by holding steady the organizational and pedagogical sacred cows of earlier times, but by recognizing and responding to changing circumstances. Given that higher education culture is resistant to change, responsiveness will come from dedicated leadership and sound strategic planning.

Leading this change will be those who have developed sound leadership traits, can exhibit the right behaviors, and understand the planning of implementation of new directions. As higher education globally undergoes significant redesign in response to multiple challenges, successful organizations will be the ones able and willing to respond to the society in which they exist. This means adjusting as society adjusts, and not before or after. There are many risks and rewards in the leadership and education for change.

Their non-attending colleagues had actually attended this event. Although this project did indeed reach some of those staff for whom the development of

innovative approaches to teaching is a low priority, it remains a challenge to get them fully involved to ensure a consistent and satisfying learning experience for students. Pressure on staff time remains a significant issue.

In conclusion, this project did succeed in its aim to "ENTICE – encourage teaching innovation in a computerized environment." It did so in an engaging way, using a collaborative and participative approach implemented through the method of Appreciative Inquiry. The findings and evidence generated by the project provided inputs to the e-Learning action plans and strategies for each School. At the culmination of the project, senior staff indicated that they felt able to lead further discussions in their Schools on the developments in e-Learning that should be identified in their future strategic work. We judge that this constitutes a significant step forward in relation to e-Learning and would also recommend this approach when other strategic initiatives need to be embedded in an institution.

Chapter 13
Making User-Generated Content Communities Work in Higher Education – The Importance of Setting Incentives

Jan vom Brocke, Cynthia White, Ute Walker, and Christina vom Brocke

Abstract The concept of User-Generated Content (UGC) offers impressive potential for innovative learning and teaching scenarios in higher education. Examples like Wikipedia and Facebook illustrate the enormous effects of multiple users world-wide contributing to a pool of shared resources, such as videos and pictures and also lexicographical descriptions. Apart from single examples, however, the systematic use of these virtual technologies in higher education still needs further exploration. Only few examples display the successful application of UGC Communities at university scenarios. We argue that a major reason for this can be seen in the fact that the organizational dimension of setting up UGC Communities has widely been neglected so far. In particular, we indicate the need for incentive setting to actively involve students and achieve specific pedagogical objectives. We base our study on organizational theories and derive strategies for incentive setting that have been applied in a practical e-Learning scenario involving students from Germany and New Zealand.

13.1 Introduction

There is no doubt that information technology (IT) offers great potential for the design of innovative learning and teaching scenarios. In higher education, Web 2.0 in particular has been attracting a lot of attention recently. The example of Wikipedia has shown how productive the so called "User-Generated Content Communities (UGC-Communities)" can become. UGC refers to independently produced content by making use of the internet for an undetermined audience, without

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charging them directly (Stöckl et al. 2008). Open Source software development is seen to be a related field, since clear similarities can be observed between voluntary production and free distribution of both software and content. With the increasingly blurred separation between the author and the user of content, users now have the opportunity to become authors at the same time.

In higher education, this trend could foster learning results as the active involvement of students helps facilitate a constructivist learning environment. In addition, distributed or distance learning offer new opportunities in terms of cost-efficient learning and teaching environments, with the potential of spreading learning networks worldwide on reasonable budgets. That said, experience with UGC so far also shows that technology as such is not enough to make use of this potential in practice. The successful implementation of technology requires a great deal more management which, among other things, also needs to address questions about the creation of incentives: A fundamental question is how learners can be motivated to both, share their knowledge and to offer their time for working for the community. In our view, organizational issues (rather than technological ones) turn out to be of foremost importance for finding answers to these questions.

In this study, we therefore analyze means of incentive setting for making use of User-Generated Content Communities in Higher Education. For that purpose, the remainder of this chapter is structured as follows: first a framework is presented structuring the fields of action for managing UGC-communities. The framework explains that incentive setting is needed to raise the motivation for taking part in UGC-communities. In addition, we complement our theoretical considerations with a practical example to illuminate dimensions of incentive setting from a wider perspective. Finally, a conclusion is drawn and an outline for further research is given.

13.2 Fields of Managing UGC-Communities

13.2.1 A Conceptual Framework

Infrastructures for UGC have to be designed according to specific needs of the community. That said, certain fields of action that are relevant for designing the infrastructure can be distinguished. A description of these fields within a framework can serve as a guideline for the implementation of specific infrastructures. In order to derive relevant fields of action for designing a UGC infrastructure, a framework describing relevant aspects for the implementation of design processes in information systems (vom Brocke 2003) can be applied. Figure 13.1 presents an overview of this framework along with the fields of action for building an infrastructure for UGC.

The framework emphasizes the fact that the implementation of an infrastructure for UGC is an interdisciplinary task. The study, therefore, draws on contributions

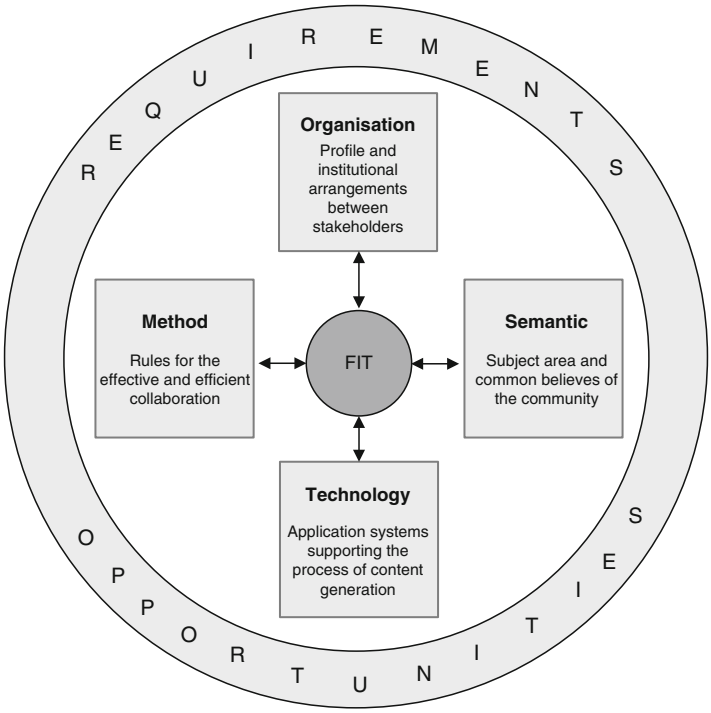

Fig. 13.1 Framework for the design of UGC-communities (adapted from vom Brocke 2003)

from various perspectives that have to be integrated according to specific requirements and opportunities. The model particularly shows that apart from technological aspects of UGC, contributions in the fields of semantics and methods and organization are required.

- *Technological Factor*: The technical infrastructure sets the basis for an UGC-Community. Internet technology, in particular, is a promising means for contributing to the community from different places of the world and at different times. Typical functionalities comprise the up- and download of files from a shared directory as well as wiki-webs for the collaborative editing of documents on the web in multiple versions.
- *Semantic Factor*: The design of a UGC-Community is driven by the semantics of the contents generated and shared. Consider for example the different linguistic practices among communities sharing comedy as opposed to those sharing content related to certain fields of research. In addition, common understanding is needed among members of a community regarding basic terms and structures of the domain. This calls for techniques in structuring and annotating content such as keywords, taxonomy, thesaurus, conceptual models, and ontologies (see Daconta et al. 2003).

- *Organizational Factor*: The UGC-Community needs to be aligned with the specific organizational field of application. The design should reflect, for example, if a single course or a regionally distributed, loosely coupled community is targeted. In addition, the profile of the users is relevant, as to their demographic and also cultural and educational background. Also further stakeholders should be taken into account, such as administrators, scholars from partner universities or practitioners.
- *Methodological Factor*: According to technology, semantics and organization, rules have to be established for coordinating the work within the UGC-Community. These rules may for example comprise review procedures in order to assure a certain quality level within the community. One technique commonly used, for example, are staging mechanisms, according to which content has to pass multiple quality checks of certain working groups before being made visible for another group (e.g., student work being prechecked by peers before shared with the lecturer).

According to the framework for the design of UGC Communities (see Fig. 13.1), the fields of action described above must be designed in consideration of specific context situations. These situations are characterized by certain requirements and opportunities which direct the settings in the fields. In order to meet the needs adequately, various interdependencies between settings in different fields must be taken into account. Technological conditions for instance either work as an enabler or as a restriction for both organizational as well as technical settings. Thus, the design follows a balanced manner, aiming at a so-called "fit of design."

In this paper, the impact of the organizational aspect on making use of UGC-environments is particularly highlighted. For that purpose, a closer look at both the technological aspect (as widely spread in literature) and the organizational aspect (as a new field to the work on UGC) will be presented in the following.

13.2.2 A Software-Oriented Perspective: Web 2.0

Although the phenomenon of Web 2.0 may be characterized by social effects rather than by technical innovations, its origins clearly stem from a software-oriented and thus technological perspective. These origins will be briefly described in order to then further elaborate on organizational issues of building UGC-Communities in higher education.

Around the year 2000, Web 2.0 platforms emerged and revolutionized the internet (O'Reilly 2005; Sester et al. 2006; McAfee 2005). The term Web 2.0 describes new interactive applications on the web (O'Reilly 2005). Its applications are often associated with "social software" (Allen 2004; Boyd 2006). Social software is based on different services for establishing networks and supporting distribution of information within the network (e.g., e-mail, instant messaging, SMS, or blogs). Hence, while traditional software focuses on productivity and

process support, Web 2.0 applications focus on the linking of individuals and groups.

Hippner and Wilde (2005) define five characteristics of social software. (1) The focus of social software lies on individuals or groups. (2) Social software relies on self organization of the participants. (3) Each individual contributes voluntarily. (4) The role of actors changes from an information consumer to an information provider. (5) It is the linkage of information that is of crucial importance, rather than the information of individuals. Internet forums, wikis, web logs, instant messaging, RSS, pod casts, and social bookmarking are tools of social software (Allen 2004; Boyd 2006; O'Reilly 2005).

Web 2.0-driven social software comprises of a couple of innovative technological approaches, which in particular are key elements of virtual community infrastructures. Virtual communities allow members to share knowledge, experiences, opinions, and ideas with each other. Studies show that community members could even be integrated in the value added process of an organization e.g., by generating and discussing innovations of products and services (Lattemann and Robra-Bissantz 2006; vom Brocke et al. 2008).

13.2.3 An Organizational Perspective: Incentive Setting

Research shows that members of virtual communities are usually driven by a complex portfolio of altruistic, intrinsic and extrinsic motivations. This includes motives such as the joy of creating content or following specific values (Shah 2004), or extrinsic aspects such as gaining reputation in the community or signaling knowledge to companies to increase career chances (Lerner and Tirole 2002). These different kinds of motivation can be stimulated by a range of incentives, rules and regulations which are implemented in a governance system. Such a governance system has to consider all important drivers in order to increase voluntary and valuable contributions of community members.

While implementing a virtual community, context-specific characteristics have to be considered. In socially oriented communities such as communities in the health sector (Leimeister and Krcmar 2006), social aspects such as identity (Haring 2002), values and ideologies (Raymond 1999) and affiliation (Haring 2002; Raymond 1999) are of importance. In rather expert-oriented communities such as communities for financial markets, motivation for participation is far more driven by the need for topical information (Raymond 1999; Shah 2004), the joy and the desire to create and improve (Goldman and Gabriel 2005) as well as training, learning and career concerns (Lakhani and von Hippel 2003; Lerner and Tirole 2002; Raymond 1999). Because of the different nature of virtual communities, their implementation and their management are no easy tasks.

In addition, different institutional arrangements of users forming a UGC-community may be considered more closely. For that purpose, theories in the field of the new institutional economy may well be used. As to transaction cost

theory (Coase 1937; Picot 1982; Wiliamson 1991), for example, market- and enterprise-oriented arrangements can be differentiated. Whereas in markets prices for transactions are a key figure that are negotiated on an individual level, in enterprise structures long-term negotiations are characteristic for setting a frame for cooperation on the basis of principal agency-relations (Sydow 1992). Likewise, close UGC-Communities within one university (or class) could be differentiated from open ones also potentially involving anonymous members. In real-life situations, structures falling into the continuum between both stereotypical structures can be observed. These structures are referred to as hybrid structures (Wiliamson 1991; Sydow 1992). Virtual learning networks fall into this particular category which is characterized by a loose connection of partners who flexibly cooperate on certain tasks, such as the generation of content in a certain field of interest.

Prominent (or high-profile) examples such as Wikipedia and Facebook have inspired interest in the UGC phenomenon elsewhere, including higher education. However, the difference between a more or less private use (in highly loosely coupled relations) and a pedagogical use aiming at certain learning outcomes cannot be overlooked. One of the most striking of these differences relates to incentive setting: How to motivate students to share knowledge with others and spend time on doing so? In other words, the question is how to align pedagogical and individual interests. These challenges call for action in the field of organizational design of the UGC Community that are further analyzed in the following section.

13.3 Theoretical Background of Incentive Setting in UGC-Communities

13.3.1 A Business-Oriented Perspective

Previous studies on the design of incentive systems are discussed in organizational psychology, placing a focus on either behavioristic motivation theories (Weinert 1998; von Rosenstiel 2003) or the equity theory by ADAMS (Adams 1963). In order to explain competitive indication systems, both, goal and VIE-theory can be applied. LOCKE's goal theory serves as a means to analyze the influence of goals on the motivation of individuals (Locke 1968). Objective targets such as financial incentives may serve as an impulse to both increase motivation and support performance on a local level. The significant core of the goal theory is that clearly formulated and challenging objective targets have a stronger effect on motivation than vaguely formulated and easily reached ones (Locke et al. 1981). On top of that, a successfully reached goal might also cause objective, transparent, and quick feedback about the level of the goal reached (Locke et al. 1981).

In line with the goal theory, VROOM's VIE-theory likewise analyzes the influence of goals on the motivation of individuals (Vroom 1964). As an important extension, Vroom differentiates between organizational goals and individual needs

of locally organized units. Transferred to the field of higher education, this approach might help to study the relation between pedagogical objectives organizing the UGC-Community and individual needs of the students driving their commitment to contribute.

In concordance with its core statements, the theory's acronym results from three constructs (adjusted to the field of higher education in the following):

- *Valence*: originally corresponds to the anticipated value of a result achieved by the individual's action. In terms of UGC Community this means: the higher the perceived value of being involved in the Community, the stronger is the incentive for students to contribute to it.
- *Instrumentality*: originally specifies the relation between organizational and individual target objectives which can either be conflicting or identical. Hence, the challenge is to align individual needs of the students in a way they match the pedagogical objectives of the UGC. That is, the more the pedagogical objectives are aligned with the individual ones, the stronger is the incentive of students to contribute to the UGC.
- *Expectation*: whereas the valence focuses on the potential value to be gained by an action, the expectation draws on the attainability of this potential as perceived by the individual through his or her own action. Hence, the stronger the belief in reaching the desired result, the stronger is the incentive of students to contribute to the UGC.

An adaptation of the VIE-approach is proposed by Porter and Lawler (1968), Based on an empirical study, they consider further constructs and feed-back loops in their analysis (cf. chart one, cf. also Porter and Lawler 1968).

In Fig. 13.2, both, valence (1) and expectation (2) correspond to the constructs depicted in the VIE-theory. There are a number of other relevant aspects which could be added with a view to extending the theory; these include: dedication (3), individual capacity (4), role perception (5), result of the goal realized (6), degree of justice (7), award (8), and satisfaction (9) of the agent. Dedication corresponds to the energy an individual invests. This aspect is at the core of the approach, its effectiveness being relative to individual capacity and the role perception in the realized result. An agent brings in an exceptional out-put in those fields in which, on the basis of his or her role perception, he or she expects the highest award. The result of the action determines the individually perceived degree of justice in relation to the award. These aspects are derived from both extrinsic as well as intrinsic sources. Both aspects, award and justice, influence the degree of the agent's satisfaction. As a result, they also influence the valence of future tasks.

Let us take the example of a voluntary academic writing course to be organized within a UGCC. First, students need to see the importance of improving their academic writing skills (1). In addition, they need to expect the course in its current outline to be helpful in improving their skills (2). In that case – according to the theory – students would show a certain dedication to take part in the course (3). The actual extent of their participation (6) is then also determined by their individual capacities (4), i.e., driven by time constraints and previous knowledge,

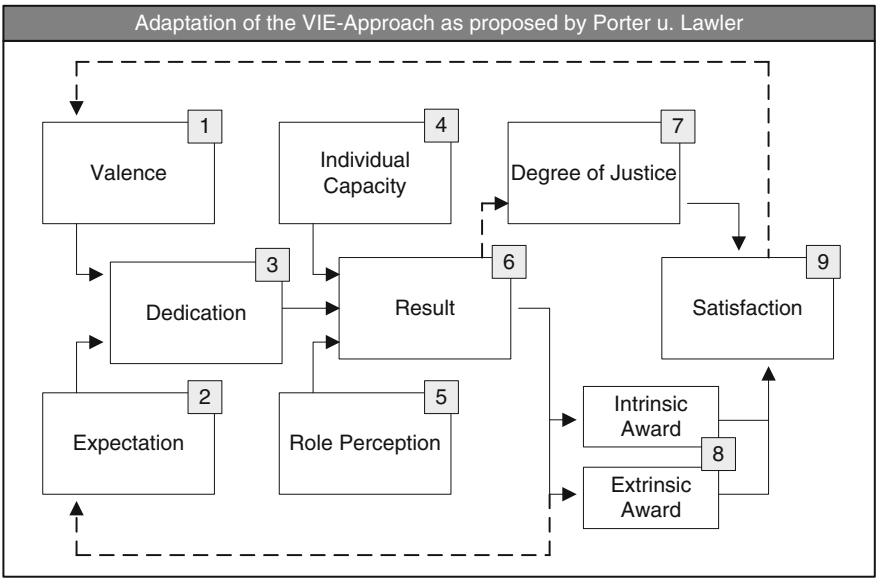

Fig. 13.2 Theoretical model about the impact of incentives

and their role perceptions (5), i.e., the clear understanding of the tasks connected to the students' roles in the UGC Community. Depending on the outcome(s) of their participation students will feel more or less rewarded for this action (8) and will thus feel a certain satisfaction (9) generated by their individual involvement in the UGC Community. Based on these experiences both future valence (1) and future expectations (2) are adjusted.

Studies in the business context conclude that, among other things, financial awards set the strongest incentives. In higher education, however, this kind of incentive setting can hardly be applied. Hence, further means of incentive setting have to be discovered. For that purpose both goal and adapted VIE-theory provide the opportunity to support the motivation of students to become involved in UGC Communities. Therefore, appropriate incentives are needed ensuring high valences (1), positive expectations (2), adequate capacities (4), supportive role perceptions (5), fair and transparent evaluation (7) and meaningful rewards. These opportunities will be further analyzed and discussed in the following section.

13.3.2 A Pedagogy-Oriented Perspective

This section aims to widen the scope in the discussion of incentive setting by conceptualizing learning, and any associated potential incentives, as situated in a

broader social, educational and cultural context (Hayes 2006; Lave and Wenger 1991). Adopting a more holistic, ecological perspective of the overall learning environment shifts the perspective on incentive setting to the process of creating the conditions that will encourage students to take up learning opportunities available in technology-enhanced contexts. A distinction established by Tudor (2003) between ecological perspectives and technological perspectives on language learning is a useful starting point. A technological perspective focuses on potentialities and predictable sets of outcomes, while ecological perspectives acknowledge that the effects of educational technology cannot "be predicted confidently from the inner logic of the technology alone, as this inner logic inevitably interacts with the perceptions and goals of those involved in using it" (Tudor 2003, p. 9). An ecological approach includes a focus on how learners respond to, alter and create a learning environment from the affordances within that environment; it sees the learner as an active agent who critically examines the affordances of new learning environments and then attempts to utilize them according to their own needs and goals. Similar findings are discussed in the Information Systems discipline focusing on sociomaterial issues of "technology in use" (Orlikowksi 2007).

Learning in technology-rich environments presents learners with a range of possibilities as well as constraints, depending on how the environment is framed: learners may, for example, be unfamiliar with learning in unstructured, nonlinear ways; they may not feel comfortable developing their understanding through co-constructed knowledge within the social reality that they are part of (Felix 2002); they may struggle to participate in shared practice through interaction and collaboration; they may not want to participate in the kind of adaptive learning required to make use of technology and tools. This explains why collaboration tasks do not necessarily generate productive activity (Kreijns et al. 2003). As Hayes (2006) argues, "leveraging user-creation for learning requires far more than simply providing users with the correct tools." Thus in the search for an effective incentives system we need to take into account learner perceptions of what technology may offer them as a means to enrich their learning. And these affordances, that is, what individuals perceive affords them action or possibility, are highly individualistic, depending on who the learners are, what they want, and what they find useful at a particular point.

Technology affords opportunities for action. Whether and to what extent learners take action by becoming actively involved in UGC is determined by a number of factors inherent in the learners themselves, their learning context and the relationship between these. White's (2003) theory of the learner-context interface (LCI, see Fig. 13.3) illustrates the relational nature of learning within an ecology where the interface represents a dynamic artifact constructed by learners through interacting and engaging with dimensions in their learning environment. These contextual dimensions typically include the overall course structure and assessment, resources and materials, other learners, the teacher as well opportunities for interaction through technology and the level of learner control over activity. Being actively involved in shaping the LCI may result in a meaningful learning experience. Motivation, affect and beliefs are among the learner-related dimensions

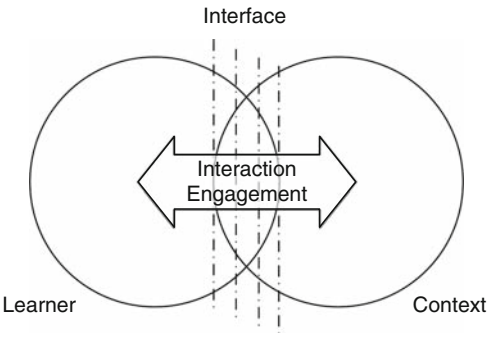

Fig. 13.3 The learner-context interface (adapted from White 2003)

which "have a bearing on how learners interpret, relate and respond to the learning context and the kind of interface they are able to construct" (White 2003, p. 64) within the learning.

In the remainder of this chapter we extend current thinking about the notion of incentives based on an experience of innovation in higher education, and the shifts in thinking required in what teaching and learning experiences, networks and communities now mean. We argue that this reconceptualization is essential and is aligned with the example we provide of incentivised instructional design aimed at integration of Web 2.0 technology to facilitate collaborative learning in an international eGroups project.

13.4 Case Study on UGC-Communities in Higher Education

13.4.1 eGroups: A UGC Community of Students in Germany and New Zealand

The eGroups concept provides a computer-mediated learning environment, which facilitates joint construction of knowledge and experiential learning through student-centered, content-based inquiry. Its virtual collaborative learning environment, thus, also responds to the demands in higher education for autonomous, technology-enhanced learning through collaboration (Mayes 2001), which in the New Zealand context has been recognized as a crucial tool for lifelong learning (Highways and Pathways 2002). Collaborative ability, teamwork, networking and social coordination are among the key competencies as envisaged by the Bologna process in the European context. The eGroups project was set up in 2007 and involved three cohorts of students studying English for the Social Sciences at Münster University, Germany and students of German as a foreign language at Massey University, New Zealand (Walker and vom Brocke, in preparation). It was devised as a mechanism to promote authentic communication and meaningful, content-based learning in a cross-cultural setting, based on the underlying

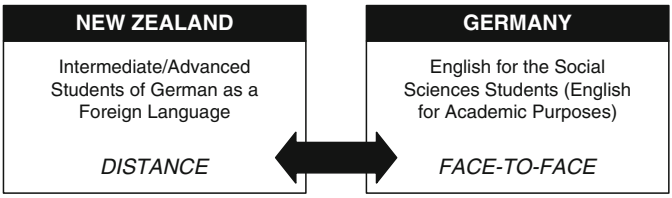

Fig. 13.4 Participating groups in an International eGroups collaboration

principles of learner reciprocity and autonomy. Drawing on forms of open learning such tandem-learning (Schwienhorst 2003) eGroups bring together different learner communities who have first language command of each other's learner language and who collaborate on a joint project (Fig. 13.4).

The eGroups task design aims at students working together toward common outcomes. While institutional, cultural and curricular differences may add to the overall complexity, they also mirror real-world diversity and add authenticity to the negotiating task. Working in small groups, students negotiated their own topics in relation to an overarching theme, "Globalization and Localization: opportunities and challenges" which accommodated the curricular demands in both contexts through the study of contemporary issues in the target contexts. The theme was introduced through a series of current media reports, which served as a point of departure for discussion of possible topics through which to explore contemporary global issues from cultural, social, economic or environmental perspectives. These included global effects on local environments and contrasting or converging trends relating to tourism, production and consumption of food, cultural identity or diversity in education. These authentic examples of cultural traditions being exposed to global, commercial forces served as a springboard for reflection and developing critical questions which, in turn, helped raise awareness of each other's perspectives. For example, through discussions of the tattoo, as an example of globalized fashion or an expression of local identity, German students became aware of the unique cultural meanings Maori tattoos have in the New Zealand context, while the New Zealand students came to understand the role of tattoos primarily as fashion accessories in Germany. These initial comparisons came about through information exchange between students who were able to act as mutual "experts"; this exchange then became a foundation for further critical reflection.

These interactions were facilitated by synchronous communication tools; however, there were different levels of engagement across the groups and cohorts, reflecting the learner-directed, autonomous nature of each group. Sustained interactions emerged on the basis of having shared background information relevant to the course theme and about each other in the early part of the course, assisting with the development of an online presence – individually and as a group. The level of interactivity among students was open but guided by the underlying task design and teacher support, both of which assisted students with timely sequencing of their activities and ensuring a link with assessed outputs (e.g., a presentation or a report).

Interlinking of instructional design with the targeted use of technology resulted in live online discussions, as illustrated by an exchange about the appropriation of cultural symbols:

S1: in a globalized world many cultures or local communities sell their typical "culture stuff." I don´t know how to call it exactly....
S2: so we come finally back to the question, what "culture" might be
S1: yes or what people think it is....when they come somewhere and want to see, buy or experience something typically mmmhh. yes but we can also think culture got another meaning through globalization, through "Kommerz" . . .
S3: because now cultures around the world are picking up bits and pieces from other cultures
S1: and also often sell their own.
S2: I'm not sure if you can sell culture out. Culture is what people do, isn't it?
S3: Yes. There's a lot of Maori-based stuff on sale here. You can't sell culture, but you can sell its symbols. . .. I think it's better for a culture to exploit itself than for another culture to steal its symbols and do it for them... At least that way, they're *choosing* to do it!

The key design principle underlying the eGroups concept aims at creating a learning environment which motivates this kind of active learner involvement in the construction and distribution of content and knowledge. The above example of collaborative dialog illustrates how learning emerges through joint reflection, dialog and negotiating the meaning of complex, unstructured concepts such as globalization or culture, resulting in the construction of local meanings as opposed to readymade definitions. The eGroups instructional design attempts to promote this process through the interplay of structure and flexibility, and making apparent the critical dimensions of the learning context in terms of their purpose and potential benefit. For example, active group involvement serves as a tool to sharpen one's thinking and provides a basis for written outputs.

Effective integration of technology into the overall course objectives was therefore a primary concern, as was the setting of tasks and expectations, relating these to specific uses of technology or tools, in order to facilitate UGC in the form of joint construction of meaning and text. As illustrated in Fig. 13.5, students could choose from a range of synchronous and asynchronous communication tools, able to generate text and voice-supported interactions. In eGroups the notion of "technology-rich environment" is conceptualized as ICT being embedded in the overall learning context, with a clear relationship to the course structure and tasks and with each tool serving slightly different purposes. For example, the synchronous voice tools were used for meetings and live conferences, weaving together written chat and spoken discourse, with the dual requirement of students listening to each other and getting their own points across, while observing conventions of spoken discourse in a cross-cultural setting. The asynchronous tools assisted general information exchanges as well as joint writing. For the latter, the wiki tool played a particularly significant role as it enabled students to further refine thoughts and reflections developed together in live conferences or discussion board and construct

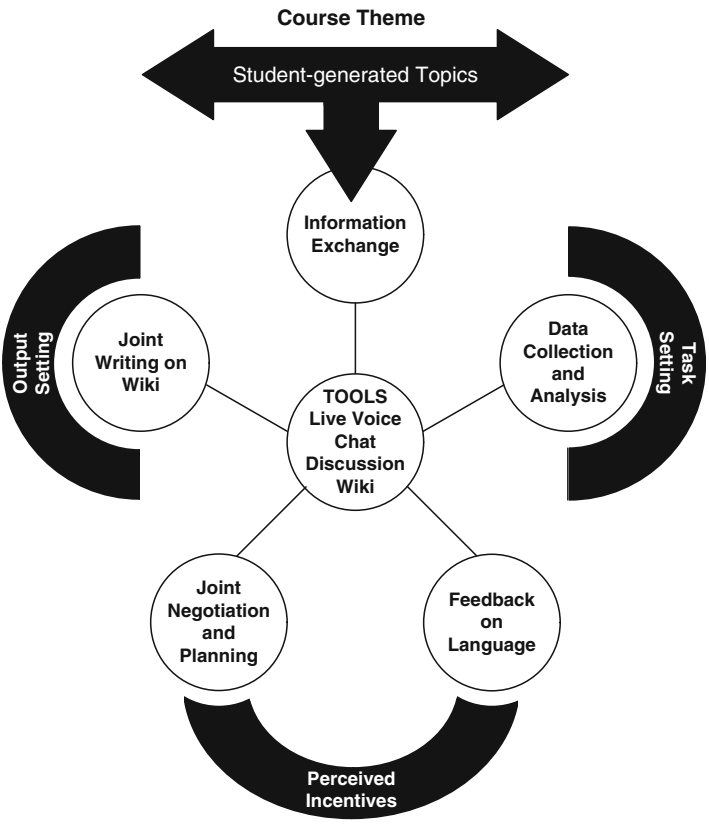

Fig. 13.5 Configuration of technology and tools in eGroups learning environment

text jointly, with a view to supporting the outputs required for course assessment. In other words, students engaged in autonomous collaboration and became authors of UGC.

With this as background we now turn to a critical examination of the significance of – and issues surrounding – the setting of particular incentives in the context of an international eGroups project, which aimed at facilitating collaborative online learning based around the co-construction of meaning and knowledge.

13.4.2 Six Incentives for Making UGC Communities Work

Learning from the eGroups case we can deduct six specific incentives that turned out to be of both effective and practically applicable in the context of higher education: high valences, positive expectations, adequate capacities, supportive role perceptions, fair and transparent evaluation, and meaningful rewards.

In the following we will set out explaining each incentive in more detail and also give practical examples from the eGroups case.

13.4.2.1 High Valences

Bourdieu (1992) argues for the value of language as cultural and social capital, and this value is now at the interface of economic and cultural globalization. A key goal for participants in the eGroups projects was to develop their language proficiency (in English for one group, in German for the other), not merely as learners of a language system but as twenty-first century users of those languages. Equally important is the fact that we were concerned about addressing the gap identified by Thorne (2009, p. 91) who argues that "in an era in which mediated communication constitutes an important or even primary modality for social, recreational, and professional life, it is ironic that mastery of high frequency and high-stakes mediated genres of communication have not been systematically included among the explicit goals of L2 educational practice." The eGroups project provided students with the opportunity to use and extend their language skills in a Web 2.0 environment, challenging them to participate and contribute to an emerging online community with native speakers of their target language.

The challenge in designing and framing learning opportunities was to optimize the likelihood that students would see and experience the activities they participated in as valuable. This was complex since learners have their own agendas and those agendas contribute to what they do and the significance and usefulness they ascribe to what they do. A critical aspect of this was the value of developing real life skills in exchanging, constructing, sharing, critiquing, and interpreting knowledge through interaction; the value, too, of contributing to the emergence, maintenance, and change over time of networks and communities, and to successfully manage intercultural interactions was central to the project. In designing the eGroups project, attention was given to raising the awareness of participants about the meaning and merit of their activities and their place in wider global communicative practices – particularly the processes they engaged in. It was necessary to underline the value of these dimensions at different points of the program and in the ongoing feedback. Reflective tasks were also incorporated which required students to articulate their responses the eGroups experience and provide constructive criticism.

13.4.2.2 Positive Expectations

A further significant incentive is what learners expect their experience will be, particularly at the early stages, and that they will align with their own needs and goals. From the perspective of the learner-context interface theory, active involvement in and engagement with the learning environment are necessary to construct an effective interface which – as it builds – supports and sustains further learning.

Positive expectations are a critical incentive to support initial and ongoing engagement with the learning environment; this view is based around learners as active agents who evaluate the potential affordances within their environments and then create, select and make use of tasks, experiences, and interlocutors in keeping with their needs, preferences, and goals as learners. The ways in which learners do this, and the composition of each interface differs among learners and over time. Establishing an interface requires knowledge of self and of the environments and the skills to establish congruence between those two dimensions. In the eGroups project positive expectations of others in the partnership, network or community was also critical and something that is difficult for teachers to manage or for course designers to plan for. Indeed, some participants expressed disappointment about the varying levels of engagement among students, though this was relatively minor. It is important to emphasize that in any community there are tensions, gaps, conflicts, and complexities which are in fact reflective of real life, and potentially more pronounced in intercultural situations: seeing and working with these in facilitative ways may promote the ability to live with complexity and ambiguity.

The eGroups project was founded on the belief that social interaction facilitates the construction of new knowledge, as well as new ways of using the knowledge. It critically involved fostering interaction among students and helping them see each other as resources: as such it was not possible, nor desirable, to apply the kind of "quality control" to the more fluid texts produced, that are very different from the more "static" content of courses formed with articles and chapters published for higher educational courses.

Within the eGroups context other interpretations of the "positive expectations" incentives emerge. The social and personal dimensions of collaboration can motivate participation and promote online presence (Garrison et al. 2004) and result in different forms of engagement which together help to create the learner-context interface. Mangenot and Nissen (2006) argue that in collaborative online settings teachers need to be aware of three levels of engagement – socio-cognitive, socio-affective, and organizational – all of which are needed for effective and sustaining engagement and interaction online. The socio-affective dimensions involve participants – teachers and students – getting to know and trust each other, in the sense that they have positive expectations of what they will and can do together in the online community. And it might be this very sense of togetherness which further motivates a joint approach to the task at hand, which requires engagement at the organizational and socio-cognitive levels. Joint planning, sharing information, reflecting and problem solving facilitate interactive learning, which is student-centered and potentially enriched through a sense of being actively involved its construction, as this example illustrates:

S1: I just thought about the problem how we want to integrate the aspect of "opportunities and challenges" in our project? Or do we want to figure out the relationship between NZ and Germany and illustrate opportunities and challenges in this special case....?

S2: So, our task today is maybe anyway to try to define steps,. . . We all did some research on the internet and maybe we could try to clear out some questions or some structure of our presentation which we have to hold. . ., in June.

13.4.2.3 Adequate Capacities

A further key incentive is that participants have a sense of self-efficacy within the learning community – which, in the context of the eGroups project, included a sense of agency and control as well as of the resources available within the group. As White (2003) argues, a sense of capability and autonomy develops through collaborative control (Anderson and Garrison 1998) of learning experiences: a commitment on the part of learners toward responsibility for and control of the learning process, and toward the construction of the learner-context interface, which can,and should, be enhanced by opportunities for sustained collaboration. Learners should have the opportunity to collaboratively control the management of learning tasks through meaningful interaction with other learners and with teachers. Collaborative control entails an emphasis on the process of negotiation, which allows learners both to develop and exercise their agency in learning. Possibilities for interaction and collaboration available within Web 2.0 environments provide a context for learners to articulate and develop what Breen and Littlejohn (2000, p. 24) refer to as "their prior understandings, purposes and intentions as reference points for new learning." Thus cognitive autonomy and a sense of self-efficacy may best be achieved through collaboration, including the support and challenges it entails.

13.4.2.4 Supportive Role Perceptions

Not all learners may be equally able or even willing to engage in open, technology-enhanced learning or perceive the opportunities therein. Imparting learners with a sense of what is possible therefore needs to be matched with provision of support, feedback and a structure which guides the process. For example, in the eGroups set-up roles were complex and evolved throughout the different stages of the project. It was critical to ensure that participants had a clear sense of their role, of what could be expected of them as both a contributor to and a user of the resources within the different networks that evolved. While it was not possible to prescribe all these roles beforehand, clear tasks, regular feedback and the relatively open structure of assessed course outputs meant that students received a good deal of support and affirmation in what they did and how they did it. Attention to role perceptions re-emerged at points of conflict and proved a useful way of refocusing participants' assessments of what they needed to do at particular points. Some students ascribed much less value to opportunities to participate in or to contribute to the content of the course through discussion, collaboration and reflection. In a very few cases the different epistemological stances of participants were not readily or easily resolved and emerged in terms of perceptions of individual roles and responsibilities.

A productive response to such situations was to reward students for reflecting on such episodes, analyzing them and considering optimal ways of working with participants at those points.

13.4.2.5 Fair and Transparent Evaluation

An ongoing concern in collaborative projects relates to assessment, and fair assessment of the contribution of individuals, whose input may not be immediately evident in a final product. One of the affordances of online collaboration is that it is easy to access and retrieve particular points of interaction and negotiation and to identify significant aspects of community building. Thus rather than focus entirely on the product in course assessment, contribution to the UGC Community, together with critical reflection on that contribution formed part of the assessment. And rather than teachers gauging the extent and quality of contribution, students were invited to identify and reflect on critical points in the project, what their contribution was and how it affected the way the community developed and how it impacted on their personal learning experience. Thus students had the incentive to be aware of what and how they were contributing, how it was seen by others, and that the process of community-building was a critical part of the assessment.

13.4.2.6 Meaningful Rewards

With a shift from knowledge transfer to technology-enhanced constructivist learning also comes a shift in the perception and utilization of incentives for learners, whose roles, identities and forms of engagement also change. While some incentives may be preset and factored into a course structure, for example in the form of outputs and assessment, others may be emerging and contingent, but nonetheless meaningful and significant. Foremost amongst these may be what learners regard as meaningful and relevant opportunities for developing key competencies, beyond mere content knowledge, and exposure to authentic, real-life experiences in preparation for their effective participation in an increasingly complex and globalized world. These might include:

- Exposure to diverse and complex situations: encountering diverse views, establishing common ground, stimulus for ideas and reflection
- Development of key competencies: negotiation of meaning, engaging with content and other participants, opportunities to work within and contribute to a community of inquiry by sharing learning and knowledge
- Learning to see oneself in new ways: developing an online identity, building productive working relationships with others, acting as mutual experts and accessing new knowledge collaboratively.

This section has presented a more holistic approach to incentives setting. We can observe that innovative technological capability in isolation does not necessarily

guarantee learner uptake or effective utilization of available tools. Understanding the complex interplay of contextual and subjective realities of learning holds the key to creating the conditions which might motivate learners to become active participants in their learning environments and invest in exploring, sharing and constructing knowledge. Two dimensions have emerged as critical: integrating technology with a learner-centered pedagogy coupled with what learners themselves bring to the learning context and how they engage with it. As evidenced through the example of eGroups, a learning environment is a complex ecology with "baked-in motivation" (Deubel 2007, p. 6), which may take on a different flavor for different students.

13.5 Conclusion

There is no doubt that User-Generated Content-Environments offer great potential for learning and teaching scenarios in higher education. Examples like Wikipedia and YouTube have raised expectations, particularly from an information technology perspective. However, this paper argues not to underestimate the effort of making use of Web 2.0 technology to effectively enhance learning and teaching processes.

Against the background of a theoretical framework depicting relevant fields of action when designing an UGC-Environment, special emphasis was put on the organizational aspect. Here, in particular, incentive setting was identified as one of the key challenges to raise the potential. The paper, therefore, analyzed findings in the field of the design of incentive systems bringing together both a (conventional) business- and (innovative) pedagogical perspective.

Thus, we set out presenting a more holistic approach to incentives setting. Learning from a case study involving an eGroups approach, we observed that innovation and incentivization extend to pedagogical design in technology-rich, Web 2.0 learning environments. Taking a normative perspective, we tried to deduct six specific incentives most suitable for the higher education context. This aims at facilitating new and complex forms of engagement requiring a shift from transmission-based pedagogy to a learner-centered approach to teaching and learning.

Surely, it will remain a challenge to continuously adapt to new technology in order to further develop learning and teaching processes in higher education. We hope, however, to have contributed a piece to the puzzle, particularly emphasizing the organizational dimension of technology-enhanced learning and teaching environments. We firmly believe that regardless of new technologies coming and going, the design of incentivized learning scenarios will be a key for committing students and teachers alike to passionately engage in the endeavor of life-long learning.

Chapter 14
Strategic Issues in University Information Management

Hans E. Roosendaal

Abstract This chapter represents a specific view on university management. It sequentially discusses different organizational levels of e-teaching, starting with general management, e-science developments and what this means to universities, and business models followed by focusing on specific teaching issues. The chapter sets out to discuss the development of the university from a loose federation of faculties into a more integrated university, such as, e.g., an entrepreneurial university. This development is also driven by the introduction of the bachelors/masters system – a process which leads to the need for an institutional strategy introducing institutional quality management and has to be accompanied by the independent accreditation of research and teaching. Applying the model of strategic positioning to the university as a whole leads to the introduction of the university entrepreneur. The model is used to describe structural issues and the relations between the primary processes of research and teaching with the secondary processes. e-science is introduced as a further step toward the universal sharing of scientific results and to analyze the kind of incentives that will be required to attain this goal of making information an even more integral part of the research and teaching process.

14.1 Introduction

The starting point for the discussion of strategic issues in university information management is the gradual penetration of e-science in all aspects of research and teaching with its consequences for the organization and management of research

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and teaching. In this chapter, e-science is understood to comprise e-research, e-teaching, and e-Learning.

e-science can be seen (Roosendaal et al. 2005) as a further step toward the all time ideal of universal sharing of information for research and teaching. e-science allows, as we will see later on, different ways of sharing information. This has consequences not only for the management of information but also for management in general, as sharing of information has important management consequences, such as ownership and peer review. This makes sharing of information and therefore e-science a strategic issue in university information management, and in university management in general.

As e-science affects the university's two primary processes of research and teaching it impacts right on the heart of the institutional strategy of the university. It is for this reason that the premise in this chapter is that for any university e-science is a strategic leadership issue requiring top management attention.

In this chapter, we will address the foregoing issues and give, if possible and available, options for solutions to be considered. However, as will be shown later, solutions are by nature always determined by the local situation and intentions.

Before going into detail as to how e-science affects the institutional strategy of the university and consequently the external relations of and the internal relations within the university we will make a brief excursion into some aspects of university management that are particularly relevant for the issue at stake: e-teaching.

14.1.1 University Management

At present, university management is in flux (Clark 2001; Etzkowitz and Leydesdorff 1997; Etzkowitz 2003; Roosendaal and Zalewska-Kurek 2009) as universities are developing from the Humboldtian form of university toward new forms of universities such as e.g., the entrepreneurial university as described by Clark (2001). Humboldtian form of university is a university with a loose holding or federation of autonomous faculties, the rector being the external representative of the faculty deans and central management restricted to administrative management only. One important although not exclusive driver of this development is the introduction of the bachelors/masters structure (Bologna declaration 1999). Whatever type of university is being aspired for, the main driving force is to gain more autonomy and to create a clear position of competitive advantage vis à vis other universities nationwide or even worldwide. The overall result will be a rich and heterogeneous competitive landscape of universities. This development requires a clear and articulated institutional strategy of each university (Roosendaal and Zalewska-Kurek 2009).

Such an institutional strategy will, amongst others, comprise a strategy for quality management. This is shown in the guidelines of accreditation agencies, such as OAQ in Switzerland (OAQ 2007) or ZEvA (ZEvA 2008) in Germany, in

which quality management is perceived as an integral part of the overall institutional strategy. The overall institutional strategy functions as the reference frame for the quality management strategy as part of this institutional strategy. Quality management is required for the positioning of the university. It is necessary for the evaluation of the research programs or the accreditation of the teaching programs of the university. It affects the university's concomitant reputation that is so essential for her competitive advantage. Institutional strategy, and above all quality management, was shown to result in new strategic positioning of the relevant internal stakeholders (Roosendaal and Zalewska-Kurek 2009). Examples are the positioning of the center, i.e., the board or presidency, the schools, and research institutes and the different departments, functions and services, such as information services. The strategic positioning also affects the institution's external stakeholders, such as the research, student, and societal communities.

The work of Roosendaal and Zalewska-Kurek (2009) extends the strategic positioning theory developed by Kurek et al. (2007) for the researcher at different levels such as an individual researcher, a research group or a research institute in the environment of the level of a university. The strategic positioning theory is based on the theory of Haspeslagh and Jemison (1991) on mergers, acquisitions, integration after a merger or an acquisition, reorganizations, etc. The theory analyzes the relation between the two actors using the necessity for organizational autonomy and the necessity for strategic interdependence of these two actors in the relationship. Organizational autonomy is defined as self-governing in deciding about the value proposition and market segment of the organizational entity, the entity in this case being either the university as a whole or a unit within the university such as a faculty, school, institute, or department. Strategic interdependence is defined as the sharing of heterogeneously distributed strategic resources. Combining these two dimensions leads to a continuum of modes of integration as shown in Fig. 14.1, also

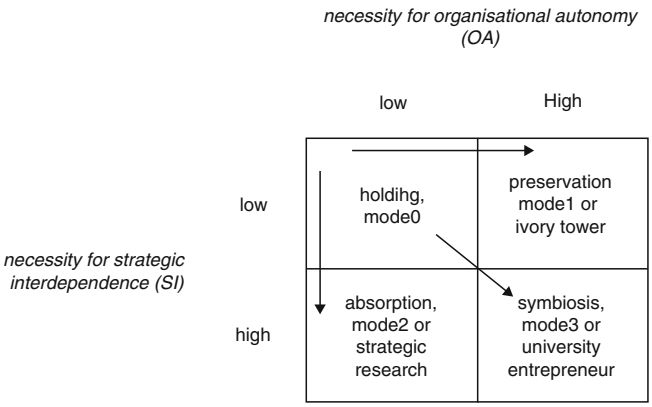

Fig. 14.1 Modes of integration and integration paths

showing four prototypical modes of integration: holding, absorption, preservation, and finally symbiosis.

In the same vein as Kurek et al. (2007), we can derive different modes of positioning for the university, as presented in Fig. 14.1: mode1 or the ivory tower and mode2 or the strategic researcher, both also known from policy studies (Ziman 1994; Gibbons et al. 1994), and mode3 or the university entrepreneur, somewhat similar to the entrepreneurial university (Clark 2001). However, the university entrepreneur is leveraging the environment by creating demand for her research and teaching products rather than supplying according to the demand of the environment.

A core issue in university management is the central-decentral paradox. Sometimes university management views or rather is seduced to view the university as to consist of two disparate organizations: the organization of the primary processes of research and teaching versus the organization of the secondary or auxiliary processes, such as information provision, information and communication technology, administration or even university management.

Roosendaal and Zalewska-Kurek (2009) also applied this strategic positioning model to the university in analyzing the strategic positioning of its different entities. They compared the Humboldtian university with the holding type. This is then the starting point for the transition to a more autonomous and competitive organization with a clear strategic focus requiring a realignment of the structures of the university, and in particular of the management structures.

Following this reasoning and guided by the mission, vision and strategic goals of the university as laid down in the institutional strategy each university has to choose how to align the different schools, institutes and other departments as to create a clear institutional identity and structure. This institutional identity and structure should be commensurate with the resources and competences in research and teaching in which this university wants to excel and should be commensurate with the chosen mode of strategic positioning the university aspires with the wider environment.

It is here that e-science through its impact on research and teaching impacts on the university's strategy, structures and management. The impact on the organization and management of research and teaching is the core issue of this chapter and will be discussed in later paragraphs. Here, we will restrict to a brief discussion of the primary and secondary processes and further issues in general university management relevant for the transition of the university to a mode3 or to another type of university.

14.1.2 Primary Processes

Looking at the organization of the primary processes of research and teaching, we observe that each process has its own different responsibilities, funding and cash flows and consequently its own accountability lines. Management logic then demands a managerial separation. At the same token, creating separation in

research and teaching content is undesirable. In particular, at the masters level a tight content relation between research and teaching is mandatory.

One way to organize this managerial separation is to separate at the very top of the university and create research institutes separate from teaching schools. Obviously, there needs not be a one to one mapping between research institutes and teaching schools.

In research, such a separation scheme allows for integration toward a limited number of new research focuses, possibly of an interdisciplinary or multidisciplinary nature if so desired, and properly supported by a solid disciplinary base. This calls for an integration path starting with preservation gradually moving into symbiosis.

In teaching and learning, one could apply a somewhat different strategy. With respect to disciplinary bachelors, a preservation strategy seems the obvious choice; however, for a broad bachelors spanning a number of disciplines a symbiosis strategy is more appealing. For masters, as they should be strongly related to the research strongholds of the university, a symbiosis strategy seems the appropriate choice.

Another level at which the managerial separation of research and teaching could possibly take place, is at the faculty level. A disadvantage of this separation at this lower managerial level is that the playing field for setting new research focuses is restricted to the already narrower research field of the faculty, in this way creating less flexibility in developing new research and teaching strategies.

14.1.3 Secondary Processes

Also for the secondary processes, there are different options to choose from. A possible option is to distinguish between line functions and staff services, in particular scalable services. Line functions could preferably be located centrally or decentrally depending on the location of the portfolio holder. Institution wide functions such as strategic human resource management or strategic financial management could be located at the center, whereas faculty, institute or school functions relevant for the autonomy of this entity should be located decentrally in this entity. This results in high necessities for both autonomy and at the same time interdependence and thus calls for a more symbiotic approach. An example could be the overall strategic financial management located at the center, while at the same time faculties have budget responsibility and thus autonomy for their own budgets, in this way creating a high necessity for interdependence and a high necessity for autonomy.

General supporting and scalable services, such as administration, e.g., personnel or financial administration, are better not duplicated within the university and could therefore comfortably be organized in the center, however with proper sourcing arrangements with the decentral entities. In general, this structure would call for an amalgamation strategy.

14.1.4 Structural Issues

Looking at university management, complementary roles for the center at the one side and the faculties, institutes and schools on the other side have been observed (Roosendaal and Zalewska-Kurek 2009). Decentral entities such as faculties, institutes and schools and strategic functions will need to have clear powers of directives commensurate with their strategic position in terms of autonomy and interdependence. This calls for a symbiotic relation between these stakeholders following the principle of a clear allocation of management portfolios. This means that the sharing of responsibilities as we know them from the Humboldtian university between the center and these other stakeholders need be adjusted, the purpose of leadership needs redefining and the interfaces between these stakeholders should be flexible rather than rigid.

e-science will further these observed developments in the university when striving to become more autonomous and competitive as it will demand an even more distinguished institutional identity. e-teaching will be seen to require a student centered approach. This means by definition an institutional approach requiring a symbiotic relation of center, faculties, schools or institutes with appropriate teaching/information services.

14.2 e-Science

Merton (1973) has made an extensive analysis of the structure of science in terms of its relation with society, its ethos, and its characteristics of universalism and communalism. A main conclusion is that science should be universal. A prerequisite to universalism is that scientific information should be shared. e-science is generally seen as a further step toward more universal sharing of scientific information (Roosendaal et al. 2005). The promise of e-science is that it is a further step in the development of the scientific process. Sharing of scientific information allows a.o. distributed research and teaching; it allows new ways of importing, exporting and trading e-information; and it requires new services, service providers and new sourcing arrangements. Sharing of scientific information requires that this information can be shared by researchers, teachers, and students, both as authors and as readers. The normative structure of Merton (1973) demands communalism also, next to universalism, implying that knowledge is a common good. It is then often assumed or even taken for granted that scientific information should also be a common good and in combination with universalism information should be a common economic property, i.e., free of charge. However, at the same token this information is the intellectual property of the author and this intellectual property is the most relevant driver in the process of creating scientific information, be this research or teaching information. This means that as a minimum condition, sharing

demands general availability of this information (Kurek et al. 2006; Roosendaal et al. 2009).

Although, as we have seen, the scientific habitus demands that information should in principle be shared, this is not always done for competitive reasons. This is well known in research information. E.g. Campbell et al. (2000) indicate that some researchers e.g., in academic medicine withhold data from their younger colleagues not having an established reputation, or from researchers commercializing their knowledge or publishing, in their opinion, too many papers. Other research conducted by Ceci (1998) reports on secretive behavior among university researchers not sharing data before claiming intellectual property by publishing or patenting. Researchers are not willing to share their research results before claiming the property as they are afraid of plagiarism or commercial abuse (Barnes 1987). There are no reasons to expect that authoring teachers might not show a similar reluctance in sharing information with the aim to gain competitive advantage over their colleagues, both within the same university as well as across universities.

e-information opens new ways of sharing. A main and widely acknowledged advantage of e-teaching is that it frees interactions of teachers with students of the demand of unity of place, time and action by allowing e.g., asynchronous interactions between different locations, e.g., in long distance teaching, even between different continents. A condition to this sharing between the various stakeholders in the information chain is the integration of information required to make optimum use of sharing. This is the strength of e-science as it allows uncoupling the rigid and linear value chain of the paper information or textbook world into a more flexible value network or rather a flexible business model. For this reason, the familiar value chain will be changed bearing consequences for the stakeholders in this chain, one important stakeholder being the university. It will lead to a richer and more competitive landscape, internal in the university as traditional roles of libraries and other services will fade away or will be changed, but also external to the university as the roles of the other stakeholders will change. The relations between researchers, teachers and students will be changed by e-science and therefore will be changed as to comply better with the demands of universalism and communalism that are inherent to science, as we have seen above. e-science will thus affect research and teaching at large, and this is the very reason that the management of e-science and information management in general are top management issues.

Following Roosendaal et al. (2005) students want to be able to choose their own teachers and likewise teachers want to select their students (Bologna declaration 1999). Only in this way, teaching becomes demand-driven and results in a higher mobility of students. This development bears some resemblance with the discussion on the strategic positioning of researchers, as given by Kurek et al. (2007). In the present discussion, we can analyze students in a similar way in terms of modes resulting in the same landscape characterized by the same four distinct modes as discussed in Fig. 14.1 (see also: Roosendaal et al. 2009). As a result, we can see a development toward the “student entrepreneur” and the “teacher entrepreneur” as

equivalents of the research entrepreneur. This new strategic positioning is furthered by the release of the demand for unity of time, place and action as IT allows, furthering a virtual mobility of students and teachers. This mobility is particularly relevant for the masters students and has lead to the introduction of international masters, e.g., the ECIU, an international consortium of entrepreneurial innovative universities has established a number of international masters. The introduction of the bachelors/masters structure (Bologna declaration 1999) at European institutions will spur the development of web-based and blended learning when students are becoming more mobile and will virtually hop from one institution to another, i.e., are becoming real "student entrepreneurs."

Student entrepreneurs will require teaching material that is customized to their individual needs of being able to apply the acquired knowledge to their future professional activities. e-teaching and e-Learning provide a solution to stop the ongoing massification of higher education by replacing it by suitable customization. Customization is the answer to the call for higher quality as expressed in the Bologna process (1999) leading to increased autonomy for the universities coupled with external accreditation of the bachelor and master courses or institutional audits of the quality management and quality assurance system the university has in place. Customization is the logical answer to the needs of the student entrepreneur and the teacher entrepreneur.

Teacher entrepreneurs, either as individual teachers or as the school or university as the teacher, will want to create a demand in the student environment for their teaching products. Creation will have to meet the demands of the student environment as the teacher entrepreneur will aim for proper strategic positioning. Teacher entrepreneurs will seek to collaborate with a broad variety of disciplines to increase the dynamics of the teaching process. For these reasons, teacher entrepreneurs will seek for a broad audience, in this way lending authority to the broader student environment, next to other dissemination channels such as newspapers, websites, and special editions for popularizing science.

Based on arguments given and discussed above, Roosendaal et al. (2005) have formulated the vision that the future scientific information market will be based on a an open and global network of information relating to research and education conforming to open standards allowing users the easiest and fastest possible access to this information. The information will not only comprise of information material for research and higher education, but also of management information relating to this information.

This vision calls for a universal and federated network of scientific information rather than for identifiable separate institutions, they call for a sort of virtual organization (van Aken et al. 1998) consisting of various stakeholders. They call for an integration of information into the primary processes of research and teaching as deep as technology allows and management can sustain, in this way calling not only for new technology solutions but also for new management solutions. An important aspect to be duly considered by university management is that teaching information is much more diverse and abundant than research information. In fact, e-science will turn every university into something like a

midsize e-publisher requiring abundant resources. Sharing between universities in a global network then will become a necessity.

The vision also states that this network should be open, as a normative condition to the network. This seems sound logical reasoning, but it should be remarked that this is a difficult condition for a number of reasons. The first reason is that we are coming from the paper information environment being a very proprietary environment with the result that we are not used to open environments. The second reason is that we noted before that the intellectual property of the authors is a real driver for creation of the information demanding protection of this intellectual property against abuse, in this way affecting the "openness" of the network. The third reason is that an open environment may require agreements on standards. This may be prohibitive, as it will slow down or even inhibit development over time. An extensive discussion of these technological issues and potential solutions is given in Roosendaal et al. (2009, Chap. 5).

14.3 Consequences for Universities

We have seen that a university should develop a strategy for the integration of her information services in e-science, in e-research, e-teaching and, e-Learning (see also: Roosendaal et al. 2001a,b). This is particularly a challenge in e-teaching and e-Learning as this information material is much more fragmented and much more voluminous than the material for e-research.

Such a development requires conscious information management on the part of the university. This management should include considering what information functions, such as "library and publishing" functions, the university needs in order to sustain the necessary information services to successfully provide high quality and customized teaching and learning facilities to her students. Students can be bachelors, masters or post-initial students for life-long learning, and can be on or off campus students. The university has to respond to the development described in Sect. 14.2 of this chapter toward the "student entrepreneur" and the "teacher entrepreneur."

In order to be successful in information management, the university will be helped to realize that she is not isolated but part of an extensive network of institutions and repositories as formulated in the vision of Sect. 14.2. The university will need to be part of this network as it will, for most universities, be financially prohibitive to create high quality teaching and learning material in-house for the exclusive use by her students. The way out of this problem is to participate in a pool of federated material as expressed in the vision above. This federated material can then be exchanged or traded between the members of the network and this will affect the business model of the university. Therefore, the question is how universities can effectively share high quality teaching and learning material and which business model is needed to ensure and sustain this sharing.

An important element of such a network is to ensure high quality teaching and learning material by appropriate quality assurance of this material. This can be achieved in an internationally organized peer review system. This would mean that the present accreditation of courses or entire institutions will be extended to include the assurance that peer reviewed material is being used in the course next to the evaluation of the quality assurance system of the university guaranteeing a proper structure of the course.

Like in research information (Roosendaal et al. 2009), peer review certifies the teacher's contribution to the material and "brands" it. The teacher claims the intellectual property of the produced material. In the process of peer review, the teaching environment decides if the claim can be made, if the claim is commensurate. Being essential for e-teaching, peer review is consequently core to any business model for e-teaching material and thus for the business model for the university. Peer review also serves teachers striving to be recognized in their teaching environment, to make their products available for their environment as e-teaching material. And peer review serves teachers in their capacity as coaches of students in selecting the information as they are able to choose between different brands. In this way, peer review supports the selection and the acquisition of e-teaching material.

Peer review serves the reputation of teachers. Reputable networks will strive for a high threshold and a consistent acceptance policy. The threshold will be high because in the peer review process the network only accepts material of a quality commensurate with the reputation of the network. Teachers competing for recognition do not want to offer their material in networks they consider of doubtful quality and will not use such material. Such a network will lose its clientele and consequentially its revenue stream. Therefore, peer review should be a basic element in e-teaching material and consequently be part of any business model for teaching material.

However, like in research information, peer review will not be uncontested. One weakness of peer review is that it will take a considerable amount of time. This is the price to be paid for peer review performed by the teaching community rather than the present closed procedure of acceptance by a publisher. Additionally, a long throughput time can result in a competitive advantage for reviewers who have advanced knowledge with respect to their colleagues, or reviewers can even reject the submitted material with the goal to gain competitive advantage over a direct competitor. Although direct proofs are not available it is a widespread belief that in research information such practices sometimes happen leading to a low trust of researchers in the peer review process (see e.g., Daniel 1993). There is no reason to expect that the practice in teaching will be different.

Like in research information, teachers creating e-teaching material will want wide exposure for their work. The acquisition of e-teaching material will depend on the selection by other teachers. This selection depends on the teachers' ability of assessing the relevance and quality of the material for their teaching, which will be most of the time coaching. This selection will be facilitated by pre-selection

enabled by peer review. Teachers do then require services or networks making certified, i.e., peer reviewed, e-teaching material generally available.

These above developments give rise to a number of strategic issues faced by universities. Universities have to take a stand on their competitive positioning in the information landscape. This positioning will be different from the present positioning in the textbook landscape where publishers maintain the information network. In this textbook world, teachers most of the time affiliated with a university create information, but other university owned resources are only scarcely used. For e-teaching material this will be different. e-teaching content consists of an amalgamation of scientific content with digitally supported and enabled didactic and pedagogical content, all in one inseparable product. This means that much more institution owned resources will be used in creating such material, it will be much more a collaborative effort, possibly even involving a team from a number of universities. This raises the issue of who owns the intellectual property, the university or the teacher as staff member of the university, or both. These changes in the process of creating material will result in organizational and managerial changes in the primary process of teaching.

Another issue is the structure of the university itself. We have already noted the trend toward university entrepreneurs as also induced by the Bologna process and indeed the question arises what consequences this has on the institutional strategy and structure. In particular the relation of the institutional structure with its center and the relations with and between the schools and research institutes is an issue that will call for a solution. In relation to e-teaching material it is in particular the autonomy of the schools and teachers that is at stake. This should be reflected in the formal structure of the university, otherwise this will lead to friction and consequently destruction of capital. Another issue that plays a role in this discussion are the required and available resources. Her resource base will determine the competitive positioning of the university, e.g., if the university will be a net seller or net buyer of the teaching material. The organizational structure and the technical infrastructure will partly determine largely the transaction costs the university will incur in creating and using teaching material. As has been seen, the intellectual property of teaching material, and in particular how to deal with the intellectual property of the university and/or her staff member, is a core issue.

All these issues together will influence the business model of the university. An important aspect in the business model is the strategic positioning of the university in her environment and more specifically with respect to other universities in the network. Should this be a sort of alliance or even a merger type of relation? Only a thorough strategic analysis of the business model of the individual university taking duly into account its core resources can provide an answer to this question. Such an answer must of course depend on the individual university, and on the local situation and intentions in the aim to be an autonomous organization. Therefore, we will and can only restrict the analysis of the business models to an analysis of its relevant elements in such a strategic discussion.

14.4 Issues in the Business Models of a University

We have already been using the term business model a number of times. The terms business and business model are not commonly associated with an institution such as a university. Some may even reject the term business model in relation to a university. However, the modern notion of a business model (Amit and Zott 2001; Osterwalder et al. 2005; Chesbrough and Rosenbloom 2002) is compatible and applicable to any organization aiming at creating value for its stakeholders. It is therefore claimed that the concept of the business model can also be applied to the university. Using the business model for a university may well be perceived as "cultural change." However, the reason for using the concept of the business model is because this concept functions as an adequate analysis instrument of the coherence of the strategy of the university, as will be seen below.

As the use of the word business may be misleading let us first clarify this notion. Throughout this chapter we will use the common definition for a business: an organization aiming at the exchange of goods, services or both, generally to raise revenues, though not necessarily. This allows seeing the university as a business exchanging specific services, these services being research and teaching.

A business model should serve a number of conditions:

- It should create value in its environment (Chesbrough and Rosenbloom 2002; Kurek et al. 2006) in particular in the processes at hand, i.e., research and teaching
- Next to this a business model should create a sustainable process. Again we use the common definition of sustainable: a characteristic of a process, system or state that can be maintained at a commensurate level, and in "perpetuity." It may be obvious that this condition is particularly relevant for the university which is characterized by a strong legacy
- It should create value for commerce, where commerce is commonly defined as: the voluntary exchange of goods, services or both, at a profit or not at a profit.

A business model organizes property (Kurek et al. 2006), and the exchange of property. In case of the university, the property is the knowledge produced and exchanged in research or teaching.

In the literature on business models we will not find a single definition for a business model. In the literature the business model is generally presented as a model focusing primarily on value creation (Amit and Zott 2001). The business model constitutes a comprehensive, coherent strategic model "expressing business logic" or "linking strategy and operations" (Osterwalder et al. 2005).

In line with this goal, Chesbrough and Rosenbloom (2002) view a business model as an instrument to create a coherent strategy in determining clearly the value proposition, the market segment, the strategic positioning, the value chain, the competitive strategy and the revenues and costs structures of an organization. This makes the business model of Chesbrough and Rosenbloom highly suitable for an organization such as a university.

As stated above, the business model of a particular university will depend on her specific goals and resources and these are different for each autonomous university. The value proposition depends on the research focus and concomitant teaching focus of the university. The market segment will be a deliberate choice of each university. The options depend on the strategic positioning of the university and of the stakeholders within the university such as the relation between the two primary processes, i.e., the organization of research and teaching. The options are also relevant for and depend on the competitive positioning of the university. In this chapter, we will analyze these strategic elements and the relations between these elements.

Although not in line with the order the business model prescribes, we prefer to start with the discussion on competition and the competitive positioning of the university. We have already noted that the university has to consider her role as stakeholder in the information landscape. We have observed the development toward the "student entrepreneur" and the "teacher entrepreneur." This possible strategic positioning of students will have as consequence that academic teaching at institutions will develop from a local supply-oriented service to an international demand-oriented service. This will spur competition between institutions resulting in a demand for higher quality. On a higher competitive level and in particular through the introduction of e-teaching the university is threatened to lose its (local) monopoly in higher education. e-teaching allows new global players in higher education. These global players will be fully accredited by reputed international accreditation agencies in this way enjoying a high reputation and image allowing them to attract the best international students. Next to this threat, e-teaching also presents opportunities to attract new student target groups, such as life-long learning, post-initial learning, teaching for dedicated professional target groups, in-company training, etc.

Other internal strategic issues are related to the primary processes of research and teaching. Next to content, relevant issues are the processes themselves and their organization, and the desired and required balance between the two primary processes of research and teaching.

Demands for teaching content result in demands for information that will overlap with research requirements for scientific information, not the least for advanced, i.e., masters and PhD students. Teaching can at least in part draw on the same sources and resources while making use of the same technical infrastructure. For this reason, it is relevant to analyze jointly the organizational and in particular the business issues related to teaching and research information as these may well influence business models in scientific information.

These mentioned developments will lead to a change (Roosendaal et al. 2009) in the relation between the teacher and the student: from a rather static supply and demand to a competitive adjustment to actual demand, or in other words to a "student entrepreneur" and a "teacher entrepreneur." From the point of view of the student, this means a more individual conceptualization of teaching: to a new relation between teacher and student viewing the student as a young, individual and continuously developing scientist, in this way increasing the student's autonomy

and to a more interactive teaching concept, increasing the strategic interdependence leading to a new competitive orientation on actual demand.

Because of these developments e-teaching requires a new division of labor (Roosendaal et al. 2005) between the two aspects of creation of material and the coaching of students. As this affects teachers directly in their daily activities, in their autonomy, their dependence and in their status; this is a delicate management issue.

We have already stated before that integration is a necessity, if only for reasons of scaling. The strategic question is which degree of integration of this information provision for teaching and research is needed especially in view of the necessary strong interaction of research and teaching at the masters level.

14.4.1 Competitive Positioning

Discussing the university's competitive positioning, we have to distinguish between the competitive positioning for research and teaching. Already now, these two positions are quite distinct.

Universities will have to make choices in which mode they want to operate predominantly, i.e., mode2 or strategic research (Gibbons et al. 1994; Kurek et al. 2007) or mode3 or research or university entrepreneur (Kurek et al. 2007). Mode1 (Ziman 1994) or ivory tower will not be a viable option anymore.

In research, this means that universities will have to make clear choices in which research programs they want and will be able to strive for excellence and to which research networks they want to belong. Internally, choices have to be made how to structure research in coherent programs organized in research institutes rather than the more fragmented approach that we know from the Humboldtian university. In particular, for the mode3 university this structuring of research should enable the creation of demand for her research results as is demanded and expected from a mode3 university or university entrepreneur.

In teaching, the university should equally strive for excellence, and the options are excellence in the creation of teaching material, in coaching or both. An important strategic choice is the choice between quality or quantity of material, both can lead to favorable competitive positioning. For most universities the choice will be made for quality of material to be created and quality of coaching. This means that also here choices for networks have to be made, but these networks may well be different from the networks for research. This sketched development is congruent with the development from local-supply oriented teaching to international demand-oriented teaching (Roosendaal et al. 2005) and concomitant with the development of the "student entrepreneur" and "teacher entrepreneur" (Roosendaal et al. 2009) that we have noticed before. It allows the university to effectively compete for the students she wants to attract as should be expected in particular from a mode3 university in teaching.

Another issue that needs resolution is the issue if e-teaching should be organized in a student centered way or in a teacher centered way. A mode3 university desiring to attract "student entrepreneurs" served by "teacher entrepreneurs" has evidently only one choice: e-teaching should be student centered. The main reason is that students should be able to be mobile. This means that students should be mobile in combining offerings from different schools within the university or be able to hop from one school to the other if so desired. It should be a one stop shop for the students including all relevant e-administration as well. Only in this way, "student entrepreneurs" can create demand that the university can supply and "teacher entrepreneurs" can create demand for their teaching services and products and ensure optimum flexibility and mobility for students in compliance with the Bologna process.

Evidence up to now indicates that e-teaching is more capital intensive than traditional teaching. This is because e-teaching is more capital intensive in creating teaching material and in acquiring high quality teaching material to be used in coaching students. However, most universities cannot afford to increase the costs for teaching. Therefore, the fact that e-teaching is more capital intensive requires that e-teaching should be less labor intensive for the same quality of teaching. The fact that e-teaching is more capital intensive requires therefore rethinking of teaching and requires close management attention as to capture all options rather than failing out of negligence of this important strategic angle. This capital intensiveness demands scaling of the production of teaching material, and leads to trading and exchanging teaching material. The fact that teaching will become more capital intensive will also require professional management skills in finding a healthy balance between research and teaching.

Looking at competition in teaching, we have noted already that universities will be faced with a new type of competition that will be external in nature and much more intense. Universities may even run the risk of losing their monopoly in higher education to worldwide players and other forms of teaching such as in-company training at the academic level. This is an additional motivation for the formation of networks, alliances or mergers of universities. As in the industrial world, strategic alliances and mergers will come to the fore, as the business models of universities will require this.

14.4.2 Managing Research and Teaching

Next to this external competition, the internal competition between research and teaching will become fiercer as teaching cannot be treated anymore as the little brother of research. The observed new division of labor in teaching and between research and teaching will require new collaboration structures.

For this reason, the relation between research and teaching deserves some further attention with respect to organization and content. Traditionally, a more or less disciplinary faculty is responsible for both research and teaching, the

management of research and teaching was unified in the faculty management. There are a number of problems with this structure. The first problem is that research progresses not along disciplinary lines but more along interdisciplinary lines, albeit strongly footed on solid disciplinary knowledge that needs to be maintained and expanded. As we noted before, the structure can thus be a barrier for the production of new knowledge. The second problem is that in this structure the overall accountability of the researcher/teacher is fully dominated by the research efforts, teaching is seen as an extension of or even a burden for research. The result is that teaching lacks proper attention with all consequences for the quality of teaching, in particular for teaching in the bachelors programs. In this way, the competitive positioning of the university will be threatened as the university depends on the revenues generated by the presence of students.

An option out that is compatible with the demands of the Bologna process is to create different accountability lines for research and teaching with concomitant different allocation schemes for research and teaching, as already discussed in Sect. 14.1. As we noted there, this leads to a formal segregation of research and teaching, however fully in line with the development of the university as research entrepreneur and as teacher entrepreneur. At what level in the organization this segregation can be effectuated depends on the institutional structure of the university.

As discussed in Sect. 14.1 and from a management point of view, research and teaching can best be managerially segregated at the university top level resulting in schools for teaching and institutes for research, in this way abandoning the traditional faculties, with the advantage of creating institutional budgets for research and teaching. The alternative is to segregate at the faculty level. However, the faculty level seems less suitable as it will not facilitate that research programs can be developed along different lines than teaching programs. The department level is not suitable, as it will not segregate the accountability lines for research and teaching.

It may be stressed that in the above we have focused on segregating the managerial accountability lines between research and teaching. This does not imply a segregation of research and teaching at the content level, on the contrary. Proper managerial segregation is instrumental for proper content integration as in this way managerial interference can be avoided.

14.4.3 Competitive Positioning in Teaching

Like in traditional teaching, there are essentially two main activities connected with teaching:

- Creation of teaching material
- Coaching of students.

In the text above, we have already alluded to some changes e-teaching can bring. In this paragraph we will deal with these changes and their consequences at the managerial level and at the complementary level of the individual teacher.

We have seen that creating digital teaching material is a capital-intensive activity requiring highly specialized knowledge, not only of the scientific subject at hand, of didactic and pedagogical expertise, but also how to deal with all these issues in a digital setting. This natural combination of different requirements of expertise is new and will result in a high form of specialization. As we have seen above, bringing these efforts together in a federated network of teaching material will make international peer review of teaching material a necessity. This international peer review of the teaching material will shift this responsibility for quality from the publishers to the international scientific community like in research information. This development is only a consequent development in line with the requirement of accreditation of the teaching programs in line with the Bologna process. One might argue that to some extent this is already the case nowadays but a further concentration seems natural, as this will be furthered by services providing federated teaching material.

Coaching students in e-teaching will require a different type of professionalism than for present day coaching, and will require a new didactic and pedagogical professionalism supported by digital techniques. This is a necessity as otherwise the necessary customization will lead to intensification instead of extensification.

These above discussed processes will lead to a further widening of the tasks of creating material and coaching students. It may well lead to a deeper division of labor, not only into two different tasks but also into two different functions with different career perspectives (Roosendaal et al. 2005). As a consequence, the position of teaching in the career perspective of a university professional may undergo changes.

Furthermore, we have seen that the new strategic positioning of students will have as consequence that academic teaching at institutions will develop from a local supply-oriented service to an international demand-oriented service. This will result in a more intense competition between institutions and as a consequence a higher quality demand.

These mentioned developments will also lead to a change in the relation between the teacher and the student (Roosendaal et al. 2005): from a rather static supply and demand to a competitive adjustment to actual demand, or in other words to a "student entrepreneur" and a "teacher entrepreneur."

To improve sharing scientific information certain instruments protecting teachers such as a proper system of intellectual property rights are required. Teachers claim the property in order to be recognized for their creative work, the alternative being that the teacher can only use the material for own courses. This teacher also runs the risk that the work will be duplicated or imitated or even that somebody else may claim property to it. This is not unimaginable in a federated teaching world. Especially in competition intellectual property is a crucial instrument. The teacher claims this intellectual property by making this statement public, i.e., by publishing. Therefore, any business model should protect this property against plagiarism and commercial abuse. Plagiarism is of direct relevance to the teacher as it affects the paternity and integrity rights of the teacher and it is here that the teacher needs protection. Commercial abuse is also relevant to the teacher, as it would affect the

teacher's competitive positioning and the competitive positioning of the university. In the present business model of textbook publishing, protection against commercial abuse is in the interest of the publisher. This can be similar in the digital world. However, the risk of proliferation of teaching material is much larger in the world of Google and Youtube. Plagiarism and commercial abuse can have different addressees, and these different responsibilities can be split. However, if the material is produced for university courses leading to a specific competitive positioning of the university, it may be wise to claim the property on behalf of the teacher and university.

The university, either as the employer of the author or as the publisher if the work is published on the university's repository, or any other repository might just as well guarantee protection against plagiarism; in fact the university or repository has the obligation to guarantee this if the repository is freely accessible. The publisher could limit his responsibility to commercial abuse, as this is also in the publisher's commercial interest. But of course, the university can be the publisher.

In teaching, the university also has to compete in attracting students and teachers. The quality of teaching has become an important instrument for profiling of the university, in attracting students at the bachelors and in particular at the masters level, as a good reputation at the masters level will have more value than at the bachelors level. Acquiring masters students will be an important strength for any university. Next to attracting the desired students, the quality of teaching is also instrumental in attracting the best teachers possible. Management of teaching thus becomes a strategic function for the university, not only restricted to hiring the right people. Teaching becomes a mature part of the evaluation of the university professional with real consequences for career and remuneration.

Management attention is also required to deal with the observed division of labor in either creating material or coaching students. In particular, creating web based material will result in fierce competition for the best teacher. As example may serve the famous physics courses by Richard Feynman.[1] In the textbook world, the didactic capabilities of Richard Feynman were already superior to the capabilities of most of the teachers worldwide and when courses of such quality will be available worldwide via the Internet the local teacher will have a hard time to compete. This means that the teaching tasks of the local teacher will be more and more reduced to coaching on the basis of material originating mostly from external sources. We see the beginning of this development already in digitally supported textbooks providing teacher tutorials, lecture materials as slides or video and student assignments, in this way aiming to provide a full course. As we have noted, there will be a new market for new content; with new didactic methods, in particular interactive methods requiring new skills, new competences, new partnerships and new service providers. This development that most local teachers will have to restrict to coaching rather than teaching has an impact on or, in the eyes of some, represents an infringement of the autonomy of the teacher. This perceived

[1]Richard Feynman, www.feynmanonline.com/

loss of autonomy is also coupled to instruments such as accreditation and peer review. Loss of autonomy of teachers is an emotional issue as this citation of (Odlyzko 2001) Socrates on the discovery of writing in Plato's Phaedros clearly illustrates:

> . . .this discovery of yours will create forgetfulness in the minds of those who learn to use it; they will not exercise their memories, but, trusting in external, foreign marks, they will not bring things to remembrance from within themselves. You have discovered a remedy not for memory, but for reminding. You offer your students the appearance of wisdom, not true wisdom. They will be hearers of many things and will have learned nothing; they will appear to be omniscient and will generally know nothing; they will be tiresome company, having the show of wisdom without the reality.

Some teachers or other stakeholders react to the Internet as Socrates reacted above to writing. This management issue requires proper change management taking into account proper reward schemes, a fair division of intellectual property rights and giving teaching, also if restricted mainly to coaching, its proper career place.

14.5 Conclusions

The main premise in this chapter of this book on Cultural Changes in Teaching is that scientific information should serve the production of knowledge. Teaching information should then serve the production of future knowledge and the spread of present day knowledge as to further the production of future knowledge. As in previous publications, we have seen that integration of scientific information into the research and teaching processes is a necessary condition in its development toward e-science. Developments toward e-science have been observed e.g., by Heimeriks and Vasileiadou (2008) in IT related differences in recent developments in the formal research publication system. In their paper they have observed that "new formats for online journals have destabilized the institutionalization patterns of formal scientific publication by opening up the sphere of production, publishing and diffusion to smaller-scale participants such as individual researchers or small scholarly societies and opening up new issues for a renegotiation of power between researchers and publishers on copyright management and new filtering mechanisms." Similar developments can be expected with respect to teaching information. They observe further that the digitalization of the journal system has opened up new options that however have not or not yet stabilized in most scientific fields. Digital publishing seems to have provided an additional layer of communication rather than destabilizing the role of existing journals. A similar development, i.e., not making full use of the options e-teaching promises and can deliver, can be observed for the stakeholders in producing and using teaching material. This is due to the fact that as in research publishing the business model employed is still the dominating business model from the print age, as was concluded in Roosendaal et al. (2009). The result is that teaching publishing is still textbook publishing enriched with digital tools and gadgets rather than proper e-publishing.

The institution is a most important knot in the entire scientific information network for research and teaching. Information provision is a strategic activity of the institution at the service of research and teaching. Institution management has become aware of their responsibility for the provision of adequate information services. In research information, examples (Roosendaal et al. 2009) of this awareness are the declaration by the German Rectors Conference (HRK 2002), the integration of information provision program started by the German Research Council (DFG), the DARE projectin the Netherlands (DARE), and activities in the UK, driven by the Research Council (Research Council) and at some universities in the USA such as Harvard University (Dulong de Rosnay). In the UK the national charity organization, the Wellcome Trust (Welcome Trust), mandates open access for all documents of which the research has been funded by the Trust. A further example of the awareness of the academic world is the Berlin declaration (2003) on Open Access of the German academia.

These activities focus on research information, but it deserves little imagination to see that the discussion in research information is to a larger part equally valid in teaching information. The main difference is that teaching and teaching information is not yet of such an international scale as research information. Given the developments we have noted in this chapter this is however just a matter of time. The development toward e-science also in teaching and the further internationalization as driven by the Bologna declaration (1997) will initiate and spur a similar development. This means that we can draw on some of the general conclusions drawn by Roosendaal et al. (2009) with respect to the role of the university in information management.

They conclude that in order to ensure general availability of scientific information, and thus the exchange of teaching information, the following organizational issues are relevant:

- Strict organization of information management at the institution
- New divisions of labor and collaboration schemes in research
- In teaching a new division of labor in creating teaching material and coaching of students
- Enhanced mobility of students
- And above all
- Integrated management systems.

And they conclude that a high value information provision cannot but be a strategic core activity of every institution and becomes even more relevant in the development toward e-science.

Roosendaal et al. (2009) see the research and higher education institutions as the natural candidates to initiate the development of new business models and structures. As we have seen, this is, foremost, an organizational and not a technical challenge. An interesting aspect raised is the proposal to absorb the library consequently into the research organization. The goal of this absorption is to change the relation between the institution's primary processes and the information provision for these processes as only in this way this information provision can deliver the

services they need. This absorption is observed to require "a delicate integration strategy at the institution's top management level."

In this way, the institution is claimed to develop itself further into an active and professional manager of information flow, with the library as an important instrument in this task. A relevant question in our context of teaching information is: why the research organization and why not the teaching organization? The answer is that research information is already better organized internationally and could therefore provide a role model for further integration. And, as we have seen in this chapter: despite the managerial separation of research and teaching because of the different accountability lines these two primary processes should be firmly integrated content wise, and in particular at the masters and PhD level. This calls for the primacy of research if the integration into the primary processes is being discussed. Teaching information will benefit more from the integration with the primary processes than if there is no integration at all, and hus teaching, even if scientific information is managerially part of research.

These strategic developments will result in an integrated information organization embedded in the institution's research organization, but with strong ties to teaching through the integration of research and teaching on their contents. The proposed developments are necessary to initiate a major change in the business model of the university as required to enable efficient sharing of e-teaching material.

As in research information, these developments in the market of teaching information provide great opportunities for professional, commercial or non-commercial service providers, in particular by the convergence toward e-science.

The present international publishing houses have a strong position in publishing teaching material and can strategically benefit from their present position in developing e-teaching in providing the professional services that e-teaching demands. Such a development will lead to a broad discussion on new demands of research and teaching and the use of new information instruments in research and teaching. This seems a first step to creating an e-teaching network and a new business model in which the publisher could take an important stake.

If we accept the above reasoning and arguments, a university in her information management should strive for a comprehensive integration strategy involving her primary processes, infrastructures and service centers. Only on the basis of such a comprehensive approach a consequent strategy can lead to the right sourcing decisions taking duly into account the individual university's strengths and weaknesses. It goes without saying that such a comprehensive strategy can only be successful if led by top management as this strategy is in the heart of the business model of each individual university. This comprehensive strategy should clearly formulate all aspects of the business model, and in particular the role and positioning in the information landscape the university wants to occupy as this affects the competitive positioning of the university as a whole. Elements of such a strategy will be the different and proprietary roles for research and teaching as we have analyzed, and next to the attention for technical issues, comes the attention for organizational reporting lines for the various departments and activities involved. The strategy should be student centered.

Only such a comprehensive and consistent strategy can bring the necessary high investments to fruition, would allow a university to capture full benefits of e-science and would make e-science work to expectation. The alternative is just introducing a technical add-on to teaching as we are presently witnessing. This institutional strategy requires a consequent organization of institutional information management allowing a structural implementation of e-science and e-teaching leading to a strategic transformation with the final aim to share information in a better way to the benefit of future students, and research and teaching.

The information integration strategy, if properly implemented, will support the institutional strategy also in providing marketing tools for the university in competing with other universities and in establishing its competitive positioning that is so necessary for an autonomous university entrepreneur.

Chapter 15
Creating the Future: Changing Culture Through Leadership Capacity Development

Geraldine Lefoe

Abstract Leadership for change is key to universities finding new ways to meet the needs of their future students. This chapter describes an innovative framework for leadership capacity development which has been implemented in a number of Australian universities. The framework, underpinned by a distributive approach to leadership, prepares a new generation of leaders for formal positions of leadership in all aspects of teaching and learning. The faculty scholars implemented projects, including a number of them using innovative technologies, to establish strategic change within their faculties. They shared their outcomes annually through national roundtables, which focussed on methods for improving assessment practice. Five critical factors for success are discussed including implemenation of strategic faculty-based projects; formal leadership training and related activities; opportunities for dialog about leadership practice and experiences; and activities that expanded current professional networks. The model can be adapted to have a specific focus on leadership for e-Learning, and some examples of faculty based strategic initiatives are described.

15.1 Introduction

A cross-institutional program for leadership capacity building was implemented in a group of universities in Australia between 2006 and 2008, funded through a federal government enterprise, the Australian Learning and Teaching Council (ALTC) with additional funding provided by participating universities. Through their grants scheme the ALTC allocated a substantial proportion of their grant funding to leadership for excellence in teaching and learning. The Faculty Scholars

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Program addressed both the concern for a looming leadership succession crisis and the identified gap for system wide development of leadership capacity for teaching and learning that moved beyond management and administration. The program involved the development and trial of a Leadership Capacity Development Framework (LCDF) across four universities. It was not specifically aimed at leadership for e-Learning but encompassed all aspects of learning and teaching. It is a particularly useful framework for those implementing e-Learning initiatives as it targets participants in nonformal leadership positions who are driving innovations within a higher educational context. Each faculty scholar who participated identified an action learning project to implement a strategic initiative within their school or faculty to improve assessment. Case studies later in the chapter provide an overview of projects with specific implications for e-Learning.

This program was facilitated in two stages – the development and implementation stage and the cascade stage. In the first stage, a partnership between faculty-based academics and a facilitator in the central academic development units of two regional universities was established and a framework to develop leadership in learning and teaching through an action learning process was trialled. An iterative evaluation process was implemented to inform and support improvements to the leadership framework. In the second stage, two additional universities engaged with the program and a cascade approach to leadership development was adopted with the modified framework trialled and further developed.

Academic staff involved in the program were able to practice and develop versatile leadership skills that would have applicability across a diverse range of "real world" contexts. The scholars assumed complex leadership roles within their faculties and led initiatives designed to improve assessment practices. They engaged in collaborative and reflective activities throughout the program and reported on the outcomes of the assessment initiatives to their peers at a National Roundtable, which they planned, coordinated, and facilitated.

This chapter provides a background for the program, defines the terms and theoretical underpinnings, and explains the methodology for the research and the resultant framework. Examples of some of the faculty-based initiatives relevant to e-Learning are provided. Five critical factors for successful implementation are identified and discussed with pointers to future research.

15.2 Background

The full potential of educational technologies is yet to be realized in the higher education sector while it is used as an add-on to traditional teaching and learning, whether at a distance or campus based. Gayeski (1989) proposed a number of reasons for this failure including technophobia, inhibition of human contact, changes to the legal and economic status quo, lack of appropriate designs and information, and reliability. She pointed out that people did not resist "technical

change," they resisted "social aspects of change" and the resultant change in their relationships (Gayeski 1989, p. 7). Some 20 years later, despite the fact that many of her reasons have been addressed, this potential is still to be realized in a significant way. One reason she failed to identify was the ad hoc leadership development in higher education. Many of the staff members in positions to lead this very significant change were simply not provided with the opportunity to develop the skills needed to implement such a radical change to the status quo. Whil isolated pockets of very effective practice occurred in some university subjects, departments and indeed in some universities, for the majority of institutions the change process has been very slow indeed. In the preface to her book, Laurillard (2002) affirms the view that "a university is defined by the quality of its academic conversations, not by the technologies that service them." How the university supports such conversations through an increasingly changing context requires informed leadership for learning and teaching at all levels in the institution. System wide development is required to ensure that leadership development is no longer an "on the job" experience but that significant and adequate preparation for such positions occurs to ensure that institutions are able to think differently about how they engage with technology in teaching and learning.

Fullan et al. (2006) suggest that "Capacity building involves the use of strategies that increase the collective effectiveness of all levels of the system in developing and mobilizing knowledge, resources and motivation, all of which are needed to raise the bar and close the gap of student learning across the system" (p. 88). Whilst their focus is on the school system it is equally applicable in the higher education system and equally important. The 2009 Horizon Report (Johnson et al. 2009) identifies one of the critical challenges for learning organizations to implement emerging technologies is the "need for innovation and leadership at all levels of the academy" (p. 6). In Australia support for implementing new strategies for leadership development has been provided since 2006 through the government funded ALTC.

15.3 Leadership Development in Higher Education

In a scholarly paper commissioned by the ALTC,[1] Anderson and Johnson (2006) synthesized the themes and understandings about leadership found in applications for the Leadership Grants received by ALTC in 2006. In their analysis of approximately two thirds of the leadership applications, they noted that there is limited research on leadership in universities and attest to the subsequent need to draw on studies conducted in school education and apply the findings from these to the

[1]The Carrick Institute was launched in August 2004 to promote and advance learning and teaching in Australian higher education. In 2008 it was renamed The Australian Learning and Teaching Council http://www.altc.edu.au.

higher education context. They propose that there is benefit in a wider and deeper understanding of the range and types of leadership for higher education and that further investigation of the elements in the practice of these types of leadership is warranted. In their review of the literature Anderson and Johnson (2006) identify a number of common assumptions in relation to leadership in the higher education context including that leadership:

- Is rarely a matter of chance
- Is inherent in organizations
- Capability can be acquired through training or experience
- Behavior can be identified and, using suitable methods, developed in potential leaders.

Finally, they state "Evidence suggests that leadership capacity-building in higher education is uneven across the sector, and that many academic leaders rely too much on learning on the job." (Anderson and Johnson 2006, p. 1). They note, "the concept of distributed leadership was seen by most [applications] as appropriate for universities" (p. 8).

In identifying where innovation has the most impact, Gibbs (2005), reported on a study conducted in 13 universities across 10 countries that were either in the world's top ten in terms of research or amongst the top research institutions in their respective country. He found that the most successful initiatives were those conducted at the "coal-face" within departments, often totally independent of the institution. He proposed that university wide initiatives tended to emerge from successful departmental initiatives, rather than the other way around. Gibbs concluded that in such institutions, departments and programs are the key organizational units when it comes to understanding change and that this is where leadership of teaching should be studied.

One leadership capacity building approach that supports this notion is that of distributed leadership. By moving from notions of *leader as individual* to leader as *first amongst peers,* a distributed leadership approach acknowledges the ability of people at many levels to take leadership for different aspects of learning and teaching. When Burns (1978) in his seminal book on leadership, defined it as "leaders inducing followers to act for certain goals that represent the values and motivations . . .*of both leaders and followers*" (p. 19) he was acknowledging the transformational nature that can be part of leadership, providing "mutual support for common purpose" (p. 20).

Distributed leadership expands on this notion and for the purpose of Faculty Scholars Program, we defined distributed leadership as a distribution of power through the collegial sharing of knowledge, of practice, and reflection within the socio-cultural context of the university (Bennett et al. 2003; Dinham et al. 2006; Knight and Trowler 2001). Distributed leadership provides a conceptual framework for discussing leadership capacity development in academia and is not a leadership model but a tool for analysis and draws much of its evidence from the school sector (Diamond and Spillane 2007; Harris 2009).

Within the leadership literature the concept of distributed leadership is not a new idea; however, a distributed perspective on leadership is a relatively recent development of the notion of shared leadership. Distributed leadership moves away from the premise of hierarchical "hero" leaders and focuses instead on the practice of leadership and the joint interactions of leaders, followers and their situation. Distributed leadership is described as leadership activity that is stretched over the work of a number of individuals and where the leadership task is accomplished through the interactions of multiple leaders (Spillane 2006). It implies shared responsibility and inter-dependencies among various leaders across a range of roles. It is seen as the engagement of many rather than the few in leading innovation and change and the sharing of leadership in a deliberative way to achieve positive organizational performance (Harris 2005).

Bennett et al. (2003) note that distributed leadership is an evolving practice that results from the pooled expertise of a group or network of individuals rather than something that is done to an individual. Distributed leadership is primarily about leadership practice rather than leaders, their roles or leadership functions. The leadership practice takes shape in the interactions of people and their situation. Elmore (2000) suggests that distributed leadership has come about because large scale improvement requires the collaborative action of people with different areas of expertise.

In order for a new generation to lead universities, we need to prepare them to take on leadership roles for a very different higher education system (Knight and Trowler 2001). McKenzie et al. (2005) in their recommendation to ALTC identified the importance of professional development for leaders at all levels, not only to improve skills and share practice but to "value teaching and teaching innovation" (p. 171) and to "encourage the development of cross-institutional networks" (p. 172). In addition, Southwell et al. (2005) recommended in their dissemination strategies the need to: "Develop and support leadership and management capacity building programs that incorporate a distributed and multi-level concept of leadership practice in the higher education sector" (p. 61).

Furthermore, Marshall (2006) in a review of the leadership literature for higher education, contends that there are a number of principles to guide the development of leadership capability within higher education but that "an essential part of the process of developing leadership capability in learning and teaching is to develop an active community of scholars . . ." (p. 7).

The Faculty Scholars Program was conceptualized as a growing community expanding each year through engagement of additional scholars and further universities. It was underpinned by the notion of distributed leadership in order to engage people at multiple levels within the university.

15.3.1 Methodology

A mixed methods approach was used within an action learning framework. The action learning framework provided a model for implementation for the participants

in the program through the key areas of plan, act, observe, and reflect (Zuber-Skerritt 1993). These strategies were continuously used by the scholars to review their progress with the implementation of their faculty-based projects and a larger National Roundtable Project, discussed in the following section.

Data was collected through interview, reflective journal, and anonymous surveys. Additional information was collected through evaluation of key activities such as the Roundtable, leadership retreat and planning workshop. Qualitative analysis methods, using NVivo software to identify key themes, were used to identify successful methods and challenges faced by participants engaged with the activities. This was used to inform the development of the framework for leadership capacity development and associated resources.

Twenty-four participants (scholars) engaged in the program in this time period. They were at various stages of their career, ranging from associate lecturer to professor, and assumed a range of leadership roles and responsibilities in their faculty, the institution and the national arena. In addition there were a number of other participants engaged across the institutions, including a member of the senior executive, a project manager, a facilitator from the central academic development unit, steering committees who provided individual mentoring, and key administrative support personnel. The scholars also engaged various peers to collaborate on their faculty-based projects and to provide feedback through a National Roundtable.

15.3.2 The Faculty Scholars Program

Successful funding from ALTC in 2006, supported by institutional funding, provided an avenue for a partnership between two regional universities to further develop leadership capacity for teaching and learning within their institutions and to address the need for succession planning within their faculties and departments. A LCDF for teaching and learning was developed and trialed through leadership activities embedded in faculty-based projects related to improving assessment (Parrish and Lefoe 2008). Cross-institutional networks were facilitated to support the adoption and adaptation of the framework and its resources. In addition, the planning and facilitation of a National Roundtable enabled scholars to establish wider strategic professional networks and promote project resources more broadly. In the second stage, as indicated in Fig. 15.1, two additional universities agreed to participate as the leadership framework was trialed and further refined using a "cascade approach," whereby the leaders from the first stage universities mentored the second stage universities (Fullerton and Bailey 2001; McKenzie et al. 2005).

These processes supported the aims of:

- Creating and trialing a leadership capacity building framework for teaching and learning

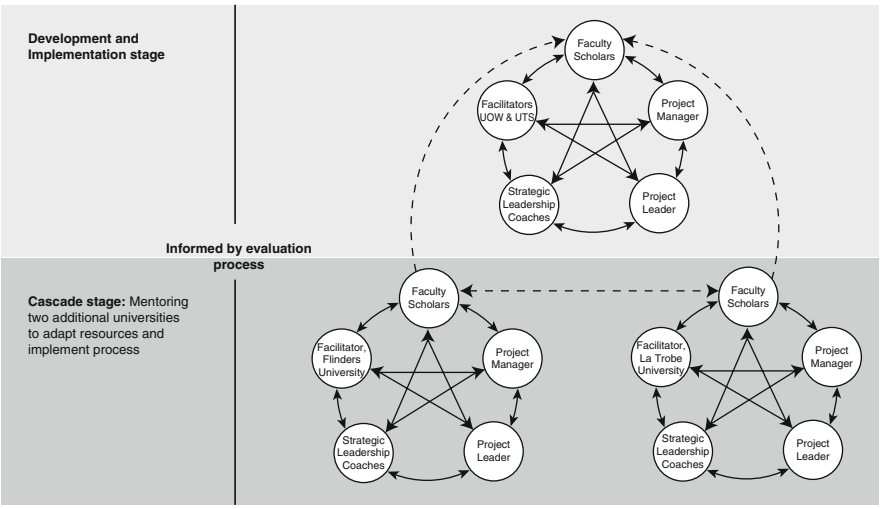

Fig. 15.1 Distributed leadership for learning and teaching

- Facilitating cross-institutional networks to support the adoption and adaptation of this leadership framework for multiple contexts
- Developing resources to support this framework.

15.3.3 Outcomes

The LCDF built on a Faculty Learning and Teaching Scholars program to achieve strategic change initiatives related to learning and teaching both within faculties and across the institution. The LCDF developed capacity via explicit professional development activities and cross institutional consultation and collaboration. The scholars had the broad responsibility of promoting good practice in assessment within their faculty and the broader community. The use of faculty-based projects provided a vehicle for strategic change and the opportunity for scholars to provide leadership for their action learning project from an informal position.

All projects were related generally to improving student outcomes (Table 15.1). Those related to e-Learning improvements included a systems level enhancement for a web-based e-portfolio system (Item 1, Table 15.1); the use of a content management system to map assessment practice across the curriculum (Item 2, Table 15.1); a school level initiative to use blogs for reflection, building a Philosophy of Journalism for final year students (Item 3, Table 15.1); and an online toolbox to support international students with their learning (Item 4, Table 15.1).

Further information about all projects is provided in recent publications (Brown 2008; Lefoe and Parrish 2008, 2009; O'Brien and Littrich 2008).

Organization of the Roundtable provided opportunity for scholars to lead at a national level. They also engaged in mentoring and coaching by strategic leadership

Table 15.1 Examples of faculty-based projects related to e-Learning

Target	Project and faculty	Context
1. System level change	Implementing a web-based e-portfolio support system for teacher education students. Faculty of Education	Based on the New South Wales Institute of Teachers' Professional Teaching Standards. This project included: (1) support strategies for students; (2) support strategies for university staff to identify opportunities for integration; and (3) support for teachers supervising practicum. Bennett (2007), Bennett and Lockyer (2007).
2. System level initiative	Faculty of Informatics: The development of a database of assessments associated guidelines which link information technology skills with graduate qualities.	Key was the implementation of a content management system for the design of an integrated curriculum. Key ideas included; online resource sharing, reusable content chunks, meta-tagging, and customized workflows to assist coordination of tasks to integrated curriculum. Also intend to foster a positive culture of sharing and learning in academic staff Michael (2007).
3. Degree level initiative	Reflective Learning and Professional Practice: towards an integrated model for journalism education Faculty of Creative Arts	The project developed resources and processes to link the assessment tasks and associated reflective practices in all first year Bachelor of Journalism subjects. Development and support of student blogs and Philosophy of Journalism Statements as tools for global assessment and reflective learning which assisted students and academics to build skills and graduate qualities through the recognition of links across subject boundaries. O'Donnell (2008).
4. Subject level initiative with international focus	Pandora: Student Teaching and Learning (Resources) Toolbox, Faculty of Law	Challenges faced by postgraduate domestic and international students with academic expectations of critical analytical thinking, reading and writing skills, academic language, referencing and expectations surrounding plagiarism and assessment led to the development of this online resource. The cross-institutional team aimed to promote student skills development in these areas and facilitate delivery of support services to students, particularly those studying overseas Loves (2008), Loves (2009).

coaches from the senior executive in each institution and an institutional facilitator. By cascading the model through the mentoring of Stage 2 participants by those of the Stage 1 facilitated a cross-institutional network of scholars.

Five critical factors for success of the program were identified:

Implementation of Faculty-based action learning projects
Formal leadership training and related activities
Engaging in dialog related to leadership
Reflection on action
Expansion of current professional networks.

These are discussed through the lens of five overlapping domains which emerged from the qualitative analysis of the data.

15.3.3.1 Domain 1: Growing

Scholars engaged in activities designed to develop their understanding of the social and cultural context of leadership and leadership capacity development in higher education and to expand their awareness, knowledge and understanding of leadership and the relevant skills for leading in a higher education context.

Key findings from the data related to this domain focused on the related professional development activities. Formal activities were seen as essential to leadership development prior to undertaking the action learning project. They worked best when held over an extended period (2–3 days) and away from the participating institutions. A quality off-site location was an indicator to the Scholars that they and their projects were valued whilst providing essential time away from everyday commitments to reflect on and plan for their leadership development and their action learning projects.

> I found all the face to face activities valuable – being able to go away and stay in a nice place – it communicated the value of the project. (2008 scholar)

The professional development activities also facilitated ongoing relationships, cohesiveness, communication and collaboration between the groups. Whilst it was challenging both to schedule around teaching commitments and to design activities to meet the needs of all participants, it provided sustained opportunity for creating a community of practice for facilitating ongoing communication related to the faculty-based projects and for the formulation of the National Roundtable.

> The retreat served to cement a union among the group. (2008 Scholar)
>
> The retreat went well. I was really struck by how well the group came together and I think that was largely due to the retreat and whatever you did at the retreat to get that going. It was a remarkable group development process that happened. (2008 scholar)

This opportunity for professional development highlights the importance of providing contexts for shared learning, a notion supported by the early work by

Vygotsky (1978) on social constructivism and supported by more recent research (Palincsar 1998).

15.3.3.2 Domain 2: Reflecting

Scholars engaged in a cycle of action and reflection. This cycle was a significant factor in the LCDF and its associated activities. Reflective practice is integral for the development of an understanding of the social and cultural context of leadership and of oneself as a leader.

Although the Scholars were encouraged to keep formal reflective journals most reported that they did not make this a priority but found the regular fortnightly formal and informal meetings assisted them to reflect in order to share their progress with other participants. They also reported that those who engaged with mentors also found that this promoted reflection. The preparation of presentations and reports also encouraged reflective practice.

> Reporting and updating in the various forums on the status of the project requires some degree of reflection that might not otherwise have occurred. (2007 Scholar)
>
> I've kept an ongoing record of what has happened in each phase of my project and I have also been writing up a manuscript for a paper that I am going to be delivering at a conference next year. This has been a useful means of reflection. (2007 Scholar)

Theories of social constructivism and communities of practice underpin this domain (Palincsar 1998; Schön 1983; Vygotsky and Cole 1978; Wenger 1999; Wenger et al. 2002). The mentoring and coaching relationships enabled a social context in which scholars could learn about leadership.

> My mentor was excellent; she picked up straight away if there was something that I needed to talk about, reflect on and work through. This helped in dealing with the challenges I was experiencing throughout the program (2007 Scholar)

The practice of reflection was a learning tool utilized in these interactions. The social contexts that were instigated throughout the project included: peer mentoring in institutional and cross-institutional meetings and as a consequence of professional development activities; mentoring by senior institutional leaders; and coaching by senior executive.

> The support that we received from [mentor] was quite important for advocating us as emerging leaders and there was also quite a bit of support from our Deputy Vice Chancellor.

15.3.3.3 Domain 3: Enabling

Scholars engaged in leadership capacity development that was enabled through the provision of opportunities and experiences that occurred in the authentic, real or actual context in which they reside. Consequently the development of leadership transpired through the enactment of leadership.

The scholars reported that through the activity of leading the faculty-based project they were able to see themselves as leaders, and identify the leadership qualities they possessed and those that needed further development. Many did not see themselves as leaders per se before they undertook their projects. It was during these authentic action learning tasks that they were enabled to practice and experience leadership, self-assess their abilities and try methods they may not have engaged in previously.

> Doing the project is definitely useful leadership wise because it takes you out of your comfort zone. (2008 Scholar)

They also reported that as a result they developed self-confidence in their ability to lead and could envision themselves as leaders. They had much broader perspectives of leadership and roles within the academia, particularly outside their own faculties.

> Involvement in this project has made me see what I can do in this institution and where I am and what I might do. (2008 Scholar)

Theories of authentic and situational learning underpin this domain (Herrington and Oliver 2006; Herrington et al. 2002; Lave and Wenger 1991). The faculty-based projects proposed by the Scholars provided opportunities for authentic and situational learning. These projects were related to assessment and aligned to faculty and university strategic goals. Scholars designed and articulated the strategic action plan for their faculty-based project and led the implementation of this plan. They frequently found it challenging to get "buy-in" from their colleagues and found that the support of the Dean or a senior member of the faculty executive was essential if they were to engage others.

> Some people have expressed support and an enthusiasm in the project but for the most part people are busy and it is due to this that they have not engaged with the project. It was interesting to compare my project to one that was being pushed from the top down, mine was from the bottom up. There was a noticeable difference, mine lacked that faculty driven impetus, there wasn't a purpose from the faculty for mine whereas there was in the other project. (2008 Scholar).

This implementation provided scholars with an opportunity to provide and practice leadership within their faculty and institution.

Scholars also had the opportunity to provide and practice leadership outside their institution in their organization and facilitation of a national roundtable on assessment. Herrington and Oliver (2006) remind us that the best learning takes place when the tasks are implemented in the context in which the learning will be applied.

> At the university level I think the challenge is how slowly change takes place. (2007 Scholar)
>
> Taking part in this project I have seen the inside workings of other departments and I think that is very important to developing leadership capacity. Getting to see other aspects of the department you learn more. (2008 Scholar)

The Scholars identified a number of other important components for success in this area. These included careful planning and allocation of time for the

project, including some release from current duties, negotiating manageable and achievable expectations and outcomes within the timeframe, a strong belief in the value of the project and the most important was managing and facilitating ongoing communication.

This was a particular challenge when they were collaborating on the National Roundtable in 2007 where several technological solutions were trialled for communication, which were not effective. In 2008 this particular component was improved through an additional face to face retreat with groups from the various institutions so that they could renew relationships and have the detailed discussions required for the planning of the Roundtable.

> The organization of the roundtable has been a way of putting leadership theories into practice which has also enabled learning about them. (2008 Scholar)

15.3.3.4 Domain 4: Engaging

Scholars established and forged relationships with significant others including other scholars, senior colleagues, institutional leaders, mentors, project facilitators, senior academics from other institutions, past scholars, peers and strategic leadership coaches. The opportunities and activities that facilitated engagement in these relationships enabled the Scholars to participate in dialog that encouraged a deeper understanding of leadership roles and responsibilities.

Opportunity to engage with others outside the department, faculty or institution were seen as keen to breaking down the "silo" mentality and providing insight to how other aspects of academia functioned. Regular meetings were scheduled at the start of the year and the Scholars were aware of the importance of attendance. Each group of Scholars forged a strong relationship with the others in their institution.

> The most beneficial discussions I've had is with people involved in our group (2008 Scholar)
>
> The regular meetings that occurred were good opportunities to touch base with people who have similar values, challenges and contexts. (2008 Scholar)

In addition a member of the senior executive met regularly with the Scholars providing a much broader understanding of how the university functioned. This senior member provided strong evidence to the scholars that the work they were doing was valuable. At one stage he had sustained an injury that required cancelation of all his meetings for several days but still managed to attend campus just for their meeting. On another occasion he reorganized his overseas travel so he could attend the Scholars retreat and provide feedback on their action plans, adding several hours to his travel.

> The support that we received from [mentor] was quite important for advocating us as emerging leaders and there was also quite a bit of support from our DVC. (2007 Scholar).

They also found the relationships across the universities valuable for sharing expertise and knowledge and found that the sharing of their progress, achievements

and challenges influenced in turn how they responded to challenges and exercised leadership within their own projects.

> It's allowed me to tap into the knowledge and skills of the other scholars and fellows. (2008 Scholar)
>
> The retreat and workshop really helped to identify the people you could share your project with and get feedback on your project and collaborate with. (2008 Scholar)

They gained a wider perspective of leadership in higher education through the relationships they developed and the dialog that they engaged in because of the cross-institutional networks that developed. The theoretical underpinnings for this domain also included social constructivism and communities of practice as there is some overlap with other domains.

One key challenge in this domain was related to communication, especially across institutions. Whilst Web 2.0 tools, such as ning.com, would have been powerful tools for this kind of collaboration, the tools that were trialled did not meet the expectations and time - poor academicians were not able to allocate the time they felt was needed to learn how to use them. They frequently resorted to email, and phone calls in 2007 cohort whilst the 2008 cohort used an email list effectively for communication. However, the 2008 group did not share resources on leadership and assessment in the same way that the 2007 group did. Another key challenge for some was engaging their colleagues in their individual projects.

> I needed to realize that not everyone was going to share my passion and that with the things that I am passionate about I needed to not take it personally that others maybe chose not to engage as much as I hoped. (2008 Scholar)
>
> Others expressed a concern about self-confidence and ability to interact with more senior academicians.
>
> I felt that within the group I was probably one of the least experienced, in terms of teaching background; therefore probably not in the strongest position to make a valuable contribution; doubting my abilities has probably held me back a bit or rather slowed me down in terms of involving myself more. (2008 Scholar)

15.3.3.5 Domain 5: Networking

Scholars undertook activities and engaged in relationships that broadened their professional networks across the multiple levels of higher education. These activities and relationships enabled the Scholars to engage with a wider group of senior leaders and explore the potential for leadership opportunities.

The Scholars found their networking opportunities provided their institutions with senior executives, as well as the National Roundtables, provided excellent opportunities for networking and substantially raised their profiles both within their university and nationally. They found that it provided them with a broader perspective of leadership in higher education generally, including at the institutional and national level; as well as a broader understanding of national funding opportunities and requirements for grants.

> It [contact with a senior leader] gives you credibility, it sometimes helps you get things through, it gives you a bit more smarts about the way to go about things. (2007 Scholar)
>
> It is valuable to have contact with senior leaders because they're the key players in change and if you don't have them on board you are not going to go anywhere. (2008 Scholar)
>
> They [senior leaders] have much more experience and I found their advice very useful. (2008 Scholar)

It broadened their opportunities for career direction as the senior executive member was able to guide their involvement in important working parties and committees within the institution. It also gave credibility to their projects, and an understanding of the importance of not working in isolation in their faculties,

> The senior leader now knows who we are and that's always a good thing. He also knows we are committed to promoting teaching and learning across the institution and will be more likely to consider us for roles and responsibilities within the university in relation to this. (2007 Scholar)

The concept of communities of practice also underpins this domain. The networking activities focused on enabling individuals to share understandings, knowledge and responsibilities (Lave and Wenger 1991) and encouraging the engagement of all members of the community, as well as bringing in new members (Carew et al. 2008). Networks are important in communities of practice because they broaden the scope of experience and practice that can be considered in developing shared knowledge and understandings.

The networking activities that the Scholars engaged in beyond their regular meetings and professional development activities included presentations at institutional and national forums including the National Roundtable; and the consequent development of relationships with key attendees at the Roundtable, and exploring opportunities for future collaborations.

> The opportunity to invite and meet important people from higher education and to be able to target people we wanted to invite, in a sense the bigwigs in assessment and higher education, to the roundtable was great. (2008 Scholar)
>
> Confidence in my ability to actually stand up in front of a group of people that probably know a hell of a lot more than me about teaching and assessment, and make sense and have them receive it positively. (2007 Scholar)
>
> Presenting at the roundtable was a bit of a confidence boost. (2008 Scholar)

In summary, there were eight overarching activities in which the Scholars engaged and their relationship to the domains is explained in Table 15.2: Domain and activity relationships.

Each key activity served to enhance one or more aspects of the domains identified in the LCDF, but key to leadership capacity development was the way the Scholars engaged with their own Authentic Action Learning Faculty-Based Project. By learning about leadership within the context of leading a Faculty-Based initiative, the Scholars developed great insight into a change management processes, as well as their own abilities and preferences for leadership. The final section provides more detail about the faculty-based projects that are relevant to e-Learning.

Table 15.2 Domain and activity relationships

Domains	Activity
Growing	1: Three day leadership retreat
	2: Two day leadership workshop
Reflecting	5: Mentoring and coaching
	6. Reflective practice
	8: Cascading to partner institutions
Enabling	3: Extended authentic action learning faculty-based projects over 6–12 months
	4: National roundtable: organization, facilitation, and presentation
Engaging	3: Extended authentic action learning faculty-based projects over 6–12 months
	4: National roundtable: organization, facilitation, and presentation
	7: Cross-faculty, institutional and cross-institutional communication and collaboration
Networking	4: National roundtable: organization, facilitation, and presentation
	8: Cascading to partner institutions

The LCDF provides a significant opportunity to prepare academicians for positional leadership in higher educational instructions. With four universities already successfully implementing the program they are moving in the right direction to addressing the looming leadership succession crisis. There is a new group of people ready, willing and capable of taking leadership roles in higher education for teaching and learning. Indeed many who have undertaken the program have moved into strategic positions and bring new insights to these positions because of their engagement in the program. The final section provides some suggestions for future research.

15.4 Future Directions

Future research is required to track the longer term influence the framework had on the Scholars both as leaders within and outside of their institution. Additional funding by the cascade partners has been received to continue the program in two new universities in 2009 (Smigiel 2008). We are already seeing the effect of the program with a number of Scholars achieving publication, promotion, externally funded grants and an ALTC fellowship building on the success of one faculty project. One Scholar, who has since taken a formal position of leadership in her faculty, encapsulates the impact of the Program:

> I have a better sense of myself as a leader than I did before this Program. I really wasn't sure I could be a leader whereas now I know what attributes I have. I have a sense of what skills I need to continue to develop to be a good leader and I have an appreciation that leadership is not necessarily about the position you hold, or your personal achievements. Leadership is about finding ways of bringing about sustainable, enduring change to make teaching, learning and student assessment more effective (2007 Scholar).

Frameworks for leadership capacity development, such as the LCDF, provide a scaffold for preparing potential leaders for formal leadership positions (Spillane

et al. 2001). The feedback and evaluations of participants in the program suggest that the LCDF is a sound model for developing leadership capacity. However, the successful implementation of the LCDF relies on an investment and commitment in the implementation of the program from universities, institutional policy makers and senior leaders.

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Chapter 16
Using Appreciative Inquiry for an e-Learning Change Management Programme: The ENTICE Project at Brunel University

Linda A. Murray, Philip P. Alberts, and Julia E. Stephenson

Abstract Brunel University's e-Learning strategy provides direction for the teaching staff, but remains flexible. Although all Schools had engaged with e-Learning in the past, detailed consideration of effective e-Learning and the e-experience of students had not been generally in evidence. We sought to address this gap in the strategic work of schools by implementing a change management program, the major elements of which were the development of a local evidence-base of effectiveness of e-Learning practices and conversations for change. Our program was based on the Appreciative Inquiry (AI) method, which we adapted for this educational context. The aim was to identify the pedagogic value of the diverse range of e-Learning activities already being undertaken and to encourage more widespread use. There was also a longer-term objective of assisting schools to establish or review their own e-Learning strategies and action plans. In terms of the effectiveness of the process, it is evident that the AI methodology was very beneficial. There is greater awareness among academic staff of the range of e-Learning activities that are currently being used in teaching designs of teaching staff at the University and about student use and attitudes to those activities. The evidence provides inputs to the development/review of e-Learning action plans and strategies for each school, usually within the context of the overall school plan.

16.1 Introduction

ENTICE refers to "Encouraging Teaching Innovation in a Computerized Environment" and was implemented as a "Pathfinder" project funded by the United Kingdom's JISC (Joint Information Systems Committee).

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The e-Learning strategy of Brunel University provides direction at the institutional level, but remains flexible in relation to taught programs within schools. There has been a presumption that the tradition of academic freedom and autonomy in schools must be respected. Although academics in all schools at Brunel have engaged with e-Learning to some extent, detailed consideration of the nature of effective e-Learning activities and the e-experience of the students has not been generally in evidence. Thus action plans within schools to promote "blended learning," as a combination of face to face learning and e-Learning, are somewhat limited in detail, leaving the academic staff with the discretion to use e-Learning in ways that they decide – with varying amounts of e-pedagogic input and evaluation.

We intended to address this gap in learning and teaching development at the school level by implementing the change management "Pathfinder" ENTICE project, the major elements of which are a local evidence-base of the effectiveness of e-Learning practices and a systematic series of conversations for change. This project will be of interest to learning and teaching change agents who wish to engage with academics in schools to promote explicit action plans in relation to the development of blended learning.

16.2 The Institutional Context of the Project

The e-Learning strategy of Brunel University is broadly linked to learning and teaching considerations in the University's Strategic Students Plan. Each academic school is encouraged to develop its own operational strategy and action plan in relation to e-Learning.

However, participation in a national e-Learning Benchmarking exercise, organized by the Higher Education Academy (HEA) in the United Kingdom, indicated that although academic staff at Brunel are generally engaged in e-Learning activities, manifest plans did not yet exist in all schools. On reflection, it became clear that, in most cases, further processes needed to be followed to effect systematic change at school level. Our analysis of the situation was that several factors militate against clear positions being taken by program/discipline level teams in schools on the development of the blended learning character of programs. We concluded that we needed to develop a systematic process of having effective conversations with the key staff to enable them to develop a proactive stance, recognizing the importance of a holistic and student-centered view of the use of blended learning within academic programs.

We judged that a locally created evidence-base for a School would play a central role in these "effective conversations for change." At the start of the project change was generally advocated by enthusiasts whose input was valuable but could be rejected. Relevant research presented by e-Learning specialists could be challenged as inconclusive or too generic.

We also reasoned that evidence of student perceptions of their learning experience within the institution itself would be a powerful motivator for change – in

particular, in terms of the pedagogic value of the diverse range of e-Learning activities that were already being implemented by some staff. However, insufficient information was available to demonstrate the impact of e-Learning on students' learning experiences. This is due, in large part, to the fact that all evaluation processes for students are decentralized and carried out by the module leader and/or course tutor at their own discretion. We needed to elicit such information, so that it could be shared effectively.

16.3 Intended Outcomes of the Project

Based on our analysis, we set out the following project aims:

- To gather information relating to emergent broad e-pedagogical practices within Schools as they relate to the design objectives of academic module teams (for example, increases in online collaborative group work).
- To examine the relationship between patterns of feature/tool usage of the virtual learning environment (VLE) available centrally (for example, the interactive and e-assessment features) and student evaluation data, all at a module level.
- To use the evidence-base thus created to explore with the academic leadership of schools - what they might aim to achieve in the blended learning situation both in relation to processes (encouragement of particular pedagogical approaches) and outcomes.
- To establish a process for the initiation/development of supporting e-Learning strategies and action plans within Schools that use the local evidence base developed.

16.4 Choice of Method and Procedure

A two-phased change management program was developed, the first phase of which had three strands as indicated in the following diagram. The three strands involved staff, students and statistical analysis of usage data:

16.4.1 Phase 1

The strand of the program involving teaching staff aimed at establishing a systematic process of effective information gathering with participating key staff from each School. We needed a method which was clearly focused on the enhancement of teaching rather than on the assurance of quality and standards as traditionally understood. In order to maximize the likelihood of obtaining the co-operation of

academic staff, we wished to emphasize the aspect of the work which was about finding good practice. We also wanted our volunteer participants to feel part of the process of enquiry rather than that they were being used as research objects – to feel that they would have something to gain from contributing to our project.

We found that the method of Appreciative Inquiry (AI) had characteristics that suited our approach and judged that it could be amended for use in effecting change in our educational context. The term "Appreciative Inquiry" was created by David L Cooperrider in 1986. It is a theory and practice for approaching change from a holistic framework. "AI is based on the simple assumption that every organization has something that works well and these strengths can be the starting point for creating positive change" (Cooperrider et al. 2005, p. 3). For the purposes of our project, the "something that works well" are the effective learning practices of some academic staff.

AI is best learned and understood through the use of the 4-D Cycle of Discovery, Dream, Design and Destiny (p. 5) as shown in Fig. 16.1 below:

Although AI is, in its original conception, an "innovative" approach to organizational change, we were able to re-purpose its elements to use the method in our initiative to enquire into and reveal the pedagogic value of the diverse range of e-Learning activities being implemented through the use of the features and tools of the VLE. This is represented in our selection of the "Affirmative Topic Choice"; that is, a topic which states the focus of the enquiry (see Fig. 16.1). The topic of our enquiry, which was clearly established with participants at the outset was: "(Ways of) creating and sustaining outstanding e-pedagogic teaching and learning."

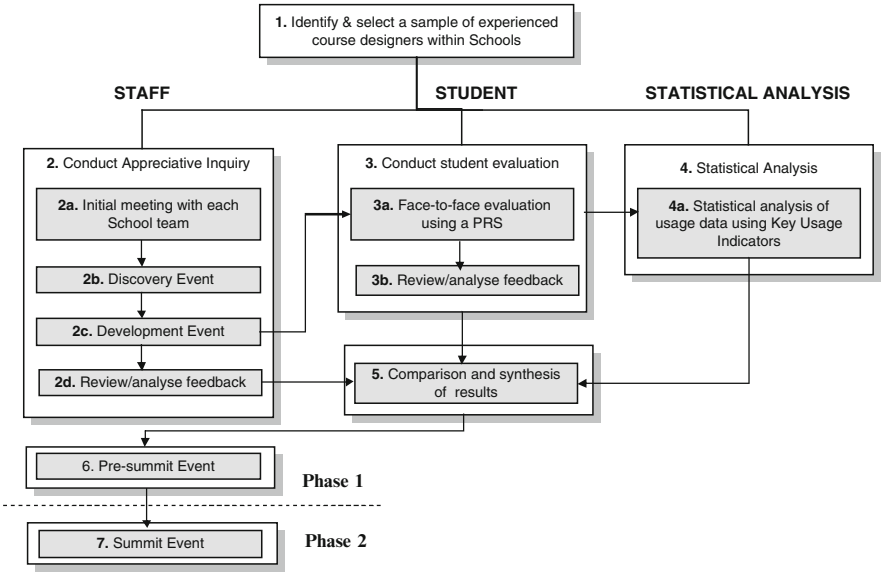

Fig. 16.1 Change management program

The verb "appreciate" (from which appreciative is derived) is described in AI as follows (Cooperrider et al. 2005, p. 57): ". . .to value or admire highly; to judge with heightened understanding; to recognize with gratitude."

The first and last of the three nuances of meaning of "appreciate" set out above, clearly relate to the appreciation that the researchers (e-Learning professionals at the institution) provided for each participant as the process was followed (including the originating invitation to contribute to the project). Further, the project itself facilitated the appreciation of the e-Learning work of the participating academic staff by their School colleagues. Before the project, such work might not have been widely known (and indeed the project confirmed that). The second meaning is also represented in our project. As will be seen below, all stages of the AI process made use of a conceptualization of factors relevant to student learning. These eight "educational considerations" (see Fig. 16.3 below) represent the application of pedagogic principles. They were established by reference to relevant scholarship and through discussion between the project leaders in the e-Learning team and colleagues in the education development group providing training for new teachers in higher education. The particular formulation of these principles for this project was such that the text used language that was accessible by those who are not education specialists. Their presentation at all phases was also made visually striking in keeping with the overall ambience of an AI approach.

The use of these "educational considerations" within the AI method enabled the research interactions to act as vehicles for the greater appreciation by teaching staff of the pedagogic-validity of what they were doing. In other words, it enabled them "to judge with heightened understanding" the teaching methods they were using in the computerized environment. We recognize that many teaching staff may use teaching methods that they believe are effective without necessarily being able to relate their approach to pedagogic principles that suggest that the methods would be successful in supporting student learning. However, it is increasingly necessary to be able to justify the teaching approaches taken. Therefore, we believed there would be value in explicitly making links between what the teaching staff were doing and our jargon-free educational considerations throughout our enquiry.

The overall Phase 1 was conducted as follows:

- Meetings were arranged with the heads/deputy heads of Schools to brief them about the contribution of their staff to the project. Following these meetings, we selected within each School 4–6 e-Learning enthusiast course designers/module leaders who were deemed to be "expert users" (1. of Fig. 16.2 above). Then, an initial meeting was held with each School team of participants to brief them about their anticipated contribution to the enquiry (*2a*).
- The AI method began with an individual Discovery Event (*2b*) – a 45 min interview with each participant designed primarily to understand the intentions for their e-Learning design, and also to explore their future e-Learning aspirations. All interviews were tape-recorded and subsequently transcribed. The interview comprised of three carefully structured questions to promote positive narrative-rich communication. The first question explored the interviewee's

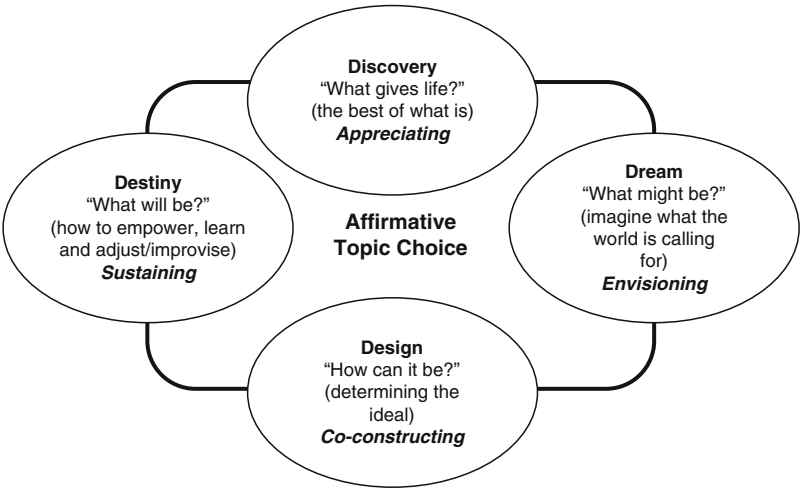

Fig. 16.2 The 4-D cycle of appreciative inquiry

personal e-Learning and teaching experiences; they were asked to talk through a successful module which they had developed online and to explore which VLE tools they used giving reasons for their choices. In light of this, interviews were conducted in participants' offices (where possible) so that they could access their online material and talk through their work as an *aide memoire* if necessary. Next, participants were asked to discuss the core educational approaches or methods that they were aware of that influenced/gave life to the design of their module. Finally, participants were asked to imagine the future, to time travel to 2,012, assume Brunel University had become the number one institution at creating and sustaining outstanding e-pedagogic learning and teaching and to describe what they saw and felt happening that was new, exciting, different and better.

- The next stage we renamed from "Dream" to "Development" Event. The information gathered from the Discovery Event was synthesized into two artifacts; namely a "personal clipboard" and a "gallery picture" which were specific to each participant, and distributed at this event (*2c*). Personal clipboards were essentially one page creatively designed documents mocked up to look like a clipboard which contained a mind map illustrating the participant's module, emphasizing all the e-Learning tools used, interesting quotes and consequently the corresponding educational considerations achieved as a result of implementing such tools. The gallery pictures were posters displaying the participant's future aspirations (i.e., with reference to the 2,012 question). These posters were displayed around the room which collectively formed a "Quotable quotes gallery" specific to that School. With the Event set up in this way by the researchers, the School participants then used their personal clipboards as an *aide memoire*, collectively to identify reasons for their choice of features, the e-pedagogical considerations integrated as part of e-Learning design, their intended student

learning outcomes and their perceptions of envisaged student learning benefits. It was also an opportunity for participants to share student participation rates, success stories, explore new possibilities and begin to develop a desired and preferred future of e-Learning practice. It thus maintained the dream-like (or at least forward-looking and wishful) nature of this stage of the AI process.

- The findings from the Development Events provided information on which to structure student evaluations (*3*) which constituted the second strand of the overall change management process. The evaluations involved all students enrolled on the modules taught by the participants. This exercise sought to validate whether the participants' e-Learning design intentions were met. Also, the investigation identified any emergent e-pedagogical trends evident in the use of the features and tools of the VLE. The evaluation study thus assisted to verify whether the e-pedagogical considerations "blended" into the course design made a positive contribution to the students' learning experience.
- A portable Personal Response System (PRS) was used (Interwrite PRS 2008) to conduct the student evaluations (*3a*) for which the PRS was considered a viable method since it has the ability to create student opinion polls in real time, thereby promoting active participation, and can be performed with large cohorts of students. Data manipulation and analysis was significantly reduced in comparison to pen-and-paper based equivalent methods. In some cases, however, an online survey distributed via the VLE had to be used since the students were not available in person. A unique set of question items was developed for each student cohort. The students evaluated the effectiveness of each e-Learning design aspect, also indicating whether they wanted it to be used more often.
- The data collated from stages 2 and 3 were analyzed (*2d* and *3b*). The intention was to verify whether the participants' intentions for their e-Learning design were evident in student experience and performance during the course. VLE usage indicators (strand 3) were also utilized at this stage to provide quantitative feedback regarding student use of VLE features and tools in the specified modules (*4a*).
- A comparative analysis between the qualitative data received by means of the student evaluation and VLE usage statistics was conducted (*5*). The intention of this analysis was to cross-validate whether the e-Learning intentions of the course designers were met according to students' views and experience.
- The penultimate stage of the change management program was to present the local evidence-base gathered in Stage 5 to the academic staff in each School by means of the Pre-summit Event (*6*). The intention of this stage was to demonstrate the results of the investigations carried out within each School. The Pre-summit Event comprised of a 1 hour presentation and was carried out within the context of each School to enable the event to be tailored to the School's overall approach to learning and teaching. The event again included the promotion of educational (e-pedagogic) considerations as explicit module design features. A booklet containing a short explanation of each consideration and relevant research exploring their application through e-Learning technologies was distributed. The relevance of the educational considerations was able to counter suggestions that enthusiasts used the technology for technology's sake. After an

initial overview of the AI methodology, the audience members followed the presentation whilst simultaneously engaging with the booklet. Each educational consideration was discussed in turn and cross referenced with how their colleagues were implementing them. Student evaluation data and VLE usage indicators were also presented to provide information about the impact on students. Staff involved during Stages 2 and 3 of the AI process participated in the presentations to project a sense of ownership in relation to the work being discussed. Finally, the presentation closed with a look at the participants' future aspirations. The School's senior management staff were invited and urged to attend. The event assisted to further engage non-enthusiasts by demonstrating the positive impact of e-Learning revealed in the local evidence-base. In AI terms, it encouraged staff who were not active enthusiasts for e-Learning to begin to consider its pedagogically-valid and effective use to be "everyday and ordinary" rather than "exceptional."

16.4.2 Phase 2

The longer-term objective of the change management program was to assist Schools to establish/review e-Learning action plans and strategies. The local evidence-base generated from Phase 1 was used to assess the impact of e-Learning within specific modules in relation to the School's e-Learning strategic intentions. The "Design" and "Destiny" stages of the AI cycle were achieved during two "Summit Events" (*7*) consisting of a half-day/lunch-time workshop, each with representatives from four of the participating Schools. At these events a huge "Quotable quotes gallery" was displayed, giving Schools the opportunity to see how others Schools imagined the future. Using this as stimulus for collaborative review, each School team was encouraged to reflect on the findings gathered from the AI in all four Schools, and tasked with outlining an action plan in order to further embed e-Learning in a blended approach to the implementation of their School's teaching programs. The work of each School was facilitated by a member of the project team.

16.5 Evaluation of the Methodology

As a result of this project, there is greater awareness amongst academic staff of the range of e-Learning activities that are currently been used in the teaching designs of teaching staff at the University and about student use and perception of those activities. Staff have also been presented with information about the pedagogic principles that are manifested by the ways in which the tools of the VLE can be applied. Further, they have been able to explore the practicalities of their teaching practices with non-specialists in their own discipline.

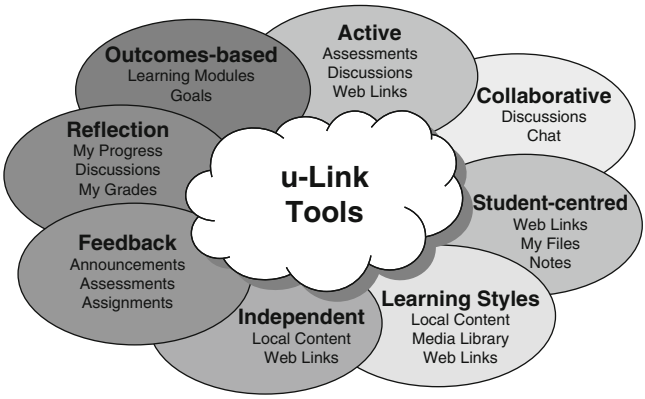

Fig. 16.3 Educational considerations

An e-Learning evidence-base has been created for each participating School establishing links between sound e-Learning practices, student evaluations and VLE usage data. The evidence-bases provide inputs to the development/review of e-Learning action plans and strategies for each School, usually within the context of the overall School plan.

The educational considerations developed for use in the project have been widely distributed in booklet form to staff in Schools to serve as a reference for e-Learning practice and reflection. The booklet may be accessed by means of the following link :http://www.brunel.ac.uk/life/study/computing/weblearn/enticepathfinderproject/ (Fig. 16.3).

The members of the e-Learning Support Team at Brunel now have access to the strategic thinking of the participating Schools. There exists a shared knowledge and evidence base which can be used to promote further e-Learning strategies and plans in Schools, based on educational considerations. The existence of references to e-Learning practice will provide a blueprint for the team to support Schools and provide appropriate training and consultancy.

The above are all positive outcomes of our change management project. In terms of the effectiveness of the process, we judge that the choice of the AI methodology was a good one. In a context where staff have many competing priorities on their time, we were able to obtain active involvement of our main participants throughout the project. Staff members were quite willing to participate and share their "stories." Indeed, we have noted that in future projects using this methodology, we would need to guard against producing negative reactions in staff who were *not* invited to take part in the Discovery and Development Events.

We have also noted that the commitment we maintained to concentrate on the positive was essential in pursuing the aims of the project effectively. There were instances at Pre-summit Events of staff members wishing to dismiss all the good practice and evidence of positive student experience and focus instead on limitations and problems. The fact that we had identified that the whole purpose of this

particular methodology was to focus on "something that works well" enabled the meeting to resist that tendency.

Although difficult to timetable, the larger Pre-summit Events were very well received and it was widely agreed by the staff who were there that they wished that their non-attending colleagues had actually attended this event. Although this project did indeed reach some of those staff for whom the development of innovative approaches to teaching is a low priority, it remains a challenge to get them fully involved to ensure a consistent and satisfying learning experience for students. Pressure on staff time remains a significant issue.

In conclusion, this project did succeed in its aim to "ENTICE – encourage teaching innovation in a computerized environment." It did so in an engaging way, using a collaborative and participative approach implemented through the method of AI. The findings and evidence generated by the project provided inputs to the e-Learning action plans and strategies for each School. At the culmination of the project, senior staff indicated that they felt able to lead further discussions in their School on the developments in e-Learning that should be identified in their future strategic work. We judge that this constitutes a significant step forward in relation to e-Learning and would also recommend this approach when other strategic initiatives need to be embedded in an institution.

Chapter 17
Fostering Connectivity and Reflection as Strategic Investment for Change

Gráinne Conole, Ruth Brown, Maria Papaefthimiou, Phil Alberts, and Catherine Howell

Abstract This chapter describes the experiences of four projects under the Higher Education Academy (HEA) funded e-Learning pathfinder initiative. The projects focused on institutional strategic change and in particular on embedding e-Learning. Each adopted different approaches, tailored to their own specific institutional contexts. However, the projects also worked at a cluster level, which enabled them to draw on commonalities and differences. Working within the cluster also enabled them to adopt a reflective approach to their projects and to consider the implications of their findings for future strategic change within their institutions.

17.1 Introduction

A review of recent international policy documents for education illustrates that technologies are no longer seen as peripheral to the business of universities (Becta 2008; O'Donoghue forthcoming; Redecker forthcoming; NSF 2008). There is recognition not only of their fundamental importance as part of institutions' infrastructures but also of their potential to transform learning and teaching.

In the UK, there has been a range of initiatives to support the development and implementation of e-Learning. Funding sources include the Joint Information Systems Committee (JISC),[1] Becta,[2] and the Higher Education Academy (HEA).[3] Conole et al. (2007) provide a timeline of e-Learning developments and their

[1] http://www.jisc.ac.uk/

[2] http://www.becta.org.uk/

[3] http://www.heacademy.ac.uk/

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relationship to policy directives in the UK. They conclude by suggesting that in recent years there has been a shift from small-scale, individual e-Learning pilots to more strategic initiatives.

In 2006, the HEA and JISC initiated an e-Learning benchmarking exercise, to enable institutions to assess their own use of technologies for learning. The operational definition for benchmarking of e-Learning was:

> An opportunity, facilitated by a recognized methodology, for rigorous institutional reflection and analysis of e-Learning provision, processes, and practice, which can be used to inform internal decision-making, policy, practice, and further development; if desired, enables institutions to draw their own comparisons with other institutions with whom they have established a relationship and who have undertaken a similar exercise. (Morrison 2007)

"Benchmarking" was a somewhat misleading term for the initiative, as it was not so much about producing an e-Learning "league table," but more about an opportunity for institutions to take stock of where they were in terms of e-Learning implementation, as the final report notes:

> . . . a process of institutional self-review and facilitated reflection. The exercise provided an opportunity for analysis and reflection on e-Learning processes, provision and practice. While the key focus was on e-Learning, the scope of the review had a broader significance for quality enhancement and continuous improvement in all aspects of learning, teaching and assessment provision. (Morrison 2007, p. 18)

Following on from the benchmarking exercise, an e-Learning pathfinder program was established. The program started in October 2006 and consisted of two phases; 28 institutions participated in total. These were grouped into seven clusters each with four institutions and each cluster was allocated a "critical friend" appointed from an institution external to the participating universities. Both the benchmarking and pathfinder programs had program-level and project-level blogs and a series of briefing papers and project journals as well as program evaluation reports and final reports. More information and links are available from the main website.[4]

This chapter focuses on four of the e-Learning pathfinder projects: "Cluster C." It includes a brief description of each project, but focuses on the overarching themes that emerged at the cluster level. It will reflect on the value of adopting a cluster-based approach for initiatives of this kind and will draw out the synergies and experiences of the four projects, demonstrating how all four adopted an evidence-based approach to implementing e-Learning.

In particular, we will explore

1. An overview of approaches to implementing institutional change through adopting an evidence-informed approach
2. A description of the approaches and tools adopted by the different projects: Data collection methods and research instruments; Analytical frameworks or strategies; Engagement strategies; and Communication strategies.

[4] http://www.heacademy.ac.uk/ourwork/learning/elt/pathfinder

3. The role of evidence in informing engagement with stakeholders and participants and the development of practice in HE;
4. Ways of sharing models of evidence-informed practice in HE.

The meaning of an evidence-based approach in this context and the perceived benefits will be addressed by questions that will include:

1. What informs and drives change in HE? Ideology, policy, demographic patterns, individual innovators, or research and evaluation?
2. What characterizes the evidence-base, which informs and supports change? How might such an evidence base be developed to complement, enhance or even replace existing structures and drivers?

What kind of evidence, in what kind of evidence base, would best support: (1) Stakeholder engagement? (2) Development of practice? (3) High levels of credibility across our institutions? (4) High quality research activity?

17.2 Background

A total of 28 institutions took part in the HEA e-Learning pathfinder projects. They were divided into seven clusters made up of four institutions each. Each cluster was assigned a "critical friend" to provide an external perspective on the work and draw out synergies between the different projects.

> The focus of the Pathfinder Program is on the design, planning, implementation, and evaluation of transformation processes and activities which are intended to lead, ultimately, to the full and effective embedding of e-Learning into the learning and teaching processes of the entire institution, i.e., the aim is long term change and not just short-term innovation. (taken from the pathfinder blog at http://e-learning.heacademy.ac.uk/ weblogs/pathfinder/?page_id=2)

The four institutions that comprise cluster C[5] were all very different in terms of their cultural context, institutional mission, and the balance of research vs. teaching. Each adopted a different approach to instigating change within their institution. Despite this, coming together as a cluster enabled the projects to identify commonalities and themes that may be of value to other institutions planning on undertaking institutional change programs of this kind. While the institutions all used different methodologies, it became apparent that underlying each project was an evidence-informed approach. This report draws upon the collaborative activities of the institutions, focusing on the way they adopted common approaches to support their change processes.

At the heart of the benchmarking and e-Learning pathfinder programs is the notion of "embedding." At every turn, stakeholders in the Higher Education (HE)

[5]Universities of Brunel, Cambridge, London South Bank and Reading.

sector reiterate the need to embed e-Learning in the curriculum: political masters devise policies that call for its integration (Clegg et al. 2003); funding bodies reward those who are committed to its application (HEFCE 2005); and employers prefer students who are competent in its use (O'Neill et al. 2004). That a university is perceived to address such demands may influence a student's decision to study there (Heywood 2000). On the other hand, there is often a lack of congruence between the public stand and internal workings; between theory and practice (See Conole 2007 for an international comparison). Embeddedness is seen as moving beyond isolated innovation toward more of a strategic approach to deployment of technologies.

Stiles and Yorke (2004) suggest that "embeddedness" of e-Learning can be considered to have occurred in an institution when there is full integration between this approach to learning and all others in terms of "policies, procedures, roles and responsibilities." In different ways each of the four projects described here were attempting, through their pathfinder projects, to embed e-Learning in their own institutional context and to move toward that integrated position. The other common aspect of the four projects is an explicit focus on searching for evidence in their projects that will inform the ongoing process of integrating e-Learning in their particular institutions (Simons et al. 2003). At the time of writing, a range of national and international drivers are prompting educational institutions to adopt evidence-informed models for policy and practice, with the support and leadership of major UK-based research and policy initiatives such as the EPPI-Center,[6] the Observatory on Borderless Higher Education,[7] and the TLRP.[8] In today's globalized environment for higher education, the gathering and interpretation of meaningful evidence can provide a key source of competitive advantage for individual institutions. Yet it also offers much more than this: a renewed focus on evidence offers an opportunity to rethink deeply about the way that we collaborate and share knowledge across institutions. Focusing on the value of developing evidence at the local level (Oliver and Conole 2004) to inform ongoing implementation of e-Learning, the projects have thus also generated outputs that can be adapted by other institutions that wish to create their own localized evidence base.

These two concepts, "embedding" and "evidence-informed," are key in the four research projects discussed. Working at the cluster level, we also identified a number of common themes across the projects. In this chapter, we will consider the four substantive themes that emerged: adopting a strategic approach; gaining "buy-in" from staff, both in the centre and in faculties and schools; enhancing the student experience; and sustainability.

[6] http://eppi.ioe.ac.uk/

[7] http://www.obhe.ac.uk/

[8] http://www.tlrp.org/

17.3 Overview of the Cluster C Projects

This section provides a brief overview of each of the projects, their institutional contexts and the focus of their pathfinder work. The four institutions are very diverse in their missions, contexts, student population and the specific focus of their projects. The role of evidence in informing engagement with stakeholders and participants, and the development of practice in HE is highlighted; ways of sharing models of evidence-informed practice in HE and research approaches that can improve engagement with stakeholders and participants – while still generating high-quality research outcomes will be described.

In addition the idea will be promoted that an evidence-informed approach can be appropriate for ensuring accountability and validity of change initiatives in HE in general and e-Learning specifically, if recognition is made of the local context. Each university's project is identified by the name associated with the original bid to the HEA: Brunel's project is called *Entice*; the one from Cambridge is the *Learning Landscape Project*; LSBU called theirs *Compass* and Reading's was known as *Pathfinder: enabling enhancement*.

17.3.1 Brunel University: An Appreciative Inquiry Approach

The aim of Brunel University's project was to identify sound e-Learning practices being implemented by staff, particularly within u-Link, the University's virtual learning environment. The project entailed a campus-wide investigation (involving all eight Schools) and made use of an Appreciative Inquiry (AI) methodology – an engaging participative process that has the potential to lead to a more dynamic organization. Rather than focussing on a traditional change management process, which predisposes the investigation toward problem-solving and concentrates on the negative or what is not working, AI is distinctively different being an approach for catalyzing positive change. To quote, "AI is based on the simple assumption that every organization has something that works well and these strengths can be the starting point for creating positive change" (Cooperrider et al. 2005). Many organizations have embarked on AI initiatives, for example, the National Aeronautics and Space Administration NASA,[9] Save the Children and the United States Navy[10] (Cooperrider et al. 2005) (Fig. 17.1).

Every AI investigation is unique to that organization. In this investigation, Brunel tailored the "4D" model (Destiny, Dream, Discovery, Design) to accommodate the specific purpose of the project: the "Dream" phase was renamed the "Develop Event" and the last two phases of the cycle "Design" and "Destiny"

[9] http://www.nasa.gov/centers/goddard/pdf/110442main_gnews1-05.pdf

[10] http://www.navy.mil/navydata/cno/clark/news/clark011212.txt

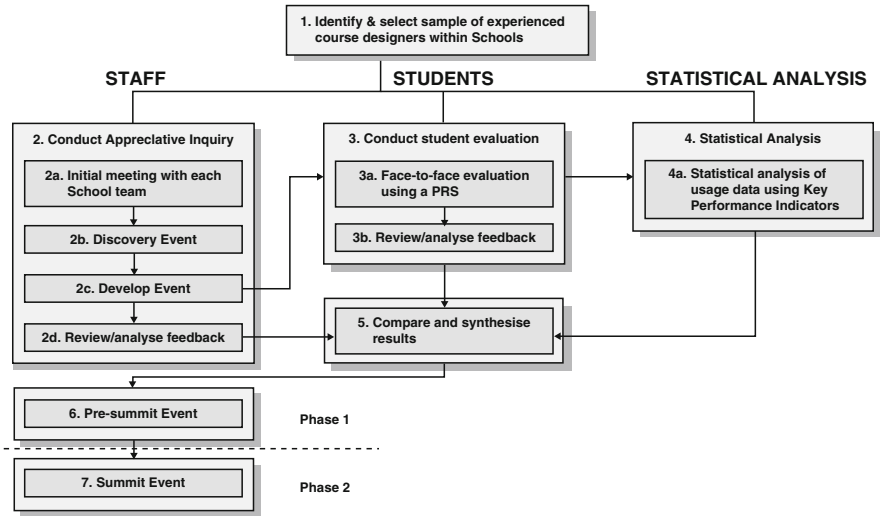

Fig. 17.1 The Brunel appreciative inquiry approach

were combined to form the "Summit Event." The Affirmative Topic Choice was: "(Ways of) creating and sustaining outstanding e-pedagogic teaching and learning."

The results of the AI investigation were compared with student evaluation of the identified e-Learning practices, making use of a Personal Response System (PRS), as well as statistical analysis of student usage data within u-Link. Eventually, the findings for each School were reported to the School at the Pre-Summit Event and utilized to prepare/review e-Learning strategies and action plans for each School during the Summit Event.

For a more detailed discussion of the specifics of this project, see the related chapter in this book (Alberts, Murray and Stephenson: Using AI for an e-Learning Change Management Program: the ENTICE Project at Brunel University).

17.3.2 Cambridge University: Developing an Empirical Evidence Base

Cambridge has a collegiate structure with 31 colleges coexisting alongside departments, faculties, and research centres. Against this complex structure, the development of strategic approaches to teaching and learning, and to e-Learning in particular, has of necessity involved careful negotiation and collaboration. Another important element of the University of Cambridge context is the fact that boundaries between teaching and research are blurred (many undergraduates participate in original research activities, while staff research interests inform the curriculum). The existence of residential colleges makes it hard to make distinctions between

formal and informal learning, and the social lives of staff and students. As a result, issues related to teaching and learning (including e-Learning) can emerge in many contexts.

What underpinned, and continues to underpin, the development of e-Learning at Cambridge is the recognition that any e-Learning, whether discipline specific or institutional VLE, must be seen as an element of broader teaching and learning environments which are supported and enhanced by the introduction of new technologies.

The Pathfinder Project at Cambridge, known as the *Learning Landscape Project*, was led by a team based at the Center for Applied Research in Educational Technologies (CARET),[11] supported by a Project Board chaired by the University Pro-Vice Chancellor for Teaching and Learning and a large Steering Group including representatives of colleges; faculties and departments; central units and services of the University; and the Students' Union.[12] The Project Board and Steering Group provided the project with governance and oversight and also with essential guidance in developing the project; acted as fora for discussion; and offered validation of project approaches, analyses and dissemination strategies. Individual members of the Steering Group in particular acted as "key respondents" in interviews and focus groups and were gatekeepers and champions of the project within their own organizational contexts.

A multimethod project design was developed with the primary aim of informing the University's Learning and Teaching Strategy. This included three major data collection strands:

- "Case records" describing approaches to teaching, learning and management within ten departments across the university: These drew on secondary analysis of existing documents such as QAA submissions, teaching and learning strategies, student and staff handbooks and professional development materials, as well as extended, semi-structured interviews with key respondents in participating departments.
- Case studies of innovations in teaching and learning: These ranged from large-scale innovations involving the development of new courses, through the introduction of innovative approaches to teaching, learning and assessment, to individual staff members experimenting with e-Learning in order to support specific disciplinary practice.
- Student experience studies in which students acted as co-researchers, reporting on their lives at Cambridge (the "Day in the Life" study), exploring their

[11] http://www.caret.cam.ac.uk/

[12] http://www.caret.cam.ac.uk/llp. The Learning Landscape Project (2006–2008) was managed from the Center for Applied Research in Educational Technologies (CARET) at the University of Cambridge, with support from the UK's Higher Education Academy "Pathfinder" Program. Principal project team members included: Patrick Carmichael, Catherine Howell, Matthew Riddle, Rod Rivers, and Frances Tracy. Michael Arnold (Department of History and Philosophy of Science, University of Melbourne) contributed much to the research design and data analysis during his two sabbatical visits to Cambridge in 2007 and 2008.

dependence on personal technologies (the "Shutdown Challenge") and taking part in activities in which they attempted to envision the future of technology enhanced learning (the "Very Advanced Technology" study). Students also participated in collaborative activities including "slide nights," focus groups and dynamic discussions (the "Movers and Shapers" activity). These activities provided a valuable and possibly unique insight into the lives of Cambridge undergraduates, complementing and in some cases contrasting with staff and institutional perspectives. Of particular interest were the findings concerning students' use of ICTs to multitask and their use of social networking sites (Riddle and Howell 2008), and students' practice of using computers in their college rooms (Howell and Arnold 2008).

A substantial electronic "evidence base" was created, using the institutional VLE, CamTools, based on the open-source Sakai platform.[13] It was designed so that "raw" data (interview transcripts, survey data, images, texts), along with interpretative accounts (case records and more thematic analyzes of key issues). Of central importance was the idea of "referential integrity." Referential integrity is a term commonly used in software development, particularly in relation to the design of databases and information management systems. In that technical context, the term refers to the goal of ensuring the consistency and reliability of data classification systems or "entity relationships" (Davis 1998; Nunes et al. 2003). In the Pathfinder context of educational research and institutional development, the term "referential integrity" was used in a not unrelated way. Here, "referential integrity" refers to the need to demonstrate transparency in the process of analysis and interrogation of evidence; showing how analyzes and case studies were explicitly linked to the data that informed them, in order to support secondary analysis and further enquiries. Four main thematic reports were produced which exemplified e-Learning at Cambridge:

- Staff and student use of new technologies for teaching and learning
- Staff and student use of spaces for teaching and learning
- The role of small group teaching
- Approaches to the teaching and learning of transferable skills

17.3.3 London South Bank University: Skills Audit and Support

London South Bank (LSBU) is a post92 institution, a "teaching-led" university. The *Compass* Pathfinder project, which had its roots in the earlier HEA Change Academy (2004–2005) and e-Learning Benchmarking exercise (2006–2007), focused on two anticipated outcomes. Firstly, it aimed to gain a more holistic picture of the self-perceived gaps in the academicians' understanding of and ability to use digital

[13] http://sakaiproject.org/

technologies in day-to-day activities and in teaching. It also aimed to identify academicians who were engaged in interesting practice related to e-Learning (whether via the institutional virtual learning environment, Blackboard, or using other platforms). The intention was to create resources – particularly in terms of understanding challenges associated with the use of e-Learning – which might be used by other academicians who wished to implement e-Learning approaches in their teaching. This evidence base, however, would also inform institutional planning in terms of resource provision.

The first strand in the *Compass* Pathfinder project, evaluating the academicians' perceptions of their digital literacy skills, commenced with a request to all academic staff to complete an electronic survey. This asked them to measure their perceived skills in a range of digital settings – from file management, and the use of Microsoft Office tools, to their competence in using the library's electronic resources and drawing down information from the student record system. While the responses may be skewed toward academics who are possibly more competent than some in their use of information technology (not least because they completed the survey in response to an e-mail and using a digital form), the results highlighted certain areas for concern. Possibly the most astounding information gleaned was that only 46% of the respondents believed themselves competent to use the electronic materials available from the library, resources which cost the university a very large amount of money.

In response to the results of the survey, an 18 module information technology skills course was developed that addresses the broad range of digital proficiencies that the university expects academics to have. On an individual basis, academicians are encouraged to take the diagnostic tests associated with the modules and to decide whether their scores indicate proficiency in the area. If they are dissatisfied with the results, they can "do" the module and (hopefully) improve their marks in the post-module test.

The skills course can also be used as a part of personal professional development in the context of the university's appraisal system. Individual academicians and their line managers can identify areas which they agree might benefit from improvement; the employee is made accountable to engage with the course within an agreed timeframe. This approach can be expanded to include, for example, the use of the survey (possibly tailored to the particular area) as a diagnostic tool to identify the skills that would benefit from improvement.

Three particular themes surfaced in the second strand of the project, identifying existing areas of good practice in order to learn from them for future use. The first was online course design, the second addressed student transition into the university and the last explored assessment.

It was clear from the interviews that were conducted that, while several academicians were delivering material online, there was little attention given to underlying pedagogic considerations. During the lifetime of *Compass*, LSBU was a partner institution with the University of Leicester on their ADDER (Assessment and Disciplines: Developing E-tivities Research) project and this provided a valuable opportunity to explore online course design. Three teams from the Arts and

Human Sciences faculty worked with the Leicester team in 2-day *Carpe Diem* events as they explored the rationale for delivering material online; other interested parties from across the University accessed the process by acting as instructional designers to support the AHS teams, and the core LSBU Pathfinder team gained the skills to run *Carpe Diem* workshops in the process.

In the student transition strand, the *Compass* team worked with the management of one faculty on a pilot project to explore how e-Learning (and Blackboard, in particular) might be used to "turn offers into students," to encourage prospective students to choose LSBU as their higher education institution. Lastly, work went ahead in investigating the use of various means of electronic assessment. A drawback for this strand was the unfortunate abandonment of an electronic examination early in the year of the project. This enforced a review of the reasons for the problem, initiation of discussion about new exam regulations to cater for online exams, and consideration of alternative modes of online delivery for examinations, rather than relying on the virtual learning environment.

Outputs from the project include: a Staff ICT Skills Survey; a Staff ICT Training Course; statements (in three faculties) of minimum levels of use for the virtual learning environment; team development events – in collaboration with the University of Leicester – with the purpose of redeveloping existing course material for online delivery; models for *Onboarding* (the transition of new students into the University); and two briefing papers.

The sustainability of *Compass* is evident from activity subsequent to its winding up which may be directly attributed to the project. As discussed, there is potential to use the ICT skills survey and training course in various ways. The input from Leicester has resulted in several subsequent *Carpe Diem* workshops in other faculties, with more in the pipeline. The student transition pilot, or *Onboarding*, as it came to be known, is now in its second iteration in the initial faculty, and has informed the work around student transition in a second faculty. The other two faculties are actively in discussion (independently!) to implement similar models for the 2009/2010 academic year. Although assessment might at first glance seem to have been the least successful of the three themes, a more robust process has been born from the experience, and we are currently piloting the use of Assessment21's product ABC (Assess By Computer) for a small funded project in one of the faculties. Lastly, there is an initiative with all the faculties to develop a framework of examples in which e-Learning has been instrumental in addressing particular pedagogic challenges.

17.3.4 Reading University: Alignment with Quality Assurance

The University of Reading is a medium-sized, research-intensive institution, which for many years has developed and supported an e-Learning infrastructure. The HEA Benchmarking exercise highlighted that innovation within the institution has tended to be local and centered on "academic champions." Consequently, the

level of engagement with e-Learning varied not only across the institution, but also within Schools. The lack of any coherent course-led approach in the majority of cases could result in a disjointed experience for students. The University had recognized that in order to achieve a deeper change, it needed to move beyond the "champions" and toward a strategic approach to the adoption of e-Learning targeted at School-level.

At the same time as the e-Benchmarking exercise, the University was reviewing its quality management processes to examine how they could be used to support Schools to develop and enhance their provision as well as review it. It was recognized that the Periodic Review process, whereby a School's degree programs are scrutinized to assure academic standards are being met, tended to be a retrospective exercise, was time-consuming for academic staff and of limited benefit for future planning.

The aim of the *Pathfinder: enabling enhancement* process, the name of the University's project, was to support Schools through Periodic Review, moving from a focus on quality assurance to one of quality enhancement. The process was co-ordinated by a central support team and was supported by a framework which aimed to:

- Enable schools to drive forward enhancement strategically
- Appropriately embed e-Learning in the design, development and delivery of programs
- Strengthen the student voice in the process of development and review
- Improve institutional support and develop a more proactive approach to working with Schools
- Provide the academic community with models of change in quality management processes.

The *Pathfinder* process had two phases. The first supported schools in the lead up to Periodic Review; and the second focused on the longer term and ongoing process of enhancement. The framework (shown in Fig. 17.2) allowed Schools to engage with the process according to their own objectives, their own subject and culture, and was considered as a journey of development and enhancement for academic teams.

The process consists of the following aspects:

1. *Consultation*. The aim of this stage was to identify the key objectives of the review, a schedule and timeline for the process.
2. *Data gathering and review*. This stage provided an objective overview of the programs in the school – a snapshot of "where they are now," drawing upon competitor analysis and program context, e-Learning use and inclusion of the student voice. The outcome was a Contextual Review report, written for the School by the *Pathfinder* team, and which formed part of the documentation for the Periodic Review event.

   (a) *Competitor analysis and program context*. Using the objectives and criteria generated in the consultation process, information was collected about

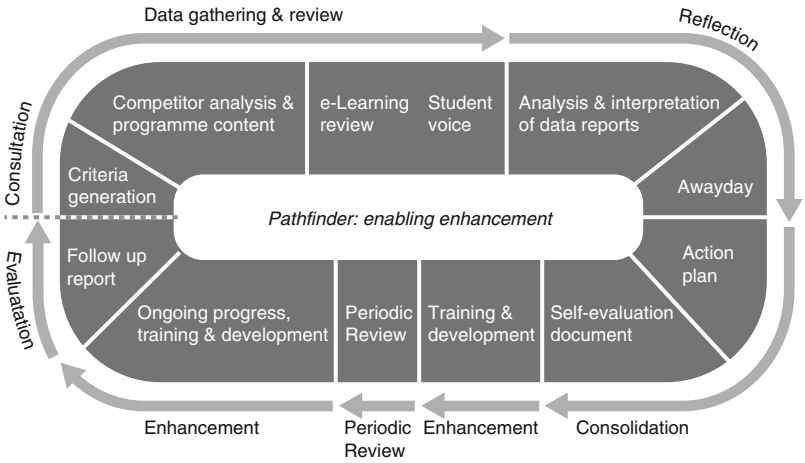

Fig. 17.2 The Reading QA cycle

competitors, recruitment and admissions, student profile, student progression and graduate destinations. The process involved the extraction of the relevant data from sources both internal and external to the University.

(b) *e-Learning review*. This consisted of an e-Learning audit regarding staff skills and attitudes, an audit of online activity, and feedback from students. It sought to identify how e-Learning might be exploited to address issues arising from data gathering and the review process.

(c) *Student voice*. The collection and analysis of student feedback was captured from existing sources such as the National Student Survey, existing documentation (e.g., minutes from Student-Staff Liaison Committee meetings) and Schools' module evaluation forms. This was complemented by detailed student reflection on program provision captured through a student experience survey and focus group sessions.

3. *Reflection*. This stage had two parts: the analysis and interpretation of data, and the school Awayday.

   (a) *Analysis and interpretation of data*. Data was analyzed, triangulated and presented within the Contextual Review report. Information was presented not as final conclusions, but as initial observations which informed discussions, and lead to the school's own interpretations.

   (b) *School Awayday*. A major milestone in the *pathfinder* process was the School Awayday. The aim was to arrive at a shared understanding about the issues facing the School, as outlined in the Contextual Review Report, which challenged assumptions, identified strengths and weaknesses and developed a shared vision and fed into an action plan for the future.

4. *Consolidation*. This process was undertaken by the School, with the academic team reflecting on the process and developing a detailed action plan of

enhancements to be achieved in the future. This formed part of the Self-Evaluation Document drawn up by the School and submitted to the Periodic Review panel.

5. *Enhancement*. The enhancement process started after the 'Awayday' to address the School's concerns. These were short and long term needs addressed through training sessions and workshops tailored to the Schools' specific needs to cover e-Learning, assessment, etc. The longer term needs related to the creation of new programs, and ongoing support for enhancement including the use of e-Learning. The enhancement process offered an invaluable opportunity for teaching and learning support teams to work with the School at a more strategic level, and this was achieved by a process of ongoing engagement, where the *pathfinder* team drew upon other expertise and resources within the University, as required.
6. *Evaluation*. Evaluation was scheduled a year after the Periodic Review event when the School evaluated progress and reported on actions and progress to date.

Embedding *pathfinder* into the Periodic Review cycle was a significant and forward-looking step for the University. It represented a real shift from that of assurance to enhancement, and demonstrated that embedding enhancement is a longer term and more serious challenge. Moreover, the approach encouraged academicians to engage with e-Learning within their own subject and cultural context and introduced new ways of engagement between faculty and internal support departments.

During the engagement with the pathfinder process a number of challenges arose relating to issues of culture, ownership, embedding enhancement, and sustainability. Working with different academic schools uncovered different cultures and awareness of and sensitivity to these were essential. Other factors that affected the success of the process included, a fully engaged Head of School; and strategically appointed staff. Meanwhile, ownership of the change process had to reside with the school, and the role of the pathfinder support team was one of facilitation and empowerment. This enabled academic teams to reflect upon information and make decisions about their future. Another challenge related to the embedding of continuous improvement and the sustainability of the momentum gathered during the process, which was intended to be one of long-term engagement and to ensure that the enhancement cycle was fully achieved.

The approach that has been developed may well be relevant and transferable to other institutions, especially those considering the same step-change from individual e-Learning innovation to discipline and institution-led embedding and enhancement. The experience has shown that embedding e-Learning strategically is a challenging process, but by aligning this process with institutional quality management and review processes change is being driven forward with e-Learning as a key enabler for the wider enhancement agenda, and a way to develop a culture of reflection and enhancement across the academic community.

17.4 Reflecting on the Experience of the Cluster C Projects

While the institutions all used different approaches, it became apparent that underlying each project was an evidence-informed approach. This section draws upon the collaborative activities of the institutions, focusing on the way they adopted common approaches to support their change processes.

17.4.1 Commonalities: Communication of Evidence

Despite the very different institutional contexts within which the projects worked, and despite the differences in their respective frameworks, a number of commonalaties emerged:

- As all the projects were conducted with a view to long-term outcomes, the change process needed to be grounded on a platform of solid evidence. This data was collected using a diverse range of qualitative and quantitative research techniques such as large-scale surveys (on the use of information and communication technologies); staff and student focus groups (to gather attitudinal and perceptual data); and some innovative methods (such as use of PRS and student experience sampling). There was a common theme of involving research "subjects" in the collection of data to make them participants in the inquiry process. This strategy adds validity to the data collected, encouraging participants to reflect on their own practices.
- In all cases the evidence base was organized and consolidated into an appropriate and meaningful format for sharing findings with local stakeholders and project participants. Some innovative techniques were developed for "re-packaging" of project data. This included the formation of metadata schemes for a tiered searchable database with increasingly interpretive data and outputs.
- Communication of research findings was integral to each project as a medium for initiating change. The formation and use of the evidence base was key to engagement with participants at multiple levels including students, staff, and policy makers. Using the evidence base as a tool for initiating change can be characterized as a strategic approach that could be used in many other HE research and development contexts.

17.4.2 Challenges

The projects highlighted a number of challenges with trying to implement an evidence-based approach to embedding e-Learning:

- The main challenge for the pathfinder project researchers was dealing with the interdisciplinary nature of the research setting. The research methods used had to

be accessible and appealing to a wide range of participants and stakeholders. Using a mixed methods approach to data collection helps to inspire "buy-in" from a variety of disciplines but it was important that the full range of data was recognized and understood.

- The language used in communications with students and staff had to be sufficiently clear and free from research terminology to make findings accessible. Also, some research data included information, which needed to be communicated sensitively.
- Much of the innovative implementation of e-Learning was by enthusiasts acting on their own initiative, rather than an embedded practice of the majority of academicians. Escalation in the engagement with e-Learning required changing mindsets and challenging the status quo. Teaching practices needed to be scrutinized and reflection encouraged. Advertisement of tools and resources was essential for stimulating interest widely, but it was important to manage expectations by not over-exaggerating potential outcomes.
- Finally, a major consideration for each project was enabling sustainability and scalability. Ensuring that change and enhancement is continual involves setting up a structure that makes research findings accessible and relevant. Some projects were conducted in a cyclical format that involved re-assessment of issues and support at multiple stages. Several of the research methods or strategies used lend themselves to being scaled up or repeated within different institutional settings. It was therefore important to document these processes for future use.

17.4.3 Implications

The Cluster C Pathfinder projects demonstrated the effective use of an evidence-based approach to investigate and implement change in e-Learning in the University environment. Methods and findings have been documented and disseminated by the HEA and at a number of e-Learning conferences. Cluster C modelled the use of innovative methodological approaches, strategic change management processes, sustainability and scalability, which should inspire future projects at other institutions.

17.5 The Cluster C Approach

This section will focus on describing the approach Cluster C adopted to developing a collaborative approach to sharing progress on the projects, reflecting on emergent findings, synthesizing commonalities and themes and applying this through a variety of communicative and dissemination channels. Despite the fact that the four institutions were very different culturally and in terms of their focus for their

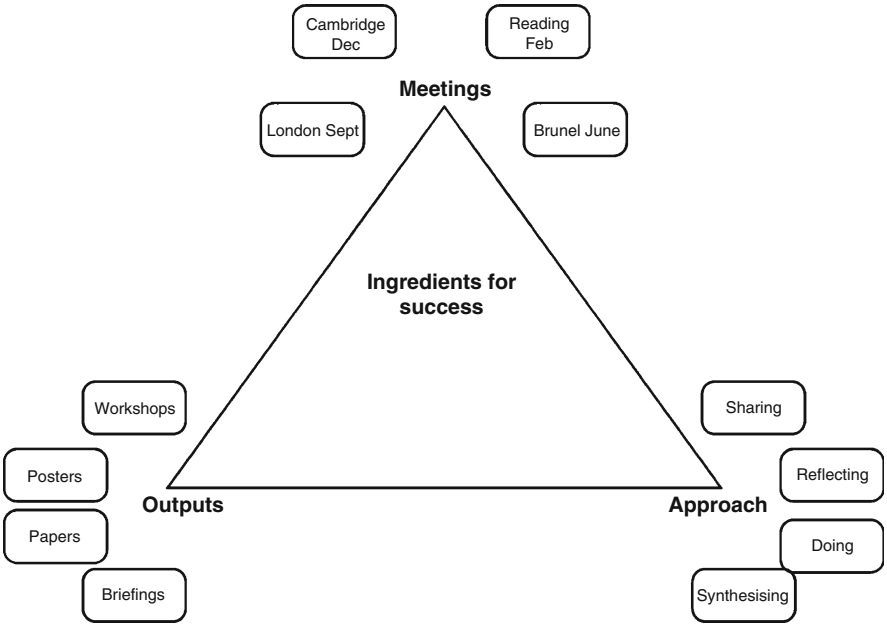

Fig. 17.3 Cluster C ingredients for success

projects it was possible to distil out a set of synergies at the cluster level. This was achieved by adopting a particular approach – collegiate, pragmatic and productive – that is outlined here. Figure 17.3 provides a summary of the key ingredients for the success of the cluster, which consisted of three inter-related factors: a series of focused Awayday meetings at each of the institution sites, an approach based on sharing and reflection and a focus around targeted outputs at key points in the projects' lifecycle.

The cluster met four times over the lifetime of the program. The meetings were focused around particular themes – agreed in advance – which followed the natural lifecycle of the projects, and outputs in each case, and drew upon discussions and presentations on current project activities. The critical friend, who acted as a facilitator for the process, provided an external perspective and was able to reflect back to the projects on their discussion.

The initial meeting set out an outline of common themes across the project. The second concentrated on a comparison of the four frameworks used by the projects and the associated methods and tools. The third meeting focused on commonalities, themes and challenges; and the last one concentrated on evaluation and dissemination. The focus of each meeting was designed around a specific imminent event or deadline, which gave purpose and natural outputs for the discussions. The four types of outputs or deadlines were – collaborative writing of program level and conference presentations and workshops, production of joint papers, production for project and cluster-level posters and development of shared briefing papers. The cluster approach adopted was an iterative and pragmatic one combining a mixture of sharing, reflecting, synthesizing and applying.

The cluster was supported by a "critical friend," who both helped to facilitate the process of joint collaboration and acted as an external reflective voice on the issues arising from each of the projects. The concept of a critical friend is generally attributed to Nuttall:

> A critical friend can be defined as a trusted person who asks provocative questions, provides data to be examined through another lens, and offers critiques of a person's work as a friend. A critical friend takes the time to fully understand the context of the work presented and the outcomes that the person or group is working toward. The friend is an advocate for the success of that work. (Referenced in Heller 1988)

As with other critical friends in the HEA pathfinder program, the aim was to have an expert in the field.

Reflecting on the process of the way cluster C worked, members of the group stated that the critical friend played an important role in facilitating the cluster activities and guiding the developments of outputs. Factors of importance cited included the fact that the critical friend was an "expert in the field" and therefore able to relate the issues arising from the projects to other initiatives. Further, the critical friend was able to maintain an overview of the projects/cluster, helping to make connections between projects and to synthesize overarching themes. In addition, because of the external perspective, the critical friend was able to maintain an objective view, as well as provide encouragement and identify new areas of joint collaboration. Perhaps most importantly the critical friend helped to keep the cluster on track, to push, to encourage, to inspire and to work with the projects to see beyond the day-to-day operational aspects to the valuable scholarly insights that could be gained from the experience. The dynamics in the groups – between project members and also with the critical friend – were also cited as an important factor. Lastly, the overall willingness and enthusiasm to share across the group led to collective trust, and the recognition that everyone was part of a team with shared interests and responsibilities.

17.5.1 Ten Tips for Leveraging Cross-Institutional Collaboration in the Design and Management of Institutional Change Processes

On reflecting on the collective experience of the institutions involved in the Cluster C initiative, the following seem to be some of the key ingredients for success in initiatives of this kind:

1. A willingness to engage with collaborators by participating in joint activities, and a willingness to share – including the sharing of negative as well as positive experiences.
2. Having a clear and coherent set of themes, mapped to the natural lifecycle of the projects.

3. Targeted Awayday events, with clear agendas and preparation times, and focussed outputs. Awaydays should be timed at critical moments in the project lifecycles.
4. Mutual respect and equal contribution; listening to each others' perspectives, with a respect that allows constructive criticality.
5. A "just-in-time" but responsive and pragmatic approach; with a focus on the production of collaboration-level outputs. Clear deadlines enabled constructive work between meetings via e-mail and constructive use of a shared, digital space.
6. Fun! Genuine motivation and engagement in the process.
7. A good team spirit and shared understanding, supporting environment of trust and mutual respect, confidentiality.
8. Use of Chatham House rules.
9. The "critical friend" role seen as independent from each of the project institutions and from the overarching funding body.
10. Funding to support both the meetings of project institutions and also for the time and investment of the critical friend.

17.6 Conclusion

Since the completion of the pathfinder program, we have now heard that we have been successful in securing one of the new JISC Curriculum Design projects. This is being led by the Open University, in conjunction with the four projects and will enable them to take forward the strategic change activities initiated in the pathfinder program.

The experience of these projects provides a useful case study of good practices on collaborative strategic change, at two levels; firstly, in terms of the models each of the projects adopted and how they were sensitized to local institutional contexts and cultures. Each was mapped to local strategic objectives and used a range of mechanisms to align to parallel work within the institutions. Secondly, it provides a useful case study in terms of cluster approach and how this was used as a forum for shared discussion and collaboration. This was used as a reflective tool to consider collectively the shared experiences across the projects at critical moments over the lifespan of the projects.

Acknowledgment The work presented in this chapter was a collaborative effort involving a number of people at each institution. We would like to thank in particular the following people: Linda Murray, Julia Stephenson, Anu Sharma and Natalie Parnis (Brunel University), John Norman, Rod Rivers, Matthew Riddle, Michael Arnold, Sarah Maughan, Julia Rafal, Anna Bernard, Patrick Carmichael, Frances Tracy, and the Cambridge Project Steering Group and Project Board (Cambridge University), Helen George (London South Bank University) and Clare McCullagh and Ryan Bird (Reading University. Links to all of the project blogs are available from http://elearning.heacademy.ac.uk/weblogs/pathfinder/. In addition we gratefully acknowledge the funding from the HE Academy that enabled us to undertake this work.

Section B
e-Competence and Faculty Engagement for e-Learning

Section B outlines the main components for the concept of e-Competence, which can be defined as the ability of faculty and students to adequately use technologies for teaching, learning and research in higher education. Models for technology-enhanced change will fail in universities when the key stakeholders in the foreseen change process lack the required competences to put the innovation goals into place. The section includes theoretical foundations of the concept of competence and shows that institutional measures to foster e-Competence require holistic learning designs. The role of e-Competence as a key component for organisational change of universities is specified. And e-Competence is linked to the complexity and uncertainty that graduates nowadays face in the workplace of the knowledge economy. Current curricula have to be redesigned to take these new job realities and the required competence profiles of graduates into account.

Chapter 18
Stories of Change: The K.U. Leuven, Belgium

Wim Van Petegem

Situated in the heart of Western Europe, K.U. Leuven has been a center of learning for almost six centuries. Founded in 1425, K.U. Leuven bears the double honor of being the oldest existent Catholic university in the world and the oldest university in the Low Countries. Currently, K.U. Leuven is composed of 14 faculties, 50 departments, and about 240 sub-departments, and it also supports five hospitals and three affiliated hospitals. At present, the university caters to more than 31,000 students, of whom one in every eight are international students from more than 120 nations. There are about 5,000 academic staff, 3,000 administrative and technical staff, and 8,000 university hospital staff members.

18.1 Guided Independent Learning

A modern university needs a total concept for the design, the development and the organization of teaching and learning processes. In line with recent scientific findings, K.U. Leuven developed *Guided Independent Learning* (GIL) as a guiding and all-embracing concept for its academic education. It defines the roles and responsibilities of students and teachers, and it shapes the learning process in the successive years and levels of its education. It reaffirms that university education must be built on and be underpinned by scientific research; and that university education is characterized by participation of students in research, as this participation is the best way to achieve important educational goals and the most adequate teaching strategy.

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In the perspective of this close connection between education and research, GIL puts both the learning of the student – under full responsibility of the student – and the necessity of guidance by teaching faculty members – under full responsibility of the teacher – at the center of each educational process. Each course should encourage students to become independent and critical thinkers, able to make well-founded judgments and contributions to the development of knowledge, thus becoming valuable professionals. It does not imply the choice for one specific pedagogical scenario, but provides more space for creativity and flexibility in providing adapted support and guidance to large groups of students, e.g., through the use of technology. Providing the student with responsibility for their own learning will, however, stimulate reflection on objectives, contents, scientific methods, learning style, and learning strategies. It also promotes a deep level learning and understanding, the use of learning resources from outside the specific course context, (self-) evaluation, and is aimed at critical as well as creative thinking.

18.2 e-Competence at K.U. Leuven

Toledo (TOetsen en LEren Doeltreffend Ondersteunen, Dutch for "effectively support testing and learning") started in 2001 as a university wide e-Learning project. The main goal was to support the implementation of GIL by means of a state of the art virtual learning environment. Toledo is the personalized educational portal at the K.U. Leuven, through which the user can find a variety of generic as well as domain specific tools. The core of Toledo consists of the Blackboard Suite (Learning, Community Portal en Content System) as the electronic learning platform and Questionmark Perception as tests platform. These applications are linked with each other and with numerous other tools, to form one global integrated learning environment. At this moment, Toledo is actively used by almost 90,000 different users from 13 institutions of higher education. The virtual learning environment contains more than 19,000 active courses and over 1,000 communities. Every day an average of 40,000 different users log on to the system. On weekdays there are more than one and a half million hits per day.

Support measures are provided by various central units of the university in a coordinated action, supervised by the Vice-president for Education, who is member of the university Management Board:

- DICTS, the IT service unit, maintains, manages and provides the necessary developments of the network, the PC classes, campus licenses, the PC leasing program, and the technical aspects of Toledo.
- DUO, the educational support group, looks after the pedagogical/didactical aspects of the development of teaching and learning tools and materials as well as their implementation in the university's education.
- AVNet, acronym for "Audiovisual New Educational Technologies," provides support for (multi-) media production of learning materials and for the proper

use of moving images and sound in higher education, especially in an international and multi-campus environment.
- DOWB, the educational policy unit, takes care of the overall implementation of educational strategies at the university, and is especially involved in quality assurance of teaching and learning.
- Also faculties have their own support units for their own students and staff of the faculty.

18.3 Growing in e-Competence at K.U. Leuven

K.U. Leuven has a long tradition in the field of professional development of its teachers. The introduction of Toledo, training for e-Competence has been provided, first under the umbrella name "Digital Chalk," and later as separate modules. Participation by individual teachers was more on a voluntary basis, though, the university includes in its mission statement, explicitly states that "special attention [should be] paid [. . .] to ensure high didactic qualities of the teaching staff, and to stimulate the use of new teaching methods and technologies." As a consequence, the university is revising its training offer for (young) teachers, and formalizing participation in different stages of training in relation to previously acquired skills and to future career opportunities.

18.4 Incentives

A special funding action was set up to raise awareness and to create incentives for innovation in education. The action provides an internal funding to selected "Educational projects." The project must address an innovative (e-)approach to teaching and learning. Proposals can be submitted by didactical teams or (groups of) teachers, supported by the Educational Board of their Faculty. Projects are selected for funding through peer reviewing on a competitive base, according to several criteria. Funds are granted up to approximately 100,000 euro per project for 2 years. Outcomes must be sustainable and have a generic character (e.g., generate know-how that can be transferred to other subjects). On average, about 10–15 projects have been selected each year for funding.

18.5 Impact of (growing) e-Competence at the Individual Level

Growing e-Competence for an institution must be embedded in an overall strategy of the university. Starting from its mission and vision on high quality teaching in balance with its research ambitions K.U. Leuven takes necessary measures to

achieve its own goals. This clearly enhances the e-Competence of not only the individual teachers, but also of the university as an organization. Next to that, there is a culture in the organization that fosters this growth in e-Competence, e.g., through communities of practice, both in person as on-line. Teachers and teaching staff members who have a common interest in certain topics share their experiences and enhance their skills through peer-learning at the occasion of seminars, or other learning events, or even in the digital learning environment of the university.

There is also an enormous impact on the work in support centers at the university. Indeed, through providing training support staff members not only exercise their own coaching skills, but learn by themselves (as teaching always helps in understanding their own topic). Furthermore, setting up training helps in a continuous process of self-evaluation by a systematic reflection on the support services and one's own expertise, leading to permanent quality improvement in what the organization is doing. The university as a whole needs to consider this aspect carefully and provide attractive incentives both for the individual "trainers" and for the support center as an organization.

Chapter 19
What is e-Competence? Conceptual Framework and Implications for Faculty Engagement

Dirk Schneckenberg

Abstract This chapter develops a theoretical framework for the concept of e-Competence, and it investigates the principles of the methodical design of competence development measures for faculty. e-Competence is grounded in the motivation and capability of faculty members to use information and communication technologies (ICT). A literature review extracts the key components of action competence and integrates them into a holistic model, which serves as a foundation for discussing e-Competence. The concept of e-Competence is introduced and specified by contextual factors that teachers face in e-Learning scenarios. The chapter finally discusses portfolio models for faculty development and presents findings of an international survey on e-Competence measures for faculty. It can be concluded that universities need to create portfolios for faculty development, which extend both the scope and the breadth of traditional training. Wider measures and incentives more efficiently suit the institutional goal of universities to increase the motivation of faculty to sustainably use learning technologies for their courses.

19.1 Introduction

Learning technologies offer a wide range of options to enhance communication and interaction between teachers and students in universities. Information and communication technologies (ICT) can be used to realize innovative educational concepts and teaching and learning scenarios. Among other things, ICT can help to organize mass lectures through the storage and dissemination of electronic learning material; they have the potential to enhance flexible learning modes by providing students

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with permanent access to course resources and by widening their learning options independent from place and time; and they can help to raise quality standards and to create a culture of excellence in teaching and learning by adding digital communication channels for increased collaboration with course settings.

However, many universities have neither fully recognized nor systematically exploited this innovative potential of learning technologies. Both Collis and Van der Wende (2002) and the Open and Distance Learning Paper (2004) state that the integration of e-Learning in universities has been so far disappointing both at the macro-level of their strategic options and at the micro-level of their educational work processes. Barrios and Carstensen (2004) have found that only 5% of the active faculty in German-speaking universities use learning technologies for their courses – a threshold for e-Learning integration which a recent OECD survey (2005) confirms at the international level. Zemksy and Massy (2004) have found no better results for the US higher education context. They have consequently dubbed e-Learning as a "thwarted innovation" in their report. And according to Latchem et al. (2007) the e-Learning integration in Japanese higher education advances at the leisurely speed of a tortoise. Technology development tends to outpace strategic thinking and pedagogical design in universities, and the sustainable integration of e-Learning into higher education establishments remains a major challenge.

Faculty play a crucial role for the sustainable integration of e-Learning in higher education. The human factor is one important aspect within technology-driven innovation, and the potential of learning technologies to enhance teaching and learning in higher education is seriously restrained by both organizational barriers and knowledge gaps of faculty members. This chapter asserts that two preconditions determine the active involvement of faculty in e-Learning innovation: first, faculty members need to become aware of the technology-driven change and the potential of e-Learning in higher education; and second, they need to develop e-Competence to make persistent use of ICT in their personal work routines and teaching practice (Schneckenberg and Wildt 2006; Euler and Seufert 2004; Johnson 2003).

Kerres et al. (2005) argue that faculty members are the process owners and gate keepers of research and teaching in universities. Faculty members define the (subject) curricula, they plan study programs and individual courses, and they communicate and interact with students in teaching and learning scenarios. While this key role of faculty in universities has not changed, the pervasive nature of ICT has driven the evolution of e-Learning as a strategic issue for the innovation of higher education. Faculty is nowadays facing new pedagogical challenges; they have to design learning environments, which respond to the changing needs of technology-savvy students; and they have to integrate ICT into their courses to extend the flexibility of educational services in universities. But does faculty have the competences to respond to these challenges?

A number of studies (Bates 2000; Euler and Seufert 2004; Hagner and Schneebeck 2001; Johnson 2003; Kerres et al. 2005; Allen and Seaman 2007) state that an inadequate level of e-Competence of the majority of faculty members is one reason for the slow adoption of e-Learning in higher education. Academic teachers have to enhance existing competences and acquire new competences that enable them to

know and to judge why, when, and how to use ICT in education. The main objective of institutional measures for e-Competence development is to support faculty in this learning process. These measures are part of strategic innovation in those universities which strive to improve the range and quality of their educational services with learning technologies; the faculty development includes a portfolio of formal and informal competence development measures and wider institutional incentives for e-Learning.

This chapter presents key findings of an international survey on e-Competence measures for faculty in 23 universities. Section 19.2 outlines institutional frameworks for the strategic integration of e-Learning; Sect. 19.3 explores the concept of action competence; Sect. 19.4 proposes a model for e-Competence; Sect. 19.5 discusses shortcomings of traditional ICT trainings and introduces portfolio models for competence development of faculty; Sects. 19.6 and 19.7 present the methodology for the survey and the findings with a focus on portfolio approaches that combine direct and indirect competence development measures for faculty; the conclusions summarize the chapter, specify limitations of this article and propose directions for future research.

19.2 Strategic Concepts for e-Learning

Bates (2000) as well as Collis and Van der Wende (2002) argue in their respective works that e-Learning can only find its way into the mainstream of the university culture if it is rethought as part of wider strategic concepts for educational innovation. The specific role of e-Learning within these strategic concepts needs to be based on the analysis of crucial integration factors for the deployment of learning technologies. University management has to identify the main target groups for e-Learning within the student population and to think about the added value that learning technologies offer these target groups. This way, e-Learning will not any longer be perceived as a separate area of innovation and as a means to itself; it can instead be applied as a technology-based toolset that enhances the portfolio of educational services within universities.

Strategic approaches for technology-driven educational innovation within universities have gradually moved into focus of the current e-Learning discussion. Authors like Duderstadt et al. (2003), Euler and Seufert (2004), Bremer and Kohl (2004), vom Brocke (2005) and Boezerooij (2006) propose distinct pathways to develop these strategic approaches. Nonetheless, all authors finally argue for one common objective – to develop eStrategies as institutional innovation frameworks which guide the efforts that universities undertake to sustainably integrate ICT into their work processes.

Many e-Learning strategy contributions refer to Rogers (2003) model for the diffusion and adoption of innovations. Ely (1999) has specified Rogers' model for educational contexts and extended it with a specific implementation focus. He has identified conditions which determine successful implementations of educational

innovation. Ely sees the combination of personal traits – like dissatisfaction, knowledge, commitment, and leadership, and institutional traits – like time, resources, rewards and participation as interrelated functions that assure the performance of educational institutions and influence their innovation capabilities. Cook et al. (2009) argue in a similar line that a well-balanced combination of intrinsic and extrinsic motivators drive faculty participation in institutional e-Learning efforts.

This article assumes, with reference to the strategic perspective, that a successful implementation of technology-driven innovation in universities depends on the capabilities of leadership management to actively involve faculty in organizational change. The insufficient level of e-Competence in faculty is one inhibiting factor for educational innovation in universities. But the development of new competences for faculty is not primarily achieved by conventional ICT training programs, it relies on wider organizational contexts and conditions (Schneckenberg 2009). The motivation of academic teachers to acquire e-Competence and to make use of learning technologies is influenced by portfolios of competence development measures and institutional incentives that universities offer. The next section proposes a theoretical framework for action competence, which serves as basis for the further discussion of e-Competence measures in universities.

19.3 Action Competence in a Nutshell

The research literature on competence is as vast as it is diverse. North and Reinhard (2003) have assigned the contributions from different science disciplines for competence research into two wider categories: (1) cognitive sciences, including psychology, pedagogy, philosophy, linguistics, neuro-, and computer science; and (2) social sciences, including sociology, organizational studies, business science, and public management science. Weinert (1999) identifies at least eight different and mutually exclusive concepts for competence, and a common framework to harmonize these different approaches does not exist. The research presented in this article relies on the concept of action competence which is briefly outlined below.

Van der Blij (2002) coherently defines action competence as the "... the ability to act within a given context in a responsible and adequate way, while integrating complex knowledge, skills and attitudes." Similar definitions of action competence are given by a number of other researchers (Dejoux 1996; Erpenbeck and Heyse 1999; Euler and Hahn 2004; Weinert 1999). The concept of action competence combines cognitive and motivational components into one holistic system of knowledge, skills, and attitudes. It assumes a learning process at the core of competence development and it puts an emphasis on action or on performed behavior. The largely cognitive and mental nature of these dispositions results in the dilemma that we cannot directly measure competences; instead, competences have to be measured through the assessment of performed action. Apart from cognitive dispositions, action competence includes individual, role-specific, and

collective conditions for the successful development of competences within a group or an institution. Action competence represents in this perspective the ability to react in an adequate way to challenges that occur in complex situations.

Related to the notion of complexity within the concept of competence, Weinert (2001) notes that the research literature tends to be fuzzy about the distinction between skills and competences. Competence always implies that a sufficient degree of complexity is required in the act of performance to meet given demands and tasks. Those dispositional factors, which can be in principle automatised in performance situations, are more adequately characterized as skills. Therefore, the term 'competence' can only be adequately applied to those task-solving activities which contain a high degree of complexity.

Motivation is a final key component for the understanding of action competence. It explains the difference between the ability to act and the concrete action. Potential actions of individual actors depend on their motivation to act. The ability to act will only translate into adequate action, if substantial motivational drivers trigger an adequate performance in a specific situation.

Figure 19.1 gives an overview of the action competence model, as it has been described above. We can identify the following components as main building blocks for action competence: (1) learning at the inner core of the model; (2) a system of dispositions including knowledge, skills, and attitudes; (3) the four key competences, which combine into performance; (4) the visible outer action competence shell; (5) the independent factor of intrinsic and extrinsic motivation; and (6) the context of performance (Fig. 19.2).

The action competence model serves as background for our subsequent conceptualisation of e-Competence. Table 19.1 summarizes the basic assumptions for each key component of the action competence model.

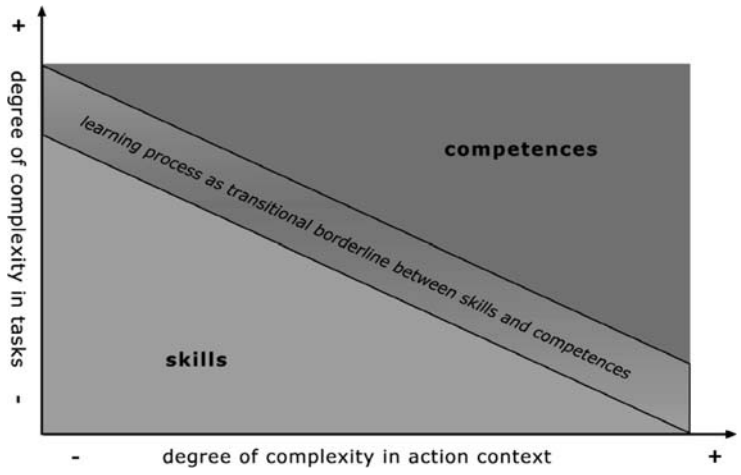

Fig. 19.1 Degree of complexity: from skills to competences

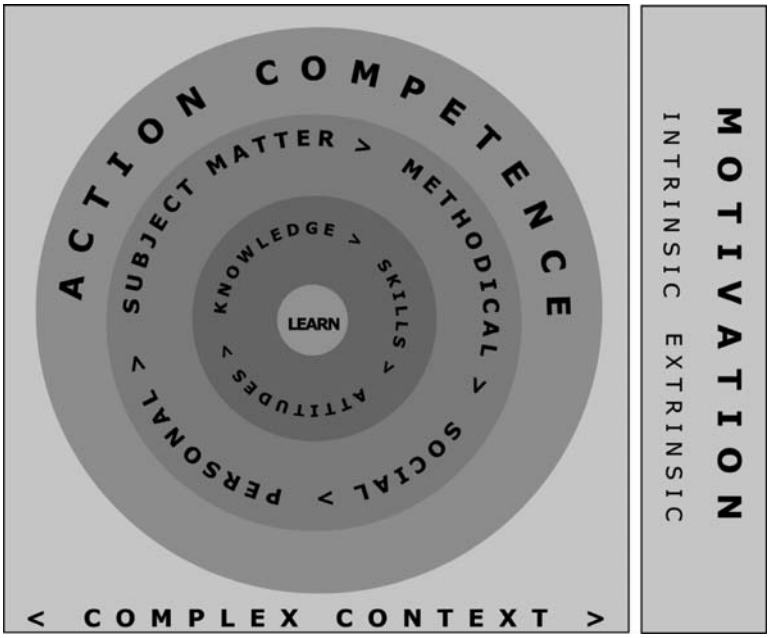

Fig. 19.2 Model of action competence (Schneckenberg 2008, p. 114)

Table 19.1 Components and assumptions for action competence

Key component	Basic assumption
Learning	At the core of the action competence model – there is no competence development without learning.
System of dispositions	Knowledge, Skills and Attitudes (KSA) as the basis for goal-oriented, adequate action in complex contexts. The system of dispositions makes competent action possible.
Motivation	The essential condition for competence-based performance. A person can be competent, but if he or she shows no motivation to act, there will be no action at all. Motivation is not considered as an integral component of competence; it is supposed to be an independent influence factor.
Performance	The visible manifestation of "hidden" dispositional competence components in specific social contexts. Assumptions on implicit competencies have to be validated and interpreted by the observation of real performance.
Context	The particular context of performance defines and specifies competencies which are necessary to act adequately in a given situation. It is not possible to specify competencies without an analysis of contextual action requirements. Furthermore, the degree of complexity within performance contexts triggers learning processes through which learners aim to acquire new competencies to handle the complexity.
Key Competencies	The typology of subject matter, methodical, social, and personal competence specifies the visible outer layer or shell of performance. The typology provides a conceptual substructure for the component of performance; the four combined key competencies integrate into action competence.

19.4 Conceptual Approach for e-Competence

The focus of the e-Competence concept is to analyze the educational context, in which the competence of academic teachers to apply ICT in teaching and learning becomes manifest. Although e-Competence is using a technological focus, the required competences for academic staff are not limited to the "e," the electronic component of the term. e-Competence needs to be interpreted in a wider mode. It includes not only the technical aspects but is also understood as the educational ability to use ICT in teaching and learning in a meaningful way. Here we focus on individual e-Competence for discussing on how to diagnose and to measure this type of competence in the individual teacher.

e-Competence is a verbal specification of competence. It is a sub-class of the competence concept that relates the ability for adequate action to complex electronic contexts (Phelps 2005). e-Competence defines in general terms the ability to use ICT in a meaningful way. The personal e-Competence of faculty describes their ability to use learning technologies for teaching and course delivery in the context of e-Learning integration in universities. The e-Competence of faculty deals from institutional perspective with the role of the human factor for a sustainable integration of learning technologies into universities.

The following model includes a range of layers for e-Competence which is, at the micro-level, part of the general action competence of the academic staff members. The ability of faculty to use learning technologies at the meso-level of the institution is influenced by competence development measures that universities create to foster the adoption of e-Learning; and the motivation of faculty is influenced by wider institutional e-Learning rewards, which universities establish to encourage the use of learning technologies. The portfolios of direct and indirect competence development measures for faculty are a part of institutional innovation strategies at the macro-level of universities which aim to exploit the pervasive potential of ICT for educational purposes (Fig. 19.3).

Based on this argument, we subsequently propose a generic model for e-Competence, which takes the potential performance options of teachers in digital learning environments into account. Considering a potential structure for the concept of individual e-Competence closer, one can identify the following key components: the university teacher – who bears the competence as his or her general cognitive disposition to act, and the teaching and learning scenarios – which embed or rely on the use of ICT as the particular context in which the performance of the university teacher is situated.

The first key component is the competence of the individual university teacher. The action competence definition sets its focus on the performance dimension of the academic teacher. So the approach discussed here is tying the dispositional dimension – as individual prerequisites of a teacher to act in an adequate way, and the performance dimension – as the combination of key components of the competence of the teacher in observable action, together. In the preceding section we have

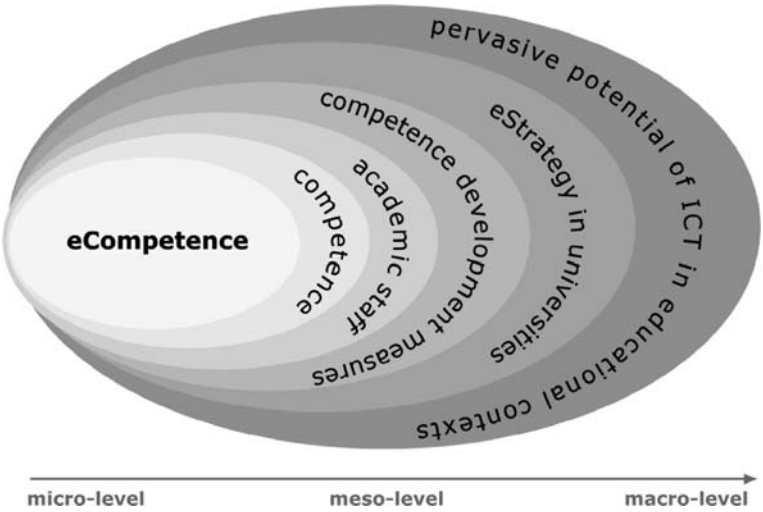

Fig. 19.3 Model of e-Competence layers

explored a model that defines and integrates the key competences - personal, social and communicative, methodical and subject-specific competences - into action competence. This action competence model and its inherent implications are used for the discussion of the e-Competence model.

The second key component of e-Competence are teaching and learning scenarios which embed or rely on the use of ICT as the particular context in which the performance of the university teacher is situated. The e-Competence construct can only be inferred in a meaningful way from the specification of the situate context as the dimension in which the performance occurs. The eContext determines as contextual environment the options of the lecturer to perform in a given situation. The variables included in this eContext serve to identify the competencies that are required by teachers to adequately act in given teaching and learning scenarios (Cattaneo 2006; Phelps 2005).

The specification of eContexts combines two key influence factors. The first key influence factor is the pedagogical design of the learning environment, and the second key influence factor is the technological design of the learning environment, in which the teacher and learners interact and communicate with each other. Both key influence factors, in their combination, determine the potential action patterns of the academic teacher in the learning environment. The pedagogical design of the learning environment can vary according to the pedagogical model that the teacher applies. Teachers can select design principles from a spectrum of pedagogical models for teaching and learning which foster interaction with the students' specific learning environments (Wildt 2004; Viebahn 2004).

Teachers also need to select ICT tools that are adequate for use in given pedagogical scenarios. The available ICT options represent a spectrum of electronic variables which range in their complexity from simple electronic documents – for example the storage of .pdf files on a website for download, to highly complex electronic learning environments – for example the setup and use of a virtual classroom with complex applications for interaction and communication. In an ideal pedagogical design scenario, university teachers select ICT options for their learning environments on basis of suitable pedagogical models. An economic sciences teacher who needs to cope with a mass lecture in front of a thousand students has different pedagogical concepts and ICT options in mind than his colleague in philosophy who plans a discussion seminar with a small work group. In practice, the selection process of teachers takes place on a pragmatic basis, combining both pedagogical models and the ICT options which are available within the universities in a simultaneous way.

To sum up, we assume that the eContext in the concept of the university teacher's individual e-Competence is determined by two key influence factors, which are the pedagogical and the technological design of the learning environment. Both key influence factors can be illustrated in the form of a spectrum, which arrays the choices teachers can make on pedagogical and technological design options: pedagogical design options are represented in a spectrum of pedagogical models for the learning environment; and technological design options are represented in a spectrum of electronic variables for the learning environment.

The final component for the model is the e-Competence of the students who interact with teachers or with each other in specific teaching and learning scenarios. Each student brings in a specific level of ICT-experience, which can be conceptualized in a similar way as we have inferred the e-Competence of teachers. The main difference between teachers and students is not contained in the dispositional dimension, but in the performance dimension of the competence concept that is determined by the context. The primarily goal of the teacher is to teach, the primarily goal of the student to learn. One important aspect within this relation is the fact that the efficiency of a specific course setting is largely dependent on the degree, in which competencies of teachers and students interrelate in the teaching and learning processes (Sáiz 2006).

So the roles in the interaction between the teacher and student are situated at the opposite sides of the teaching and learning process, but they need nonetheless to complement each other. The personal e-Competence of individual students describes their ability in using ICT in their learning activities. And the combined individual e-Competencies of students in a particular course sum up to the group dispositions of the student class to adequately use ICT in their learning. Fig. 19.4 below combines the discussed elements into a generic concept of e-Competence for academic teachers.

The next section investigates which implications the e-Competence concept bears for portfolio measures of competence development for faculty.

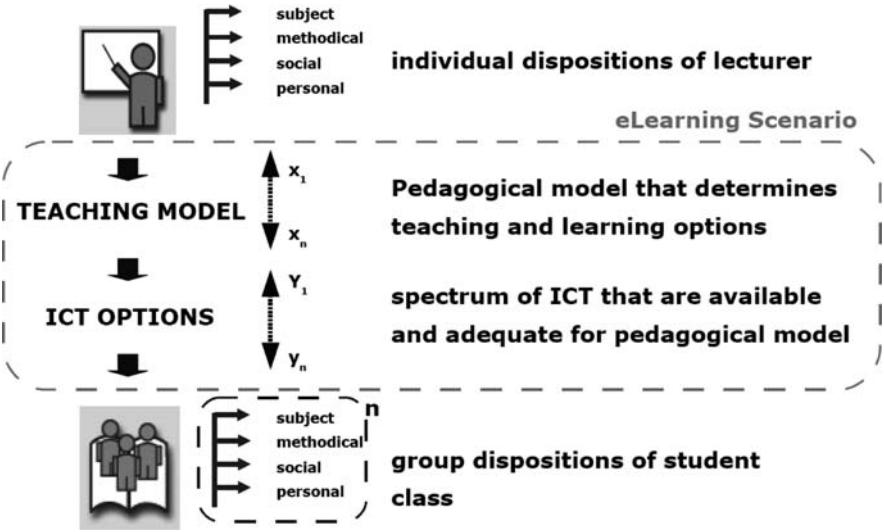

Fig. 19.4 Generic concept of e-Competence

19.5 Portfolio Models for Faculty Development and Engagement

Portfolios of direct and indirect competence development measures for faculty considerably extend the training delivery model, where faculty attends 2–3 days seminars on pedagogical and technical aspects of e-Learning, they aim to increase both the scope and the efficiency of learning interventions. The main reason for this extended perspective is the insight of cognitive researchers like Carraher and Schliemann (2002), Saks (1997) and Lave (1988) that traditional training approaches have shown major flaws in efficiency. Direct training present, in the absence of real and meaningful action contexts, rather inefficient vehicles for the transfer of taught knowledge into future practices of the learners. Adding to the training transfer dilemma, several e-Learning authors like Bates (2000), Euler and Hahn (2004), Hagner (2001), Kerres and Voß (2006) and Salmon (2004) argue that existing ICT qualification schemes for academic staff in universities produce insufficient learning results; traditional ICT training courses tend to be expensive, time-consuming, and limited in scope – but most important of all, they are not directly linked to the real teaching and learning contexts of faculty.

Portfolio models combine formal and informal learning with organizational incentives; they aim to develop not only cognitive, but also motivational and attitudinal competence levels of faculty to use ICT and to engage into e-Learning. This holistic vision of learning activities fits well with the holistic conceptualisation

of action competence, which includes not only subject matter knowledge, but also skills and attitudes as dispositional competence components. The competence oriented view contrasts at the same time with the narrow understanding of qualifications as desired learning outcomes of training courses, and a number of studies (Erpenbeck and Heyse 1999; North and Reinhard 2003; Weinert 1999, 2001) emphasize the importance of non-formal or informal learning processes for the acquisition of competence.

The portfolio perspective for faculty development also better fits the specific work culture in academia. Authors from organization science like Light (1974), Weick (1976), Prosser and Trigwell (1999), Becher and Trowler (2001), and Enders (2002) agree on the high degree of autonomy of faculty in universities as one dominant trait of the academic culture. Faculty members identify themselves and share more values with outside colleagues from their respective discipline communities than with members from other disciplines in their home universities. These institutional peculiarities of universities result in a comparably weak capability of the leadership management to create efficient internal strategies for the internal development of the organization. The competence development of faculty relies mainly on the general readiness and ability of staff members to learn in a self-organized way within their fields of discipline.

Kerres et al. (2005) argue that these institutional peculiarities of universities have implications for the design of appropriate e-Competence measures which fit the characteristics of faculty as a targeted learner group. They have developed a typology of eight different types of measures. This typology refers to key topics within competence research – like the influence of different learning activities on competence dispositions, variations of self-organized learning in different measures, and the closeness of specific learning activities to work contexts of learners in on-, near-, and off-the-job measures. Kerres et al distinguish between direct and indirect measures. The four direct measures are: (1) to provide information; (2) to foster positive attitudes; (3) to organize educational supplies; (4) to offer consulting support. The four indirect measures are: (5) to increase action readiness; (6) to establish learner-active quality development; (7) to foster dialog and collaboration; and (8) to make innovation mandatory.

This typology of measures is the basis for the analysis of effective e-Competence practices. Being different from a theoretical model, a plan or a policy statement, a practice or solution is meant to be a pattern of activities, which have been performed in reality. The term effective e-Competence practice represents accordingly a set of measures or activities, which influence the development of ICT-related competencies of the academic staff members. Following these theoretical considerations on competence development, the next section presents findings from an International survey on e-Competence measures in universities. The complete data underpinning the research of this article can be found in Schneckenberg (2008); the survey findings are presented here in a summarized form.

19.6 International Survey on e-Competence Measures: Methods

The collection and interpretation of effective e-Competence practices is based on a qualitative design and has been carried out in a large-scale European research project that has brought e-Learning experts from 23 higher education institutions together. The respondents have different institutional affiliations: faculty members form the biggest group with respondents in universities like Aalborg, Joensuu, Athens, Oslo, Madrid, Twente, Rome (La Sapienza), Isik, and Riga; the staff in research units are situated in Helsinki, Pretoria, Heerlen, St. Gallen, Klagenfurt, and Bologna; e-Learning support unit staff have reported from universities like Galway, (K.U.) Leuven, and Compiègne; finally Dortmund has delivered data from its faculty development unit, Athens from its IT support unit, and Rome (Tor Vergata) from its media center.

A standardized web questionnaire has been used for the survey part of the data collection to capture the expert knowledge of e-Learning stakeholders. With reference to Wengraf (2001) a survey has been drafted, pilot-tested with a focus group to sharpen the research questions, and distributed to the respondents. A total of 31 descriptions of e-Competence practices have been submitted to the database. Subsequently, a number of semi-structured case study interviews have been carried out with e-Learning experts in partner institutions to gain in-depth insights of their faculty development activities. The resulting case study interviews as well as a collection of secondary data from all responding universities have been used as complementary sources of evidence for the analysis of the e-Competence practices. The Table 19.2 summarizes the analyzed sources of evidence:

The table shows that the research project has collected multiple sources of evidence. For most e-Competence practices it has been possible to carry out a triangulation of data sources. Mayring and Gläser-Zikuda (2003) have characterized data triangulation as a corroboratory strategy to collect and analyze information from multiple sources in order to strongly support the interpretation of specific phenomena. The analysis of multiple sources helps to create a convergence of

Table 19.2 Sources of evidence

Source of evidence	Description of source
Database entry	e-Competence practices with common structure to categorize and interpret key patterns and processes.
Interview	Case study interviews with e-Learning experts to gain in-depth insights into practices.
Research paper	Publication of project with 24 research papers, which add information to practices.
Strategy paper	Institutional e-Learning strategy papers which embed e-Competence practices.
Report	A number of internal reports on e-Competence practices.
Project Presentation	Presentations of e-Competence practices in project meetings
Website	Websites of e-Learning teams with additional information on e-Competence practices.

evidence, to establish a common and more reliable ground for a concise understanding of observed phenomena.

The e-Competence practices have been analyzed both in comparative and longitudinal perspectives on the basis of the typology of e-Competence measures which Kerres et al. (2005) have developed as described above. Their typology has served as blueprint to categorize key patterns and processes of each case. Yin (2003) writes that pattern matching in case analysis is based on a thorough identification of dominant patterns within observed phenomena. These empirical patterns found within the evidence can then be compared with predicted ones in theoretical assumptions.

The comparative perspective investigates similarities and differences between all e-Competence cases, while the longitudinal perspective observes changes in key patterns and processes of individual e-Competence practices over time in those cases where sufficient evidence has been made available. The evidence gives detailed insights into institutional strategies of universities to foster e-Competence of their faculties and indicates both inter-institutional similarities and differences in their approaches. The pattern matching approach helps to decide if and to what extent the theoretical implications of the portfolio model for e-Competence development have been implemented into organizational practice.

The methodical tool of typologies has the additional characteristic that boundaries between different types are not clear-cut. Categories in typologies are based on nominal scales, which allow to categorize the empirical evidence with a higher degree of flexibility than, for example, the methodical tool of ideal types would allow for. To speak in the metaphor of the analytic knife, ideal types have strictly defined boundaries which clearly separate phenomenon A from phenomenon B in the analysis of empirical evidence. Typologies have more fluent boundaries to categorize empirical evidence. A phenomenon, which is part of one type, can nonetheless contain elements of another type. Most e-Competence practices combine elements of different types of competence development measures which are differentiated for detailed analysis in the typology.

19.7 International Survey on e-Competence Measures: Findings

The evidence shows a variation and differentiation of types of measures, which universities create to foster e-Competence of faculty. In particular establishing educational supplies and offering consulting support are measures which have been found in virtually all universities of the survey sample. These two direct measures remain at the same time close to formal training models. This is partly caused by the long tradition of direct training in staff development. A variation of measures is also more complex and expensive to realize than the provision of training courses. The analysis of these two types of competence development measures shows that their impact on faculty behavior remains low, if they are not complemented with additional institutional measures which influence the

motivational level of academic teachers. Formal e-Learning training initiate, but are not sufficient to sustain the learning process of faculty in the use of ICT. The sustainable competence development of faculty relies in a second step on wider organizational contexts and conditions within universities.

A number of e-Competence practices have created institutional incentives for e-Learning activities to support the efficiency of faculty development programs. This approach is taken by universities like Helsinki, Leuven and Galway to reward the e-Learning commitment of teachers as an element in the faculty evaluation policy. Concrete examples for this approach include the step to make the use of e-Learning elements in courses compulsory and to give junior faculty the option to collect additional points in their internal tenure when they champion the use of learning technologies. It is essential that individual faculty members perceive these measures as important for their specific situation within their organization. To answer positively the question of "what is in there for me," universities have to offer monetary or reputational rewards to faculty for using e-Learning. This pattern in the e-Competence practices fits well with the organizational change model of Lewin (1982), which assumes that employees develop higher levels of learning motivation if they face changing values in their work contexts. The establishment of explicit e-Learning rewards raises the awareness of faculty for the potential of learning technologies.

e-Competence practices in Oslo, Barcelona, St. Gallen, Athens and Compiègne have designed learning processes as concrete activities of faculty within their authentic work contexts. Main idea in this approach is to increase the impact of learning interventions by making them more applied to teaching realities. The measures provide learning materials and methods to improve teaching performance and to add value to individual teaching portfolios so that the faculty perceive them as worthwhile and attractive learning activities. These types of measures include applied learning activities – like the production of e-Learning projects or portfolios, which are a visible manifestation of acquired competences of faculty. The learning processes within applied activities include several stages until a sustainable competence acquisition and change of faculty behavior is attained. Applied learning activities leverage the e-Competence development of faculty and make this approach more efficient than the traditional provision of factual knowledge in separate staff courses without any direct connection to real teaching contexts.

A sustainable integration of e-Learning into universities works more efficiently in integrative innovation management approaches, where faculty take over active roles and responsibilities for the implementation and use of ICT in teaching and learning. Examples in the e-Competence practices include Aalborg, Helsinki and Pretoria. These practices foster institutional as well as inter-institutional national networks of faculty members who create electronic teaching portfolios in communities of practice. In these participative approaches, the competence development of faculty relies on a set of interrelated learning activities– like peer interaction and review, self- and group reflection, and the application of ICT tools to produce e-portfolios. Institutional new media events like in Klagenfurt and Dortmund offer opportunities for informal networking between interested faculty members and

increase the visibility of e-Learning as a strategic objective of the universities. Discussions in study boards about the potential of learning technologies for the delivery of study programs increase the active involvement of faculty for e-Learning. These approaches create a sense of responsibility of faculty and to engage them for the e-Learning goals of their institutions.

The process ownership of decisions that are made on the use of learning technologies in universities is another lever for innovative thinking about e-Competence development. The process ownership differentiates integrative and more directive approaches for e-Learning integration and faculty engagement. In the directive approaches which universities like Athens, Rome and Dortmund have taken, the leadership management mainly creates central support units to organize ICT integration; these units are then responsible for developing and implementing e-Learning components in study curricula. All Scandinavian universities as well as Leuven and Galway experiment with integrative and participative approaches to place the ownership of e-Learning decisions into the hands of teachers. This responsibility to think about the use learning technologies and to decide about their deployment in curricula influences not only the cognitive, but also the motivational, attitudinal and competence components of the faculty. At the same time, integrative e-Learning approaches require a whole set of comprehensive activities which need to be taken at both leadership and at faculty levels. Mutual decisions have to be reached on all kinds of e-Learning issues – like setting clearly defined educational targets, establishing strong institutional incentives for the use of learning technologies, defining roles and responsibilities for shared project work tasks, and moderating learning processes in faculty peer groups.

The e-Competence practices provide not a single example for a truly integrative portfolio of faculty development of this design and scope. Nonetheless, universities like Leuven, Pretoria, Helsinki and St. Gallen have developed advanced strategies for e-Learning, as they have created several types of measures that they try to combine into an integrative portfolio framework. The positive experiences that have been reported with the combination of several types of measures indicate that integrative approaches should be more extensively taken into consideration and explored in future research and practice of faculty development. A variation of the types of measures and their coherent combination into institutional portfolios for faculty development are likely to produce more efficient learning outcomes than the knowledge delivery mode of traditional staff training.

The e-Learning experts mention, in the case interviews, that different kinds of competence development measures produce differing degrees of impact on the dispositional key components of action competence. It is likely that the provision of information has mainly an influence on the knowledge disposition of the faculty's action competence; the organization of educational supplies seems to influence both knowledge and skills of the faculty; and measures like peer exchange in communities of practice influence, in addition to knowledge and skills, the attitudes of the faculty. In an ideal training design scenario, this rating of measures might be represented in a taxonomy of scales which assigns a range of values for the impact of specific interventions on knowledge, skills and attitudes as the

Table 19.3 Taxonomy for impact of competence interventions on KSA

	Dispositions			
	Knowledge	Skills	Attitudes	
Measures	Provide information	+++	–	–
	Organize supplies	++	+++	+
	...	...	...	...
	Foster dialog and collaboration	++	+	+++

dispositional core components of action competence. Table 19.3 below is a short draft proposal of such a taxonomy of scales for competence development.

But the question remains if such a taxonomy of scales and the holistic training perspective are feasible approaches to explain the impact of learning interventions on competence dispositions. At the end of this study and at the current point of the competence discussion we can only assume variations of significance in correlations between different types of competence development measures and levels of increase of action competence dispositions. Additional research will be needed to base these assumptions, which are made on the basis of inferences for types of learning on competence dispositions, on solid empirical evidence. It is a challenging task to prove causal inference for a set of competence development measures on the acquisition or enhancement of action competence. This research field requires a different design and methods with a strong focus on psychologically grounded competence assessment instruments, which measure the impact of specific learning interventions on specific competence dispositions of learners across a sufficient period of time.

The data confirms earlier research findings of Hagner (2001), Euler and Seufert (2004), and Zemsky and Massy (2004) that faculty splits into different types of innovation adopters with distinct abilities, opportunities, motivations and interests to get involved into e-Learning. Speaking in terms of Rogers' (2003) adopter categories, technology-savvy early adopters have other e-Learning needs and support expectations than the more critical late majority. Accordingly, the design of competence development measures has to be tailored to learning styles and levels of expertise of these different faculty types and provision of learning options should fit their main interests and needs. e-Learning stakeholders who are involved in faculty development need to know the differing motivational backgrounds of different faculty types when they think about appropriate training measures. Rather than to simply follow a supply-driven "one size fits all" approach, they should consider an expansion of training formats towards a "fit of measure to target groups" approach; this requires a demand-driven design of tailored competence development measures for the different e-Learning adopter types within universities.

Finally, the comparative perspective of the case studies reveals that the meaning of e-Competence varies according to the specific contexts of performance – the required abilities of teachers in lecture-centred e-Learning scenarios are different from the abilities of teachers in interactive and collaborative e-Learning scenarios. This finding is not surprising as the definition of feasible competence profiles depends on specifications of contextual performance requirements in different scenarios. The meaning of "team competence" in a philosophy department is

quite different from its meaning in an US marine corps. It is feasible to assume an underlying set of basic competencies in e-Learning contexts – like a basic pedagogical competence of academic teachers; but specific contexts of performance result in the differentiation of faculty competence profiles for different e-Learning scenarios. Given this comparative case studies perspective, a generic definition of e-Competence which represents a global profile for a wide range of different contexts is as unlikely to evolve as a generic definition of competence.

19.8 Summary and Conclusions

This article has focused on the role that e-Competence of faculty plays for the integration of e-Learning in higher education. Starting from the current state of e-Learning in higher education and the need for wider innovation strategies, this chapter has introduced a definition of e-Competence which is based on a review of the concept of action competence; it has discussed shortcomings of traditional staff trainings and has analyzed the survey data to explore the potential of portfolio models for competence development of faculty.

e-Competence is a specific action competence of faculty to master learning technologies; its acquisition requires the development of new skills or to take on new attitudes more than to learn new knowledge. Action competence is a holistic concept which demands a holistic design of competence development measures. A comprehensive combination of learning options and stimuli in several dimensions increases the probability to efficiently influence all three dispositional key components of the action competence. Multi-dimensional approaches combine several types of competence development measures within portfolio models. These portfolio models are better suited to serve the learning needs of faculty than one-dimensional approaches, which often rely on traditional training as the only type of measure. The main problem is currently that those types of measures, which are likely to have the strongest impact on competence development, are at the same time the most complex and challenging measures to be put into place. Measures which establish a learner-activating quality development or make innovation mandatory are the types which demand a high degree of e-Learning commitment from universities to be taken into practice.

A relevant question in the context of the presented survey is whether a portfolio of competence development measures should be designed on basis of the “best fit” to learning needs of faculty members, or on the basis of the “best practice” approach. The “best fit” position requires that the main e-Learning stakeholders within universities define specific types of measures which fit their institutional strategies; the main objective is to foster specific competencies for those e-Learning scenarios which universities have decided to prioritize. Program managers could for example decide to complement study courses, which are usually delivered face-to-face in classrooms, with CSCL (computer-supported collaborative work) components. This choice infers, in the “most adequate fit” approach, that competence development measures for faculty focus on the ability to teach in CSCL scenarios.

The “best practice” approach is rather based on benchmarking and implementing good practices which work independently from their specific target groups and organizational contexts. Both approaches can be identified in the e-Competence practices, and both approaches seem to have strengths as well as weaknesses. Additional research is required to understand the relation between these strategic decisions on the design of measures and their efficiency to lever the e-Competence development of faculty.

A limitation of the survey is the choice of the research focus, design and methods. The research design does not include direct and objective research methods and instruments which can be applied to analyze causal relations between measures and e-Competence levels of faculty. Most primary evidence in this article is based on reflective self-assessments of e-Learning experts, who describe the impact of different competence development measures on faculty behavior in their universities. This qualitative data needs to be complemented with psychometric research instruments to measure the effect of different types of measures and training interventions on competence levels and changes in the teaching behaviors of faculty. The impact of competence development measures on the work performance of faculty and the value of learning outcomes for the solution of problems in real work contexts need to be assessed with objective criteria.

A second research area for further exploration is the analysis of different e-Learning adopter types in faculty which have different learning motivations and necessities. Not even the more advanced e-Competence practices have developed concise methodologies to assess the specific learning needs and interests of different types of faculty members. Measures like communities of practice or faculty networks are rather planned and carried out in experimental designs. The evidence of this study has for example shown that peer exchange among faculty members is a highly efficient stimulus for learning and competence development. Will the readiness of faculty to participate in peer meetings increase if they are offered as tailored learning options within specific science disciplines? Should staff measures take place rather as tailored solutions at departments and study course levels than be offered as central training for all faculty members within universities? Although some research has been undertaken on the topic of faculty types and motivational backgrounds for e-Learning adoption, much remains to be further explored.

Universities experience a period of rapid and disruptive technology-driven innovation. It is necessary to win the commitment of faculty in order to exploit the potential of learning technologies in higher education. The efficiency of e-Competence measures depends to a great extent on their capability to serve the real interests and learning needs of faculty, which vary according to different types of e-Learning adopters. The main conclusion of this article is that universities need to invest more resources into portfolio models for e-Competence development; if these portfolios are well designed, their return on investment will be a considerable increase in the total number of faculty members who deploy learning technologies for their courses. Portfolio models for faculty development can help universities in this way to drive e-Learning integration forward and to overcome one if the fundamental barriers for the strategic innovation of their educational services.

Chapter 20
Learning in Communities

Etienne Wenger, Nancy White, and John Smith

Abstract People experience being part of a community in a wide variety of ways: communities have different styles. That is why different habitats work for different communities. This chapter organizes this diversity into nine distinct "orientations" we have observed in practice. Each orientation is associated with a set of tools that supports its patterns of activity. The optimal configuration for a community includes the complement of technologies and processes that are aligned with its key orientations. These observations may serve as design paths for community-centric learning and faculty development, especially when technology is involved.

20.1 Introduction

Learning communities provide a realistic complement or even alternative to formal course based learning. By fostering communities, universities may create fertile ground for innovation and inclusion. Following a more and more competence-oriented paradigm in the creation of learning environments, many higher education institutions make the shift from teacher centered, lecture-like instruction to learner engaging, active learning experiences. Learning communities are one important way by which students in universities can learn together with experts and lecturers rather than from themselves. Knowledge construction and competence development through active participation is in the foreground rather than knowledge acquisition and reproduction. Complementing this is the potential of web 2.0 technologies for learning communities. Emerging practices show more and more

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that online networks supported by social media can sustain powerful learning communities. To build, stimulate, and steward communities of learners toward engaging into meaningful interactions, a new set of learning facilitator competencies is necessary. To frame these competencies, facilitators can first look at how their learning communities learn together.

Communities learn together in different ways: some meet regularly, some converse online, some work together, some share documents, some develop deep bonds, and some are driven by a mission they serve. We say that these communities have different *orientations* toward the process of learning together. An orientation is a typical pattern of activities and connections through which members experience being a community. We have observed nine orientations that have implications for the selection of technology (the order is for presentation only and does not suggest a ranking): (1) Meetings, (2) Open-ended conversations, (3) Projects, (4) Content, (5) Access to expertise, (6) Relationships, (7) Individual participation, (8) Community cultivation, and (9) Serving a context

These orientations reflect the importance the communities place on various ways of being together. If we say that a community is meeting-oriented, we mean that having regular meetings is a key element of how it functions as a community. Having meetings is probably not the only thing the community does, but whatever else it does, meetings are an essential part of its "DNA," so to speak. Orientations are not mutually exclusive. For example, a community that is meeting-oriented may also keep a very comprehensive collection of community resources, making "meetings" and content its two primary orientations. It may also have a member directory or other technologies that support relationships. The nine orientations combine with various degrees of emphasis to create the overall style of a community.

Although many communities do a bit of everything, typically some orientations dominate, giving the community a distinct feel. The orientations of a community are not fixed: their mix changes over time as the community evolves. New orientations emerge, existing orientations change in importance or characteristics, and old ones disappear. Changes in orientations usually will have implications for the technology configuration that a community needs. Orientations provide a framework for considering technology from the perspective of the life of a community, with a focus on what is unique about a given community. They offer a place to start thinking about how technology can support a community's critical activities and style. Like communities, technology platforms often do a bit of everything, but tend to focus on (or work better for) some orientations more than others.

This often reflects their origin in web publishing, conversations, team support, or networking. The fit between the orientation(s) of the community and the orientation (s) of a platform is something to be considered carefully. For example, Fig. 20.1 gives a sense of the technology implications of a community's orientation toward meetings.

The following sections describe each of the nine orientations, with a focus on specific implications for technology. For the descriptions, we follow a fixed format for each: a brief *definition* and the main *variants* we have seen, some distinctive

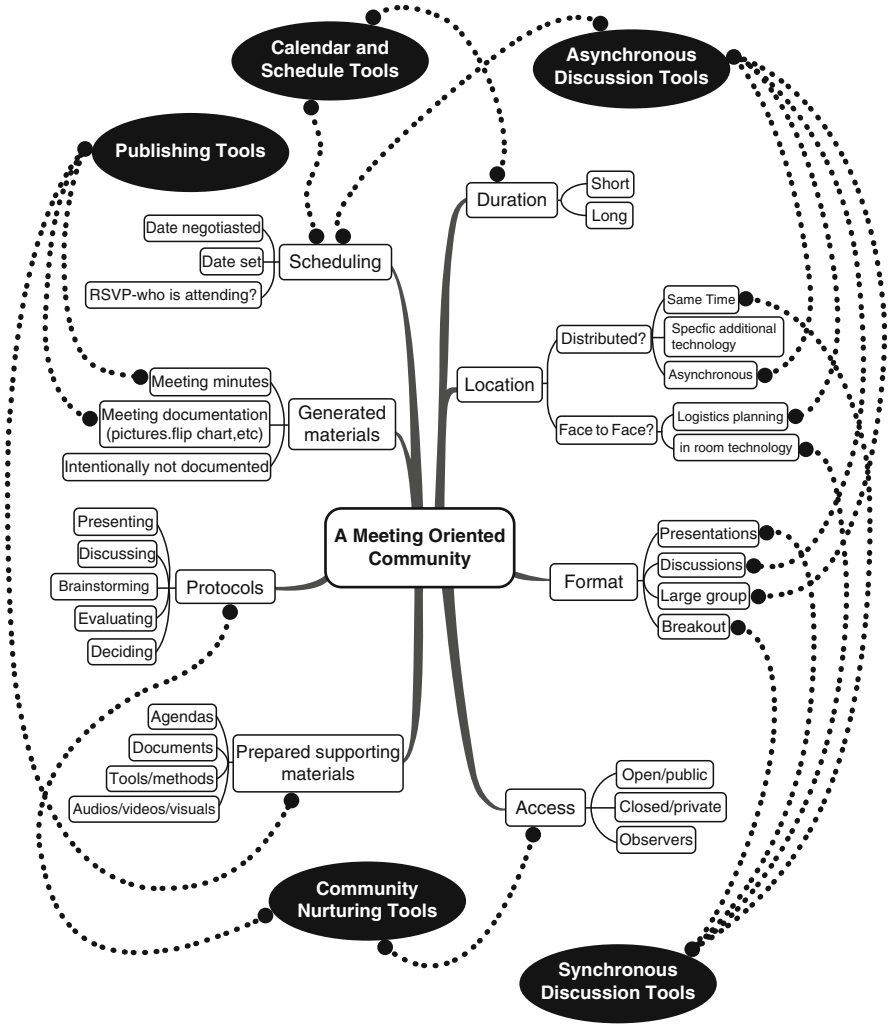

Fig. 20.1 Community oriented towards meetings

signs of life – indicators that the orientation is alive and well for a community, a list of *success factors*, a few *questions* to assess if the orientation seems important enough to warrant configuring a set of tools to support it, and a paragraph on the *technology implications*. We end with a table that matches a list of typical *activities* with examples of *tools* that can support them. A third column also includes brief "practice notes" that reflect our experience using specific configurations of tools to support a given orientation. We are not proposing a one-to-one mapping between tools and activities; many activities require more than one tool or even several *combinations* of tools. Conversely, many tools are flexible enough to be used to support several different activities.

20.2 Orientation 1: Meetings

Many communities place a great emphasis on regular meetings in which members engage in shared activities for a specific time. These meetings, and the visible participation of members, assert the community's existence. The main variants of this orientation include the following:

1. *Face-to-face or blended*: People come together in one location or join a face-to-face meeting by a phone or video connection.
2. *Online synchronous*: Meetings occur at the same time but from different places.
3. *Online asynchronous*: Meetings occur at different times and places but with a time-limited focus.

Signs of life: Regular, well-attended meetings, with enthusiasm to participate, connection with others, and useful outcomes

20.2.1 Key Success Factors

1. An appropriate rhythm of meetings over time with a frequency and schedule that fit the lives of members.
2. Community meeting practices (for example: agendas, facilitation, or other practices members have devised to make their meetings productive).
3. Attention to the experience of individual members' participation, regardless of the medium (for example, meeting protocols that help members who are calling in on the phone feel just as present as those who are there face-to-face).
4. Enough flexibility in the agenda for some spontaneous interaction and raising of issues.

20.2.2 Questions to Consider

1. What size are the groups? Are they face-to-face, online, or a mix of the two? How are participants distributed across time zones? How might synchronous or asynchronous interactions best support the meetings?
2. What are the needs of the participants to accommodate language and other individual requirements (technical or otherwise)?
3. What logistical preparation is required for meetings such as scheduling, agenda development, invitations, confirming attendance, and sharing of materials?
4. What activities happen during the meetings? Presentations (one to many) or sharing of files or information, discussions (many to many), decision-making or prioritization, or working together on materials? Do people need access to bios or pictures to know "who is talking?"

Table 20.1 Overview on meeting oriented community

Activities	Tools
Scheduling and announcements	Shared calendar
	Email
	Scheduling utilities
	SMS to call ad-hoc meetings
Synchronous interactions	Videoconference
	Web conference, webcasting
	Teleconference, VoIP
	Chat room
	IM
Asynchronous interactions	Discussion boards
	Wikis
	Email lists
Attendance	Presence tools
	Directories
	Participant pictures
Meeting facilitation and support	Presentation broadcast
	Application sharing
	White boards
	Document distribution/sharing
	Guided web tours
	Group process tools (brainstorming, prioritizing, decision making)
Enabling back channel (private side conversations for technical, facilitation, breakouts, and content purposes)	Chat
	IM
	Phone
	Microblogging
Member/participant feedback and decision making	Polls, especially instant polls
	IM
	"Hand raising" and related feedback tools
Creation and distribution of shared and/or collaborative note-taking for online or face-to-face meetings	Wikis with easy refresh
	Blogs
	Chat rooms
	Email
	Photo- and video-sharing tools[a]
	Electronic whiteboards (face-to-face)
At-a-distance participation in a face-to-face meeting.	Phone
	Video feeds
	Chat
	Twitter
Recording	Audio or video recording
	Podcasting/vodcasting
	Photo publishing

[a]For example network diagrams created in a face to face workshop, then shared via digital pictures on a photo sharing site such as Flickr: www.tinyurl.com/2zq3pj

20.2.3 Technology Implications

Technology both changes face-to-face meetings and makes new kinds of meetings from a distance possible and productive. All phases of meetings can use technology

support – from scheduling meetings and preparation of agendas before the meeting, to sending announcements, to the interactions during the meeting, to the archiving and distribution of records after the meeting.

Using technology to overcome distance and time is not always a simple translation of familiar face-to-face meeting formats. A choice of technology has to reflect the style of the community: formal versus informal, presentation versus discussion, whole group versus breakouts. In turn, technology can impose a certain style. For instance, chat-based interactions require facilitation for turn taking when large numbers of people are involved. Certain voice-enabled, web-conferencing systems require people to queue for turn taking, yielding an orderly but less spontaneous conversation. With web-enabled mobile phones, groups now have the ability to create ad-hoc gatherings. So a community member might be visiting a city, send a message to other members in that city and quickly set up a face-to-face meeting.

Our experiences of face-to-face meetings do not always prepare us for the slightly different issues that come up in online meetings. In online meetings, it's hard to reproduce the way new relationships form through side conversations and impromptu interactions during breaks of offline meetings. However, once relationships begin to form online, conversations and impromptu meetings can flourish, using technologies such as email or instant messaging. Information sharing, an important part of many face-to-face meetings, is easy to do online, but it may not be a very good structuring device for online meetings when other ways of broadcasting information are available. This suggests we typically give more time to relationship building during face-to-face meetings. Communities accustomed to focused, face-to-face interaction may be disturbed by the fact that people can multitask during online meetings. Multitasking may be liberating to individuals who are less interested in the subject, but can be fragmenting for the group as a whole (Table 20.1).

20.3 Orientation 2: Open-ended Conversations

Some communities never or rarely meet. They maintain ongoing conversations as their primary vehicles for learning. Whether or not these conversations are punctuated by other activities, it is the ongoing, open-ended nature of the conversations that holds the community together. Open-ended conversations are common when a community is co-located and people keep the conversation going as they "bump" into each other. For online communities, the main variants of this orientation include:

1. *Single-stream discussion*: Fairly loose discussions occur, with a spontaneous exchange of information, questions, comments, and statements of opinion – all in one thread.
2. *Multi-topic conversation systems*: Distinct topics proceed in parallel, either with multiple threads in one conversation or with multiple conversations.
3. *Distributed*: A combination of blog posts and comments, individual emails, microblogging, social networking sites and instant messages are available

without a central repository for all messages. For instance, conversations take place across blogs: Bloggers pick up a theme from another person's blog post, and discuss that topic on their own blog, possibly leading other people to pick it up on their blogs. A common tag (key word) used by both bloggers on their posts may tie interactions together. These interlinked strings of comments and exchanges across blogs create a sustained conversation. At any point, a new posting can reignite the conversation.

Signs of life: A sustained flow of contributions and responses

20.3.1 Key Success Factors

1. Enough variance in topics to keep it interesting but not so much as to create subdivision into separate communities.
2. Enough contributions to feel active, but not so many that members get overwhelmed.
3. Active participation by a representative segment of the community. (This does not mean everyone. Online open-ended conversations typically involve a large number of readers or *lurkers* as they are sometimes called. But it is important to make sure that the conversation is not hijacked by a small vocal group whose interests do not reflect the whole community.)
4. Well-organized conversation archives that avoid circular conversations and help newcomers get up to speed.

20.3.2 Questions to Consider

1. Do your members want (and have enough commitment) to engage with each other on an ongoing basis?
2. Are conversations focused on topic and/or over a specific time frame, or do they branch and evolve over time?
3. Does everyone in the group have to have access to all conversations? Is there a need for private conversation? What is the role of backchannel (private) conversations in the community's public conversations?
4. Do conversations need to be harvested, "captured," or archived for easy access in the future?
5. Is the community multilingual? Are there translation needs? Do different language conversations happen in one area or in separate areas?

20.3.3 Technology Implications

Email lists and chat rooms work well for single conversation streams because the conversations all happen in one place, with the primary focus on responding to the

most recent entry. But as the conversation moves on, topics typically get dropped. It is difficult to deepen the conversation into multiple topics in parallel without adopting more sophisticated practices that use threading or email filters. Tools that allow parallel streams of conversations are inherently more complex to use because each topic develops its own context, and contributions need to be made in "the right place." Traditionally, web-based discussion forums have been used for parallel conversations. Newer tools such as blogs and wikis are useful for single-topic streams, for instance through the use of comments, but they can also work for parallel conversations with RSS feeds, categories, and tags. Pairing discussion tools with polls and wikis can help make them useful for group processes and knowledge retention. For example, the KM4Development community has a wiki separate from its mailing list where members are asked to summarize key discussion threads they initiated on the community mailing list (Table 20.2).[1]

Table 20.2 Overview of main community characteristics and implications

Activities	Tools
One-topic-at-a-time conversations	Email Email lists Chat The comment feature of blogs Group mobile phone messaging (SMS)
Multiple concurrent topics of conversation	Web-based discussion boards Wikis Blog discussion tracking, categories, trackbacks, pings and aggregation services Microblogging SMS/text
Highlighting key learning	"Frequently Asked Questions" (FAQ) area Wikis for summaries Tags, categories "Thumbs up" and other rating mechanisms to mark the value of an individual post Tools that move active discussions into primary view (for example, a "What's hot?" section on the home page)
Subgroups/privacy	Access control (who can participate) Mechanism for reporting back to the larger group
Translation between languages	Parallel discussions for manual translation Automatic translator window Automated translators integrated in discussions
Archiving	Web-based repositories for email lists Automatic archiving in discussion boards Permalinks in blogs Tag clouds

[1]Knowledge Management for Development Wiki, www.km4dev.org/wiki.

20.4 Orientation 3: Projects

In some communities members want to focus on particular topics, go in-depth, and collaborate on projects to solve problems or produce useful artifacts. Learning is not just a matter of sharing knowledge or discussing issues. Members need to do things together in order to develop their practice. Projects usually involve a subgroup within the community: Participating in the project team on behalf of the community becomes an important connection to the overall community. The main variants of this orientation include:

1. *Coauthoring*: Documents and other artifacts are produced collaboratively.
2. *Practice groups*: Temporary or longer-lasting subgroups focus on an area of interest, usually with the idea of reporting back to the larger community.
3. *Project teams*: Temporary teams are formed to answer a question or accomplish a specific task on behalf of the larger community.
4. Instruction: Structured learning activities, including training and formal practice transfer, are undertaken for internal or external audiences.

Signs of life: Committed engagement, as a whole or in subgroups, in producing some change in the community members' world, such as developing a useful artifact, addressing a recurring problem, or responding to a challenge.

20.4.1 Key Success Factors

1. Collective definition of projects related to the community's domain
2. Coordination and leadership
3. Adequate communication between subgroups and the rest of the community
4. If inside organizations, alignment with internal project management processes and procedures

20.4.2 Questions to Consider

1. Do members feel a need to "do" things together in order to learn?
2. How formal and/or ad hoc is project definition and management? Do teams require private spaces?
3. What are the requirements to support the collaborative activities? Coordination? Creation of artifacts? Project management? Meetings? File repositories?
4. Are other members likely to want to be informed of the progress of subgroups or to become peripherally engaged in their work? What is the process for reporting out?
5. What kinds of products or outputs are likely to be created, and what has to happen to the outputs?
6. Is structured instruction or practice transfer part of the work of the community?

Table 20.3 Overview of main community characteristics and implications

Activities	Tools
Creating content together (coauthoring, collaborative writing, editing, and so on)	Wikis Application sharing (synchronous) Track changes in word processors File sharing Workflow
Subgroups	Tools with features that allow: Access control (who can participate and in what way) Subspaces to be set up on the fly as needs emerge A mechanism for reporting back to the larger group Group private messaging (web or mobile phone)
Project management	Team and project-management tools (Gantt charts, timelines, task trackers, schedulers) Calendar Project dashboard
Instruction	e-Learning platforms Participation tracking/completion tracking Screen sharing Web meeting tools
Communicating with or engaging the rest of the community or a wider audience	Project blogs Wikis Screencasts

20.4.3 Technology Implications

Close collaboration often requires separate spaces where a subgroup can work together without being disturbed by others. For example, having contributions from outside the subgroup can be disruptive, but having non-group members see what is posted by the subgroup is acceptable. Collaboration may require common structures to work on shared artifacts, coordinate participation in precise ways, and manage tasks, particularly in larger groups. Collaborators may need tools to coedit or to create documents, calendar tools to coordinate activities, and project-management tools to track interdependent tasks. In addition, a subgroup focused on a project will often need to communicate with the community at large. Tools such as blogs and wikis that invite participation around published documents can be used to update and involve the rest of the community. Group size matters in tool selection, as some tools are more useful to small groups and some to larger groups. Some communities may want members to be able to create new project spaces on the fly, while others may want to have a more formal set up process (Table 20.3).

20.5 Orientation 4: Content

Some communities are primarily interested in creating, sharing, and providing access to documents, tools, and other content. Valuable and well-organized content is a useful resource for members; it also attracts new members, and makes it possible to offer a community's expertise to others.

Creating reified "stuff" can be a by-product of participation in community activities (for example, notes from a meeting) or engagement in practice (for example, sharing a template one has built). It can be a goal of participation in itself (for example, creating a graphic representation of a good practice together). Note that activities just described under the project orientation often produce content, so that coauthoring and related tools are covered there. The main variants of an orientation to content include:

1. *Library*: Providing an organized set of documents of any format
2. *Structured self-publishing*: Members contribute structured objects, with consistent formats and meta-data fields (for example, book, paper, web site address, personal information).
3. *Open self-publishing*: Members contribute any file, text, or digitized material to share.
4. *Content integration*: Integrating feeds and links from various internal and external sources for organized access.

Signs of life: The regular creation or identification of new material and frequent downloads or use of existing material; active involvement with content – commenting, discussing, tagging, remixing, reorganizing, and exploring relevance.

20.5.1 Key Success Factors

1. Careful and ongoing organization of content that reflects the community's view of its domain
2. A flexible taxonomy that allows for growth and evolution
3. Ease of publishing internally in the community or out to a larger public
4. Ease of creating new content, especially in collaboration with other members
5. Archiving of aging material
6. The use of tools that invite active involvement with documents
7. Excellent search capabilities

20.5.2 Questions to Consider

1. How frequently are documents, tools, and other artifacts collected, created, or used in the community?
2. What does the community do with the content? Is it annotated, organized, and filed, or is it constantly in flux and in use? Is there an editorial process around it? Are discussions and critiques organized around the content?
3. What types of artifacts (for example, tools, reports, transcripts, or recordings) do community members need to share? How large is the collection likely to become?

Table 20.4 Overview of main community characteristics and implications

Activities	Tools
Uploading and sharing document files	Separate document repositories Attachments to discussions
Commenting on, annotating, and discussing content	Discussion forums Wikis for annotation Blogs with comment features eb page annotation tools
Publishing self-generated content	File sharing Blogs Web pages Wikis Screencasts
Publishing structured objects	Content management systems Meta-data features Adherence to documentation standards like the "Dublin core"
Centralized editorial control (for example, organizing, approving, editing)	Editor functions to show changes, version control Manual editing and approval for public posting Access controls Workflow for routing material
Distributed editorial capabilities	Tagging Rating Commenting
Rating contributions	Rating mechanism Activity tracking Metrics and reporting Tagging
Accessing internal and external content	Search engines Tagging tools Subscriptions/alerts Aggregators and newsreaders with features such as RSS, trackbacks, and pinging Subscription links to paid content Web enabled mobile phones
Archiving	Time-sensitive notices Automated archiving

4. Who is responsible for organizing and archiving material? What are their needs?
5. Who has access? Does the content need to be password protected or is it something of broader interest that should be accessible to public search engines?

20.5.3 Technology Implications

A large volume of documents and other artifacts suggests the need for technology that focuses on content management: uploading, organizing, combining, search,

application of taxonomies, and editorial functions. Documents are easier to find if stored in some sort of electronic *folder*, tagged or organized under defined categories, and searchable down to the text level. But documents often derive their value in the context of interactions – pointing to the relevance of tools for conversations, comments, ratings, and tracking downloads. Communities have to balance the need to manage documents in and of themselves with the need to allow for their use in context. Beyond traditional content management systems, web technology affords new ways for communities to handle the management of its documents. There is still a place for centralized, structured organization of a repository, but the web also offers possibilities for members to engage actively with documents in a less structured, distributed fashion – whether in the collective production of documents through tools such as wikis, or in the collective development of emergent structures for organizing resources through links, tagging, and comments, for example (Table 20.4).

20.6 Orientation 5: Access to Expertise

Some communities create value by providing focused and timely access to expertise in the community's domain, whether internally or externally. Communities with this orientation focus on answering questions, fulfilling requests for advice, or engaging in collaborative, just-in-time problem solving. Some even have an informal or formal research function to respond to requests. The relevant expertise may be held by the whole group or a smaller set of experts. A community may serve a larger organization or a network as a "center of excellence," with a focus on identified expertise, or may serve more informally as a connection point to access the knowledge of its members. The main variants of this orientation include:

1. *Access via questions and requests*: A question or request is broadcast or directed to potential respondents; responses are often kept for future reuse.
2. *Direct access to explicitly designated experts*: Experts are made available through visits by guests, consulting a center of excellence, and "following an expert."[2]
3. *Shared problem solving*: A group of members is called upon to help an individual solve a problem in real time.
4. *Knowledge validation*: Responses or artifacts are routed to respected members so that they are fully vetted.

[2]This borrows from Brown and Dugid's concept of "Stolen Knowledge" (http://www2.parc.com/ops/members/brown/papers/stolenknow.html 1992 Educational Technology Publications) and exemplifies Efimova's observations about blogs as a channel for "distributed apprenticeship." Lilia Efimova, "Legitimized theft: distributed apprenticeship in weblog networks" (http://blog.mathemagenic.com/2004/05/14.html) Mathemagenic, posted May 14, 2004.

5. *Apprenticeship and mentoring*: Learning takes place through observation of or apprenticeship with a skilled practitioner.

Signs of life: Rapid and reliable responses to requests for expert advice and for specialized assistance; well established methods of eliciting community expertise; people know who to go to for specific expertise.

20.6.1 Key Success Factors

1. Holders of expertise known or designated (by reputation, specialty, or job)
2. Quick access to reliable sources of information and/or quick response from experts
3. Accurate routing to the best potential sources of help
4. Reliability of responses established either by the reputation of respondents or through explicit validation processes

20.6.2 Questions to Consider

1. Do members of your community need to get rapid access to information and advice? From each other and/or from designated experts?
2. How important is the formal validation of knowledge for the community?
3. How do members become aware of each other's knowledge? Are members willing to "declare" their expertise on a topic? Do people care about building a personal reputation, or would they rather not accentuate differences in skills, levels, and quality of contribution?
4. Does the community serve as a center of excellence for a larger group? How should access be provided?
5. Does the community regularly bring in outside experts? How familiar are those experts with the tools used in the community? What support do they need?
6. How big is the pool of people who need to interact? Smaller groups can manage informally with little support, but large groups benefit from tools to help automate some processes.

20.6.3 Technology Implications

Common communication tools such as email, the phone, or IM can be used for questions and answers, but their use assumes that the requester knows the best source of information to contact, and they tend to limit interactions to just a few people. Such simple tools may not scale up, partly because they don't provide for the reuse of questions or answers. Asynchronous discussion boards involve more people and therefore can yield more reliable responses, but they may not work for

Table 20.5 Overview of main community characteristics and implications

Activities	Tools
Questions and answers	General tools such as email, chats, text messages, email lists, or discussion boards
	Specialized tools such as Q&A systems, FAQ tools that compile questions and answers, or answer mining
Expertise locating	Member directories
	"Yellow pages" tools for self-declaration of expertise
	Expert ranking and/or rating
	Social networking tools
Validating or rating responses and escalating questions not yet answered or with inadequate answers	Rating tools for responses
	Commenting tools
	Visibly linking authors to contributions
	Polls
	Wikis for adding to base knowledge
	Automatic routing of contributions to expert panel
Shared problem solving	IM/chat or telephone
	Video feed
	Application sharing
	White board
	Teleconferencing
	Discussion boards
Following an expert	Blogs
	Subscriptions, RSS
	"Watch this member" feature
	Microblogging

rapid responses and can overwhelm members with traffic. More sophisticated applications that enable quick and efficient access to expertise such as expertise locators and Q&A systems are also available. These can rout requests, build and access a repository of questions and answers ("Frequently Asked Questions" or *FAQ*), and keep track of the ratings/responses various experts receive. Contact management and social network analysis tools can be used to map the expertise in one or more communities (Table 20.5).

20.7 Orientation 6: Relationships

Some communities focus on relationship building among members as the basis for both ongoing learning and being available to each other. This orientation emphasizes the interpersonal aspect of learning together. Communities with this orientation place a high value on knowing each other personally. They emphasize networking, trust building, and mutual discovery. Members care about who is in the community. Sometimes this focus on relationships is purely internal.

Sometimes it extends outside to connecting with others and even recruiting new members on the basis of personal connections. The main variants of this orientation include:

1. *Connecting*: Networking with people with whom one is likely to find a mutual connection
2. *Knowing about people*: Getting to know each other at professional and personal levels
3. *Interacting informally*: Interacting with other community members one-on-one or in small groups

Signs of life: Networking, bonding, friendship, references to personal lives in conversations

20.7.1 Key Success Factors

1. Ways for people to get to know each other and build their identities
2. Opportunities to connect informally beyond participation in organized community events
3. Networkers acting as connectors with other people
4. Having individual control over personal exposure and disclosure (see the next orientation)

20.7.2 Questions to Consider

1. Are members drawn to the community for the opportunity to connect with people as much as to find information or gain skills?
2. How dependent is the ability to learn together on the level of trust and depth of interpersonal relationships?
3. How curious are members about others and how willing are they to disclose information about themselves? Are members interested in investing the time and effort to build relationships and get to know each other beyond the domain-oriented interactions of the community?
4. How large is the community and how widely do people need to build relationships across the community? (Complexity of creating and maintaining relationships grows with community size). How open or closed is the community?

20.7.3 Technology Implications

Relationships are between people; therefore, technology may seem less relevant. Yet technology has turned out to provide many ways to create, sustain, and

Table 20.6 Overview of main community characteristics and implications

Activities	Tools
Networking, finding others, revealing our relationship to others	"Light" member directories (contact, but minimal personal information)
	Social networking tools
	Social network analysis tools
Discovering information about others, expressing personal identity	"Heavy" member directories (with lots of information about members)
	Profiles and personal web pages
	Member pictures associated with each contribution to conversations or repository
	Photo gallery, photo sharing
	Lists of favourites (URLs, books, songs)
	Blogs
Knowing who is around the community and interacting informally with other individuals	Community-specific presence indicators
	Invitation to instant chat
	IM buddy lists
	Email
	Phone, VoIP
	Immersive avatar-based environments
	Microblogging
	SMS
Forming casual or ad hoc subgroups	Access lists
	Delegation of rights needed to set up subspaces
	Geolocating tools on web enabled phones
Following others	"Watch this member" features
	Tagging
	Seeing what someone reads or posts
	Social networking sites
	Microblogging (i.e., Twitter)
	Friend aggregators (i.e., FriendFeed)

represent human connections. The web has recently seen an explosion of tools oriented toward building and visualizing relationships, particularly social networking for finding and explicitly stating relationships with other people, and social network analysis tools for representation of network connections. Some of these tools are suited to communities; some are more oriented to general networking but may be used in the context of communities.

We are often asked by people who have never seen it happen whether real relationships can develop without face-to-face interaction. In our experience they can and do develop, both in purely online settings and in combination with face-to-face. As people become more experienced in using technology, new mixtures will become commonplace. Communities are experimenting with techniques for including distributed participants in physical gatherings. Finding the right mix of face-to-face interaction with the many tools that exist is both subtle and challenging. We have hardly begun to explore the potential of immersive environments like Second Life, where we have a different sense of presence and even of identity. In the end, however, there are no guarantees in developing relationships, even in face-to-face settings.

An orientation to relationships does not necessarily apply to an entire community at once. People often discover others in a community with whom they would like to pursue a special connection, either around a topic or an activity, or at a purely interpersonal level. A relationship orientation requires the ability to let members form smaller groups by segmenting the space with a mix of public and private subspaces. This places a premium on the ability to create subspaces easily and to distribute the ability to control access or open up these areas. Relationships also may extend outside the community, allowing a community to tap other tools, such as members' http://delicious.com bookmarking accounts, and pull those feeds into the community without asking the member to do any additional work. Over time, new communities are emerging out of interactions on microblogging tools like Twitter (Table 20.6).

20.8 Orientation 7: Individual Participation

Learning together happens in the context of a group, but it is realized in the experience of individuals. Learning together does not imply homogeneity of learning. People bring different backgrounds, communication styles, and aspirations to their participation in a community. Increasingly, their participation in any community takes place in the context of multimembership in many other communities – a factor that is bound to give them a unique perspective in any given community or facet of community life. As a result, members of the same community participate in different ways; they have different purposes, they engage with different frequencies and different levels of commitment, they take on different roles, and they use tools differently. The community and its learning mean different things in their lives. They develop distinct identities as members and express their relationship to the community in their own ways.

Communities vary in their degree of orientation to individual participation. They make more or less effort to accommodate individual differences, recognize multimembership, or take advantage of their diversity. In bringing people together, some communities offer only one way to interact, regardless of individual preferences, in order to create a shared history of interactions. Others offer a wider range of interaction possibilities and styles, accommodating individual differences in participation but loosening the bonds created by common interaction experiences. Global communities need to accommodate diverse time zones, languages, and cultures.

This orientation to individual participation has both private and communal dimensions. It enables members to take active control of their participation, and it makes individual differences part of the life of the community. The main variants of this orientation include:

1. *Varying and selective participation*: Communities accommodate various forms of participation, ranging from just staying lightly in touch, to choosing a few

areas of personal interest, to participating actively overall, to taking a leadership role.
2. *Personalization*: Members can individualize their experience of the community to serve their personal needs and circumstances, and control access to their information.
3. *Individual development*: The community helps individuals develop their own learning trajectories, through guidance, mentorship, and individualized resources.
4. *Multimembership*: Belonging to multiple communities and managing participation across these contexts is a fact and a challenge that can remain private or be expressed outwardly in the way a community organizes participation.

Signs of life: Members develop their own style of participation and are aware that other people develop other styles. They feel they can have a meaningful connection to the community whatever their individual form of participation, and the community welcomes, supports, and thrives on this diversity.

20.8.1 Key Success Factors

1. Diversity is explicitly valued.
2. Different levels and modes of participation are supported and facilitated.
3. Practices and tools are used to bridge between interaction modes (audio, text, video, synchronous, asynchronous, face-to-face, online).
4. Preferences, availability, and multimembership can be communicated
5. Customization options are obvious and understood.
6. Members can manage their interactions across different tools and multiple communities.

20.8.2 Questions to Consider

1. To what extent does the community's success depend on uniform participation expectations, such as logging on to an online space daily or weekly, regular meetings or interactions, and scheduled events?
2. What is the degree of diversity among members in terms of level of proficiency in the community's core practice, as well as members' literacy, learning styles, language, culture, and access to and familiarity with technology? Do members have strong and different preferences about interaction modes?
3. How much ownership do members take or want to take of their own learning and development compared to how much they expect this to be defined by the community as a whole?
4. How many communities do members belong to simultaneously? Are they all within one organization and therefore use the same set of tools?

Table 20.7 Overview of main community characteristics and implications

Activities	Tools
Individualized website navigation across successive visits	Individualized indicators of new material (for example, pointing to what new materials on a website one has not seen)
	Notepads to keep individual notes or journal
	Individual message centre to bookmark contributions of interest
Customization	Filters (what to see and what to hide)
	Individualized site maps, pointers to relevant areas, and taxonomies
	Profiles (time zone, connection speed, language)
	Preferences (display, look and feel, home page)
	Customized search (from preferences, history, profile, or relationships)
	Multilanguage interfaces and translation capabilities
	Choices of platform to receive content (web, email, phone, etc.)
	Folksonomies
Subscriptions	Subscriptions flagged on a web site
	Email alerts
	RSS
	Individualized digests
	Alert mechanisms
	Multiple routing options (email, SMS)
Bridging interaction modes	Recordings and podcasts
	Real-time notes publishing through blogs or wikis
	Video feeds
	Informal interactions with IM, microblogging
Managing individual participation publicly	Bulletin boards to announce individual circumstances like absences or periods of limited access
	Listings of communication preferences
Managing one's privacy	Features of IM tools that allow members to turn on or off their availability in IM/presence indicators
	Interaction tools that do not keep records or transcripts that can be accessed and viewed later
	Portability of one's content across platforms
Explicit support for multimembership	"My communities" page
	Single identity (login, profile) across communities
	Aggregators (RSS, tags, feeds)
	Lists of communities on personal pages

20.8.3 Technology Implications

When technology becomes the members' main window into their communities, their participation can be a highly individual experience. This participation may consist of a series of *visits* to a web site or to web conferences. Or it could be participation in a variety of online events, conversations, and meetings. Communities need a technology infrastructure that can translate this succession of points of

contact into a meaningful experience of participation over time. This is especially important if various modes of interactions are supported with different technologies. Bridging them is critical to keeping the community together while enabling various modes of participation – for instance, offering members the option of having information pushed to them via newsletters and email alerts or allowing them to selectively organize how they access content.

When the intensity of participation varies a great deal among members, those who participate infrequently or superficially can be overwhelmed by new material and new topics. In this case, it can be important to have individualized guideposts such as member-specific new flags or pointers that reflect the member's interests. Multimembership and individual expressions of identity are taking on increasing importance as technologies multiply the possibilities for simultaneous participation in communities. Members need configuration options to manage their participation and attention across more than one community with a single set of tools. Many potential members balk at the idea of having to learn a new set of tools or to remember another user id/password for each community (Table 20.7).

20.9 Orientation 8: Community Cultivation

While many communities are happy with loose self-organization and unplanned evolution, others thrive on attention to community cultivation. They have a need to reflect on the effectiveness and health of the community to make things better, joined with a willingness to work on it. Sometimes regular members are more interested in the domain, and attention to the work of cultivation is the province of a smaller core group, or one person. Such leaders facilitate conversations, convene meetings, organize activities, collect, edit, or produce resources, connect members, keep a pulse on the health of the community, and encourage it along a developmental path. Whether these people are volunteers or paid members, the success of the community comes to depend on the high level of ongoing attention that these leaders pay to process and content. The main variants of this orientation to cultivation include:

1. *Democratic governance*: Some communities create governance structures and processes that enable the membership to have a voice in running the community, engaging in self-design.
2. *Strong core group*: A distinct group of members habitually take a nurturing role with their community.
3. *Internal coordination*: A member, or a small team, explicitly takes on or is assigned the responsibility of cultivating the community.
4. *External facilitation*: Someone who is not a member is recruited to provide process support to the community. Such a person may not be knowledgeable or even particularly interested in the domain, but is assigned this role because of expertise in community cultivation.

Signs of life: The community's activities are well planned, its reference materials are well produced and well organized, and members find that someone is always very responsive to their requests, contributions, and changing needs (Table 20.7).

20.9.1 Key Success Factors

1. Efforts made to support the community by members are appreciated by other members
2. Enough time available to engage in cultivation
3. The personality, skills, leadership, and reputation of those who take on cultivation roles in the community
4. Succession planning for transitions

20.9.2 Questions to Consider

1. What information do community cultivators need about the activities, workings, and health of the community? For example, is there a need to track participation, downloads, and usefulness of content?
2. What actions should cultivators be able to take with respect to technology? Who should be given the privilege to control other people's participation? How much time and willingness do community cultivators have to devote to learning how to use sophisticated cultivation tools?
3. What is the community culture around feedback tools? What are the effects of making that participation visible? Is there a risk of people "gaming" the system to affect outcomes of things such as rating systems or polls?

20.9.3 Technology Implications

General communication tools such as phone, email, and instant messaging are still the basics of community cultivation. A lot of community cultivation is simply about keeping in touch with members through back channel communication, where people communicate privately amongst themselves. A phone call can be effective, as can a quick IM when someone is online to say "hello" or encourage participation, particularly in smaller communities. Broadcasting tools help keep people informed about community activities. With a palette of available tools, cultivators can customize communication to the person or the context. Intensive cultivation also calls for more specialized tools to poll members, brainstorm ideas, or manage conversations, documents, and archives. Finally, some tools can help cultivators "see" the community by tracking participation statistics including logins, pages read, contributions posted, and downloads.

Table 20.8 Overview of main community characteristics and implications

Activities	Tools
Announcements, stories, pointers, and other information sent to members directly	Email Newsletter Community blog (internal) Calendar
Getting community input and feedback	Polling tools Brainstorming tools Email SMS
Back channel communication, offline conflict resolution, and private encouragement	Membership contact information Phone IM Email Chat (during meetings, for example) SMS Microblogging
Reflecting on community participation and health	Participation statistics Alerts noting lengthy member absences Community health charts (indicators of level of participation, quality of conversations) Social network analysis Logs of technology use, such as when people have logged in, how long they stayed, or how much they have read Lists of who has read or downloaded something
"Housekeeping" interactions	Ability to move contributions from one place to another to keep an online space organized (for example, moving a post to a different conversation or a document to a different folder) Tracking an individual's contributions across contexts Conversation analysis tools (for example, contributions that open or close threads) Access lists
Rewarding behavior valued by the community	Top contributors or "member of the month" Quantified reward system (for example, points for certain behaviors)

These tools can help identify current topics, track individuals' contributions, and be used to chart who is engaged and who may need encouragement or be "invited back." Again, the availability and use of these "community visualization or evaluation" tools raise issues of privacy and availability of information. Who can see the information? How it is used? Does it help the community or does it create unwelcome distinctions among members, such as those who are recognized as active contributors being valued more than those who only read or participate in less noticeable ways?

Many available tools can generate large amounts of log data; the challenge is to integrate information from different tools and to reduce it to something simple and easy to act on. People who have an explicit role in cultivating a community are more likely to take the time to learn how to use the tools. However, community-

cultivating tools can be useful for any member who cares about a community (Table 20.8).

20.10 Orientation 9: Serving a Context

All communities of practice are oriented to their members' learning experience. They always exist in a context that, to some extent, influences how this learning takes place. But in some cases, serving a specific context becomes central to the community's identity and the ways it operates.

Some communities are not especially oriented to serving a context: the members mostly seek intimacy and privacy, the ability to interact and share materials far from the public gaze. Their agenda is an exclusive focus on the learning of members. But many communities of practice are defined by their orientation to serving a context beyond the learning of members. They may live inside an organization, whose charter their practice needs to serve. They may have a mission to provide learning resources to the world or to recruit members widely. Or, they may seek interactions with other communities whose domain complements their own. This outward-facing focus can become a key driver of the community's evolution, a selection criteria for members, and the inspiration for participation. The main variants of this orientation to context include:

1. *Organization as context:* Communities living within an organization usually feel a responsibility to develop capabilities that serve the charter of their host organization. Organizational membership may be a condition for community membership and a key to trust. Such communities may also need to use that organization's resources and infrastructures and worry about interoperability, integration with the organization's operations, and interaction with its power structure. They may be focused on shaping organizational strategy or practice.
2. *Cross-organizational context:* Some communities find value in creating connections among practitioners across organizations, without the necessity of forging more formal relationships among these organizations. This context creates its own set of relationships to these organizations' charters, resources, and power structures, as well as issues of communication across firewalls and platforms.
3. *Constellation of related communities:* Some communities need to constantly interact with other communities to form broader constellations and networks. They need to negotiate related domains, seek interactions at their boundaries, encourage multimembership, and coordinate their learning.
4. *Public mission:* When a community is built on a mission to serve the broader public, it needs to interact with entities and individuals outside the membership. This often entails creating specific resources and activities to make the learning of the community intelligible and accessible to non-members.

Signs of life: Community members are fully engaged in the mission defined by their context. Reciprocally, recognition, and resources come from people outside the community.

20.10.1 Key Success Factors

1. Clarity on the community context and its implications
2. Channels for negotiating the relationship of the community to its context, such as organizational sponsorship or good connections among community leaders
3. Recognized and supported boundary roles that serve the orientation to context
4. Tools that enable outsiders to interact with the community in ways that reflect both their needs and the community's desire for openness,
5. Ease of granting controlled or open access

20.10.2 Questions to Consider

1. What goals, agenda, or mission is the community serving? What aspects of the community does this determine (for example, learning goals, membership, or assessment)?
2. To what extent does the community have to keep track of its activities and its learning to justify its existence to outside constituencies?
3. How important is it for the community's technology infrastructure to be integrated within broader information systems?
4. Is the community open or closed? Is there a specific membership procedure or set of requirements, or can anyone join? How does the community attract new members? Is it necessary to have a strong "external face" to create that invitation?
5. How important is it to make the community visible and/or accessible to non-members? What would these people need? What other communities is the community connected to or "related" to, and how do they currently interact?
6. How do members integrate their activities in the community with their other activities, such as their jobs in their organizations?

20.10.3 Technology Implications

The degree to which a community's context is central to its identity creates specific technology-related challenges. Within an organization, it often requires compatibility with the existing infrastructure. Single login and "closeness" to the tools members use in their daily occupations can also facilitate participation.

A broader orientation to serving a context calls for specific tools that provide for an outward face to the community and affords choice in how boundaries are defined and maintained, as well as transactions across community boundaries. This orientation can require either open or closed systems. Those who seek intimacy and privacy need tools that create strong boundaries, while those with an open face to the public need the ability to be visible and to interact and share materials outside. For example, a public context suggests avoiding passwords and other barriers that prevent public

Table 20.9 Overview of main community characteristics and implications

Activities	Tools
Creating a public face for the community	Public, searchable web pages Community blogs (external) "Friends of the community" email lists Public newsletters
Inviting the public in and recruiting members	Public areas Guest accounts Self-registration
Offering community content out to the world	Web support for publication stream Search tools Meta-data Tagging RSS feeds
Knowledge transactions for non-members, *help desk*	Question-answer systems FAQs area Phone Email
Constellations of related communities	Shared community portal Community mapping tools
Backend compatibility with organizational infrastructures	Single login systems (LDAP/Active Directory) Standards (databases, XML, .NET) Look and feel of the user interface API/web service MAPI and directory structures
Security	Password protection Access management Firewalls

search engines from indexing content. An organizational context may require passwords to protect intellectual property but provide access to anyone with an organizational password. Many communities have both closed areas for their own internal work and open areas for their interactions with the outside (Table 20.9).

20.11 Conclusions: Using Orientations to Think About Technology Needs

The framework of community orientations is useful for thinking about the technology needs of a community because it places technology in the context of the community's patterns of activities. Depending on how technology stewarding is organized in a community, these orientations can be used in several different ways. In some communities, such as those where technology is a common interest, the entire community gets involved in discussing the orientations and considering which ones are relevant. In other cases, a small group will think about the

orientations and the questions they raise, and then engage the whole community in considering the results. For such an evaluation, the variants, signs of life, and "questions to consider" associated with each orientation provide a framework of criteria with implications for technology choice.

When a community is just forming, its profile of orientations may not yet be apparent, so a tech steward has no history to go on and can't really say what orientations are most descriptive. In this case, orientations can be used to trigger the imagination of potential members in projecting what their community will need. For an existing community, the use of the framework will depend on whether the community is happy to maintain its existing style; the framework provides an analytical tool to assess how well the community is being served in its current form. If a community is seeking change, then the framework of orientations can provide a language to imagine the future, discuss newly evolving needs, and put technology to work in the service of the community's intended evolution.

The main idea is to create an actual or intended community profile in terms of orientations and their variants. As you explore each orientation and variants listed above with each orientation, think about how closely they apply to your community, using a scale of 1–5, with five being very important. If your time, attention, and budget as tech steward are limited, focus first on the orientations you rank four or five. That way, the orientations profile provides a useful reference point for the task of prioritizing, selecting, configuring, and even supporting tools. We believe that these insights can serve the learning needs of faculty in changing higher education contexts and help to engage them into institutional innovation.

Chapter 21
Supporting Changing Cultures Through Emerging Practices

Tony Carr, Laura Czerniewicz, and Cheryl Brown

Abstract This chapter explores how an online conference can be productively used by educational technology professionals and educators who teach with technology in Africa to share and learn about tools, perspectives, and practices in the emerging field of educational technology with peers from across Africa and beyond. Communities of practice can play a key role in the professional development of educational technologists and educators learning to teach with technology. The impact of communities of practice on educational technology practices across a university is enhanced where educational technology professionals and change agent educators act as *boundary* professionals who can learn practices from encounters with related communities both locally and globally and then to transfer elements of these back home to their day-to-day practice. Such encounters can be stimulated through several means including face-to-face and online meetings and conversation, workshops, and conferences, whether face to face or online. We discuss how participants were able to use the affordances of an online conference to engage in boundary conversations across multiple communities of practice. From our experience, online conferences both echo and refashion face-to-face conferences.

21.1 Introduction

The use of e-Learning in universities has extended beyond distance education and is becoming a global phenomenon. This includes growing interest and investment in e-Learning projects across African universities. These projects are often supported by both constrained infrastructure and implemented by a small number of

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educational technologists and pioneering educators. Introducing e-Learning to a university is difficult because it requires far more than setting up servers with an online learning environment and providing educators with quick training and some technical support. Integrating e-Learning into the operation of a university is a far more complex operation because it supports new practices and opens new opportunities for teaching and learning. However, the required organizational and individual investment questions, and may even disrupt existing priorities. University educators do not adopt new teaching practices unless they can see compelling reasons to do so since they are generally involved in difficult balances between teaching and research time and may also experience technophobia. It is also much easier for university educators who have not been trained as lecturers to rely on old teaching models, which worked for them when they were students. The learning curves towards becoming an online or mixed-mode educator are sufficiently steep that a university cannot rely on the passion of a small group of pioneering staff to carry it into a new era.

Ultimately, change processes achieve success if there is a conscious effort to enable partners across the institution to take agency and assume leadership of their peers and to share new practices both in localized teams and in a broader teaching with technology networks. The emergence of educator leadership signals that the educator community is becoming self-sustaining and has a logic and reach far beyond the sphere of direct influence of an educational technology unit because the educators are active partners in setting the agenda and the curriculum for learning about educational technology. This implies a crucial role for educator communities of practice.

Educational technology is an emerging "interdiscipline" and profession globally whose members work across multiple contexts and grapple with changes in the nature of university education, technology, and research concerning the pedagogical applications of information and communication technologies (ICTs) (Hodgkinson-Williams and Czerniewicz 2007). The challenges faced by educational technologists in Africa and other developing countries may be experienced more acutely than in first-world contexts since severe resourcing constraints may result in small units grappling with the introduction of e-Learning projects in universities with inadequate infrastructure as well as staff who are poorly equipped in technical knowledge or attitudes to make effective use of educational technology. One of the key challenges is to form linkages with educational technology professionals in similar and different contexts including those in developed countries. Colleagues across Africa have an opportunity to learn from each other's good practices and to consider how educational technology practices from developed countries may be recontextualized both for local cultures and for resource constraints.

This chapter considers how online conferences can support the growth of networks of educational technologists and educators who teach with technology in Africa by providing access to a time-bound community of practice experience where participants can step to the boundaries of their local communities and learn with and from peers across Africa and globally. Ultimately, such exchanges can encourage local innovation and enhance the effectiveness of both new and

established e-Learning projects. We will start by discussing the importance of local communities of educators for the success of e-Learning projects before considering the importance of educational technologists and educators stepping to the boundaries of their local communities to learn new practices and bring these back home to their local contexts. Conferences can provide both structure and space for learning at the boundary. After a literature review on online conferences, we present the *e/merge* conferences as an example of an online conference model designed to provide an experience of engagement in a time-bound community of practice, and to promote learning across the boundaries of multiple communities of practice. The last part of the chapter reviews participants' experiences of engagement in these online conferences.

21.2 Educator Communities of Practice

The social learning theory of communities of practice developed by Lave and Wenger (1991) allows us to link informal and formal learning by educators to organizational goals, and casts new light on the possibilities for the transformation of educator identities, perspectives, and practices. They created the label of "community of practice" to denote "the community that acts as a living curriculum for the apprentice" (Wenger 2004). Since the original statement of the theory, it has been widely applied in professional development (Millen and Fontaine 2003; Wideman and Owston 2003) and organizational change settings (Saint-Onge and Wallace 2003) across several sectors including higher education.

All communities of practice share the same structural features: "a domain of knowledge, which defines a set of issues; a community of people who care about this domain and the shared practice that they are developing to be effective in their domain" (Wenger et al., p. 27). These communities have always existed and we all belong to multiple communities of practice. Members of communities of practice "share information insight and advice [...] help each other solve problems [...] ponder common issues [...] and act as sounding boards [...] Over time they develop a unique perspective on their topic as well as a body of common knowledge, practices and approaches" (pp. 4–5). Wenger (1998) explains that participation within communities of practice promotes learning among experts and novices alike since peripheral participation in the practices of the community is as legitimate as full participation. From Wenger's perspective, peripherality can only provide access to a practice if it "engages newcomers and provides a sense of how the community operates" (p. 100).

In the education sector, the benefits may include mutual support and collaborative processes of staff development (Young and Mitchell 2002; Wideman and Owston 2003). Viskovic 2003 suggests that communities of practice in tertiary education provide support to "both existing and new staff as they move into an unknown educational future" (p. 9). Communities of practice can also assist the introduction of new technologies, since new technologies imply the need to learn

new practices or to adapt existing practices. Wideman and Owston (2003) conclude that communities of practice "afford the key channel for staff to mutually support each other in building collective confidence and a willingness to take the risks necessary for innovation to succeed." Mistry (2003) argues that when introducing online learning environments to an institution "Decision-makers need to be able to 'plug into' such communities, to understand any anxieties or concerns at the chalk-face" (p. 4).

While communities of practice may form spontaneously around teaching and learning with technology, they may not achieve sustainability without some institutional investment in providing an organizational location and some facilitation for early interactions. Especially in the early stages of e-Learning projects in African universities, there will be very few active practitioners and fewer researchers of this field. There may not be the critical mass for a local community of practice. In fact the best possible short-term result in these circumstances may sometimes be a collectivity of practice (Lindkvist 2005) where a team with specialized practices work together on projects but do not share their practices due the specialized nature of their work and to the workload which they face. Such isolated practitioners are likely to face their severe challenges more successfully if they have access to communities outside their institution.

We would argue that local communities of practice within a university depend crucially on the mediating role of professional educational technologists and change-agent educators who take on the roles of boundary agents, stepping towards and beyond the boundaries of their own communities and into encounters with other communities of practice which are concerned with similar and related practices. Such boundary conversations can accelerate the transfer and localization of practices across communities of practice including those which are physically distant from each other. Without the work of these boundary agents, the local community is at risk of oscillating between periods of stagnation and those of disruptive shocks when their members face the introduction of new technological tools yet are unequipped with practices and strategies for their effective educational use.

Conferences are among the key practices which bring educators who teach with technology and educational technologists into close communication with peers in related communities of practice. The issues of performance and measurable production as exemplified in the presentation of peer-reviewed papers cannot be ignored, but this chapter is more focused on the role of professional conferences for the emerging field and profession of educational technology in supporting rich conversations at the boundary. This may be especially important in a continent such as Africa where most people in this field did not start out as educational technologists. From this perspective, the conference is a special event where members of multiple communities engage in boundary experiences within a temporary community of practice, which exists primarily to facilitate these exchanges.

The theory of communities of practice includes several useful theoretical resources which can be brought to bear on the analysis of both face-to-face and online conferences. We will refer to an analysis of participant statements and actions from e/merge conferences to establish whether elements of communities

of practice exist within the conference starting whether peripheral participation is seen as legitimate and supported by the program, leadership, and processes of the conference. Wenger suggests that the three main forms of boundary encounters experienced when members of one community step into the border zone with other communities are to engage in "one-on-one conversations," to "visit a practice," and "when delegations of numbers of participants from each community are involved in an encounter." Examples of all three of these types of boundary encounter are to be found in the e/merge online conferences.

21.3 Online Conferences in Professional Development

We are struck by a statement by Diana Laurillard (2006) that "attempting to construct equivalence between online and face to face conferences is difficult as the medium offers an entirely new way of 'doing' conferencing – one which is not widely exploited because we don't really know how." The key challenge which we face in designing and facilitating online conferences is that of remediation (Boulter 2001), which refers to the way that new electronic media forms refashion or "remediate" existing forms. Like plays to film, so online conferences both echo face-to-face conferences, and yet through the possibilities of the technology something new is being created which did not exist before.

The literature about online conferences is both limited and subject to ambiguous and shifting definitions. The term "online conference" has often been used to refer to any kind of purposeful, time-bound online communication including online discussions and chats in formal courses (Salmon 2002; Gunawardena 2001). The technology for these processes has been available since the development of communication features for the PLATO mainframe in the mid-1970s. Of more interest here is the use of online communication to extend and replace face-to-face academic and professional conferences. Green's (1998) guide to moderating online conferences focuses on non-pedagogical conferences, that is to say online gatherings which are not part of a formal course or instructional package (p. 7)

The use of online conferences in professional development dates back to at least 1984 when Lisa Kimball (Kimball, undated) designed and facilitated the Symposium on Facilitating Online Groups which involved many of the pioneering researchers in the field. The symposium was run on a mainframe computer and ported to participants on several networks. In 1992, Terry Anderson organized an e-mail conference to cater for distance educators who lacked the funding to be able to travel to a face-to-face conference (Anderson and Christiansen 2004). Such conferences became more prevalent during the mid-1990s including a list serve-based conference on Course Development for the World Wide Web run over three weeks in April 1996 with over 800 participants (Rubin 1996). Shimabukuro (2000) states that "Virtual online conferences are professional education events that serve as alternatives to traditional face-to-face (F2F) conferences." Anderson and Christiansen (2004) describe online conferences as providing "an intense network-mediated Interaction"

which "takes place over a limited period of time using a combination of synchronous, asynchronous, and immersive technologies on a global scale."

With improved access to the Web, the online conferences of the late 1990s increasingly shifted to Web-based interaction including the use of websites for sharing resources and for online discussions and chats. Shimabukuro and Anderson and Christiansen report significant benefits for participants in successful online conferences. Shimabukuro refers to the "greater potential for interaction," while Anderson and Christiansen cite improvements in networking, professional development, and community of practice development. Anderson and Christiansen conclude that "The opportunities provided by online conferences for knowledge creation, unbounded by space or time, warrant future efforts to realize the potential of online conferences for innovative professional development and support" (p. 27). Westwood (2004) reported very positive participant perceptions of an online conference held in 2002 including flexibility, access to multiple perspectives, and the ability to meet in small groups.

Since the turn of the millennium, online conferences based in Australia, Europe, and the United States have made increasing use of synchronous collaboration technologies to allow participants to have a simulated experience of a live conference across distance. This change of toolset became possible with the improved availability and take-up of broadband internet connections in developed countries as well as cheaper and more efficient online meeting technologies. The recent explosion in the use of 3D virtual environments such as Second Life is the latest exemplification of this trend. Other drivers for the increased use of online conferences within the last 8 years have included an aversion to air travel after the terror attacks in New York on September 11, 2001, rising transport costs, and a growing desire by individuals and organizations to reduce their carbon footprints (Hischier and Hilty 2002). In Africa, the major drivers for online conferences are likely to be the high costs of conference travel and accommodation and ongoing improvements in bandwidth. By global standards, most African countries still have very limited bandwidth, so asynchronous conversations still provide the core interactions for online conferences which target African participants.

Participation in e/merge

The first e/merge conference in 2004 had 163 participants, mostly from six African countries. With each e/merge conference, participation has grown through word of mouth from previous participants and the extension of our geographic base beyond Southern Africa. Two hundred and twenty-four participants logged into the 2008 conference to participate during the two weeks of online discussion about the use of educational technology in Africa. While most of the participants came from South Africa, there were also delegates from 11 other African countries including Senegal, Nigeria, Ghana, Ethiopia, Tanzania, Kenya, Uganda, Mozambique, Zimbabwe, Botswana, and Namibia. Participants from other continents joined us from

(continued)

as far afield as United Kingdom, Norway, Iceland, United States, Australia, Canada, and the Philippines.

At least 80 participants logged in during each of the weekdays and some even during the weekend in the middle of e/merge. There was always a critical mass of participation in the online discussions and live events, yet the daily logins in relation to the total of 224 logged in participants over the whole conference also suggest that e/merge participants came into the conference on days when they were available and for interactions which were of interest to them.

Asynchronous discussions took place across 31 forums, and 1,617 messages were posted in 86 discussion topics. Among the scheduled discussions, the topics relating to ICT in Schools and Adult Learning attracted the most attention. The "Cafe" was the most popular of the community building forums, and there were some lively exchanges in the Open Space forum where participants could initiate new conversations. The conversations were often enhanced by peer facilitation given that presenters formed a high proportion of e/merge participants. As is often observed in online community settings, a relatively small number of participants was responsible for most of the posted messages. Eighty percent of the messages in the e/merge 2008 forums were posted by 40 very active participants. The synchronous conversations provided engaging experiences of live interaction and raised the level of energy in the conference. These ranged from the sometimes deeply reflective and often highly amusing tea time chats to the live presentations, workshops, and discussions led by presenters.

21.4 The e/merge Model

The e/merge conferences are primarily designed to share good practice and knowledge about educational technology innovation within the further and higher education sectors in Anglophone Africa, as well as to strengthen communities of researchers and practitioners. e/merge 2008 focussed on professionalizing the new practices of teaching with technology. This included sharing stories, sharing good practices, and sharing research. The conversations in e/merge 2008 attempted to engage with our regional context of unequal access to technology and to education within a global context of changes in teaching and learning tools and practices. The core target participants for e/emerge 2008 were educational technology researchers and practitioners based in Southern Africa and the English-speaking African countries in West and East Africa. Participants from other regions who have an interest in the use of educational technology in Africa were also warmly welcomed and in many cases actively recruited as presenters who could bring global developments and debates to the mostly African community. The

involvement of presenters and participants from several continents also provided an enhanced opportunity to bring locally mediated practices such as the use of mobile technologies in learning into the conversations with African and global participants.

All three e/merge conferences have used the same basic model which was designed for an African context based on good practice from other online conferences models internationally, refined and honed through practices over time. At the core, it is a time-bound special event that only happens every 2 years within a period of 2 weeks. The experience is so intense that participants, presenters, and hosts need to know that it has a defined start and end and that it is easy to join new conversations on the Monday and Wednesday of each week when new phases on conversation start about specific clusters of topics. This allows participants to manage their own time and to pursue the conversations which interest them.

21.4.1 The e/merge Conference Strategy

The conference uses multiple strategies to achieve its aims. The assumption is that participants have different expectations and that they arrive with different abilities. Different elements of the conference structure meet these needs and abilities in a variety of configurations. e/merge involves many different kinds of conversations including scheduled conversation and participant-initiated conversation, community building and formal interaction, asynchronous and synchronous interaction, as well as presentations and workshops.

1. *Formal conversations about presentations*: These are the scheduled conversations about specific presentations and papers. Authors of peer-reviewed papers play a significant role in raising the level of conversation in e/merge. Perhaps, this is what makes e/merge into a conference rather than a workshop or perhaps simply a party! While the presentations are increasing from a practitioner perspective, researchers make a vital contribution.
2. *Community building conversations*: The formal conversations go better if participants are able to engage with each other as human beings in spaces such as the "Welcomes" forum and the "Cafe" forums. We have also found that many participants only post in the community-oriented forums but their sense of connection and community supports their networking and may also be what keeps them in the conference as a whole. The apparently frivolous nature of many of the interactions in the community building conversations may strengthen the sense of connection between participants and provide opportunities for relaxed interaction which ease engagement with the more serious conversations.
3. *Participant-initiated conversation through the Open Space forum*: There cannot be formal presentations on everything within the field of e-Learning that our participants care about. We always have an Open Space forum where participants can start new conversations and join conversations initiated by their peers.

Sometimes these are about new topics and often they are about insights which link conversations across multiple presentations.

4. *Synchronous interaction through scheduled chats*: The sense of being in the same place at the same time and the spontaneity of interaction enhance both the sense of community and the energy level of an online conference. In e/merge 2004, most of this happened in a text chat room with a minority of participants joining live events in meeting rooms with audio, video, and slide presentation features. Since then, the balance has shifted significantly as participant bandwidth has improved. By 2008, institutional firewall policies were a more significant obstacle to participation in synchronous interaction.
5. *Workshops*: From e/merge 2004 on, we have included online workshops where participants can learn new practices in areas such as online facilitation and teaching with new tools. The "Connected Teacher Toolkit" workshop in e/merge 2008 exemplified this. Participants had opportunities to learn about tools and develop skills in social networking, blogging, microblogging, and tagging in the use of a newsfeed aggregator.

Warm, productive participant experiences do not happen automatically. Useable, well-designed technology and a good selection of presentations led by informative, engaging presenters who value collegial conversation can make a huge contribution, but the trained online conference hosting team definitely needs mention here. Their work is decisive in our attempts to create a warm communication environment which encourages participation and to provide focused support to specific discussions. Their roles include welcoming participants, communicating and holding a sense of community, low-level technical advice to participants, validating the contributions of participants, providing regular summaries of conversations to keep participants on track, and asking enabling questions to deepen and re-energize conversations.

21.4.2 Communities of Practice or Network?

The concept of communities of practice has often been used in rather loose ways since it became fashionable in some organizational change and educational circles during the late 1990s, so we need to ask whether the concept of online communities of practice with implications of structure, some hierarchy, and strong ties can offer a useful lens for exploring interaction in online conferences. Perhaps, as argued by Ryberg and Larsen (2008), we should really be talking about networks which are characterized by loose ties and emergent structure where individuals seek to access and engage with the specific information resources and individuals. The arguments about more rigorous application of definitions may also be approached through another layer of conversation about the associations of these labels. Downes (2007) eloquently supports the use of personal

learning environments to support voluntary engagement with members of a network rather than a closed or imposed group.

Perhaps this question can be considered by comparing the e/merge conferences to a more typical online conference model where all interactions are complete within 3 days and there is limited opportunity for community building interaction beyond the topic-based conversations. These conferences may be designed for a specific community with a shared history, or they may be open to the world. In the latter case, the interactions are often more about network than community, especially as the number of participants increases.

By contrast, the e/merge conferences are designed to facilitate boundary conversations across multiple communities of practice. As conferences go, e/merge with up to 224 participants is not very big. Considerable facilitator time and energy is devoted to bringing participants into the conversations and extending the interactions. The discussions persist over a period of 2 weeks, and each phase of discussion lasts 3 days. The implication is that participants who engage intensively with even a single phase of conversation are likely to benefit from network effects and also to gain some sense of involvement in a time-bound conference community across multiple communities of practice. However, those participants who dip into the conversations a few times and disappear will have a fleeting experience of involvement in a network.

21.4.3 Encounters at the Boundary

The e/merge online conferences included all three of the types of boundary encounter suggested by Wenger:

1. Participants used the conference as an opportunity to start "one-on-one conversations" with presenters and other participants. While most of these are invisible to the larger community, some parts of the shared online discussions were simply one-to-one conversations in a public space. Some presenters have also reported ongoing interaction with particular participants.
2. e/merge provided many opportunities for participants to "visit a practice." In e/merge 2008, one of the most powerful examples of this kind of boundary encounter was the Connected Teacher Toolkit workshop where participants learnt about the application of Web 2.0 tools such as blogs, newsfeeds, microblogging, tagging, and social networking to educator communities of practice. The workshop provided participants with guided experiences of using these tools for their own communication during e/merge. Beyond this,- it is arguable that simply participating in the conference constituted a visit to a cluster of practices associated with online conferences. This would be especially true for first-time participants in online conferences.
3. There were several examples where a "delegation" with participants from a certain community is involved in an encounter. Many of the participants joined

e/merge together with colleagues from their universities. This meant that participants from several African countries had opportunities to support each other face to face and online during the two weeks of the online conference and then to reflect on their experience and learning from e/merge after the conference. These benefits were evident even in the case of a small yet very active group of delegates from Makerere University in Kampala, Uganda, who were able to make very constructive contributions to three discussions about presentations by their peers.

While all the participants were part of the time-bound e/merge community, they were also stepping to the boundaries of their communities of practice whether or not they presented, and whether they posted messages vigorously, or simply read contributions by other participants. Part of the facilitation challenge was to create enough of a sense of both safety and shared adventure that participants would be willing to persist with the uncertainties of their boundary encounters. The online conference environment and experience were the boundary objects which were shared by all but perceived differently by participants depending on their familiarity with online learning community events and their professional focus. Thus, online facilitators, developers of online environments, technical support staff, and online educators all have different insights to share about the nature and usefulness of the conference environment and experience.

21.5 Participant Experiences of e/merge

Online conferences allow modes of engagement which are unavailable to participants in face-to-face conferences because the online medium allows for flexibility of time, place, and contexts. Location and time zone become irrelevant to participation. Beyond this, there can be different levels and types of participation. Many participant statements during the e/merge conferences and in the conference evaluations confirm this assertion for the e/merge conference in relation to time and location. Our study of the e/merge 2004 conference (Carr et al. 2005) reported that several participants reflected on the e/merge 2004 online conference as "a time bound experience of learning in a community of practice" (p. 22). Key themes in an analysis of participant feedback included learning with peers and from experts, learning that could be transferred to practice, and legitimate peripheral participation. Several statements by participants in e/merge 2006 and 2008 suggest that this may also hold true for the more recent conferences. There were opportunities for different levels of participation and participants were able to share scholarship and practices across community that was simultaneously African and global.

Time: There were several statements referring to participation across time zones in asynchronous discussions and the access to a record of activities that had been missed. Z from Hong Kong said that "the best thing was going to the forum and

finding folk had left questions and ideas there." H from Nigeria stated that "My consolation is that the site and its contents would still be accessible even after the conference is over." The blurring of time meant that the conference could transcend the logistical limits of face conferences by joining e/merge while involved in other activities and that participants were also able to engage in several parallel sessions. M from Iceland joined e/merge while in a face-to-face conference in Athens, and J from Uganda was delighted that, "you really can be everywhere, in all rooms."

Location: These statements referred to participation on the move and from multiple locations. P from Nigeria took part from "from several locations but none of them was at my University . . . or Cape Town," while B from South Africa said "Great to be at emerge again. . . I will be connecting from Cardiff, Munich and London." The most serious challenges faced by designers and facilitators of online conferences are about creating a sense of shared online presence, building learning community, supporting high-quality engagement, and ultimately supporting the growth of both the temporary community of practice within the conference and persistent communities of practice beyond the conference. Some of the participant feedback suggests that we may be on the right track.

Online Presence: Social presence is communicated through multiple channels which convey information and cues to other participants (Thatcher 2006). At a technical level, this would include showing a list of all participants who were online and logged in to the conference at the same time. At a more directly social level, effective facilitation in both informal and formal spaces can allow participants to gain a strong sense of the presence and human engagement of others. A from South Africa stated that "This conference has changed my perspective regarding the potential of ICT to foster high quality human engagement. As I say goodbye, I feel like one waving at a community that I talked, dined, and stayed under the same roof with."

Community Building: Every e/merge conference attracts new participants, particularly as our connections with universities beyond Southern Africa improve. The e/merge facilitators were able to welcome new participants and provide encouragement and assistance concerning the processes and technology of the online conference. It would be a mistake to lose the participation of enthusiastic new participants like R from South Africa who stated that, "it really my first experience of an online conference . . . so as you can imagine, everything is magic for me!" or Y from Uganda who shortly after joining the conference said "I am excited to be participating in my first E/merge conference. I just logged in now to find very many messages." After three e/merge conferences, there is now a solid core of an e/merge community who keep returning so that a quarter of e/merge 2008 participants had been involved in e/merge 2004 or e/merge 2006. Z from South Africa stated that "I am very excited to be here again as the previous Emerge directly resulted in my online learning fascination and learning journeys." C from the United Kingdom posted that "I can't wait for the conference to (really) kick off on monday! my third. . .really looking forward to all the discussions, meeting new people, old 'faces'." Such regular participants are able to model the practices of participation in an online conference and to help

newcomers feel welcome whether they are experts or just starting out with their first online teaching experiences.

Quality of Engagement: An online conference is able to offer opportunities for engagement which would be unavailable in a face-to-face conference where economics often dictate very limited time for discussion. The opening e/merge 2008 keynote sparked a discussion involving 42 messages by 11 participants. In a face-to-face conference, keynotes rarely include time for extended conversation. Thatcher 2006 cites several studies of online conferences which demonstrate that participants perceived that the quality of papers and discussions was higher than in a face-to-face conference. There were several statements noting the high quality of the conference, including B from Australia who "noticed a high standard of discussion, presentations, papers, and workshops" and N from the United States who was "extremely impressed this time with the quality of the discussions, the presentation and the level of meaningful interactions with participants and presenters."

Different levels of participation: Participants who simply chose like B from Australia to "lurk and learn" or like Y from Uganda to "dip my toe in," were welcomed and encouraged. There was also a core of about 40 highly active participants. H from South Africa reported the different ways of participating in e/merge 2006 when she stated that "Some lurked, some dropped occasional pearls of wisdom, and others left footprints of their visit everywhere. Some were online permanently, others parachuted in and out for concentrated times, and some multiplied themselves virtually."

Sharing Practices: Presenters, workshop leaders, and facilitators were able to demonstrate and model new practices, and participants were able to learn from each other. L from South Africa (e/merge 2006) was able to identify others with shared professional interests. He reflected that "I was in this journey and have found out that most of the things that I scratch my head thinking of, are faced by a couple if not a dozen more people." The discussion about three papers on ICT in schools stepped right across the divide between research and practice, resulting in 116 postings and conversations driven by participants sharing their first-hand experiences of school-based projects. There were also statements by participants about the transfer of practices learnt in e/merge to organizations. J from South Africa reported that "I have already submitted a glowing report of the conference to my bosses and suggested how what I have learnt at e/merge should be taken forward in my work" and P from Zimbabwe said that "I walk away richer in e-knowledge, in e-friends and I see new e-horizons."

Linking to the broader community: Participants valued the access to colleagues across several continents including international keynotes who can add value to local debates. B from Australia remarked that "besides this conference having re-motivated me, I think the sense of complete commitment one gets from the team who organized the event makes one feel that we are all involved in something very big and worthwhile" while W from South Africa noted the opportunity to work with an expert from another continent "and not just lurk and 'stalk' . . . her research all over the web."

21.6 Conclusion

After running three of the e/merge conferences over a period of 6 years, we have found that an online conference is more than a poor cousin to often expensive and inflexible face-to-face conferences. Participants are able to take advantage of the opportunities for flexible participation across time and far flung locations. A community has formed around the event where many participants return for another e/merge because of the attraction of the intense experience of learning in both continental and global community which has elements of both a conference and an online party. The interactions across the boundaries of multiple communities of practice support participants in pursuing conversations with new and well-known colleagues, including opportunities for learning about new developments in e-Learning and new practices which are transferable to their own contexts. In our experience, a well-designed and facilitated online conference is a highly valuable strategy and environment for growing and supporting communities of professionals and scholars, which break beyond the economic and logistical constraints of face-to-face conferences and provide further opportunities for extended reflective conversation and shared experiential learning.

Chapter 22
Conspiracies and Competences

John Erpenbeck

Abstract Universities and other higher education institutions are predominantly organizations that convey knowledge, more than developing competences – these are often the verbally proclaimed but only rarely achieved goals. There can be two reasons for this discrepancy. First, conveying informational as well as subject-specific and specialized knowledge can even today be planned, assessed, and checked much more easily than conveying competences – an approach for teaching, which needs new patterns of thought and actions. Teachers and learners, assistants and assessing staff, and especially actors and planners who are concerned with questions of educational politics therefore form a "conspiracy of assessors," which has chosen the simpler and seemingly safer approach. This approach, however, seems to be ignorant of future developments. Second, conveying competences needs different forms of learning and teaching than conveying knowledge. The question of the acquisition (interiorization) of rules, assessments, and results of assessments (= values) and norms in the form of the learners' own emotions and motivations is central. Becoming emotionally labilized is pivotal to this appropriation. Emotional labilization also provides a criterion for assessing the effectiveness of Web 2.0 instruments for developing competences.

22.1 Intended Competence Development

Universities and other higher education institutions (HEIs) are to this day mainly institutions of conveying knowledge and not of developing competence.

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Developing competences can hardly be avoided. At work, while playing, during sports, in the family, in a club, even at school, in job training, or at university, we appropriate competences while carrying out actions. Nevertheless, we have to differentiate between that literally ubiquitous and often almost incidental development of competences and the intended development of competences. The latter demands dealing with questions about the manner in which it is possible to create systematic, predictable, and lasting conditions for a desired development of competences. This kind of conveying competences is suitably termed "enabling didactic" (Arnold and Schüßler 2003). In the following lines, I would like to focus on the area of education, especially when it comes to HEIs, and then pose the *quo vadis* question – we are still quite far from answers. This already explains why a book like this is so important.

It cannot be denied that even when knowledge is dryly imparted, as well as under conditions of directive learning, the students acquire competences in the sense of self-organized learning. The student of medicine, who is importuned with – to him – impossible-to-understand and boring formulas, which he can learn by heart in the best of cases, does not obtain specialized competences, not even longer lasting knowledge. Nevertheless, he obtains *personal* competences by maintaining his self-confidence against agonizing humiliation. He also obtains *activity-related* competences by learning to save up his strengths and switching off during lectures that become incomprehensible to him. Finally, he obtains *subject-specific-methodological* competences by using tricks and auxiliary devices in situations in which he is tested. The competence, however, to be interested in problems of physics and approach them independently and joyfully and find creative solutions – in short, everything that he was initially supposed to learn – he does not obtain in any way.

It is one of the biggest problems of traditional education at school, as well as of numerous university lectures, that much knowledge, but only very little competence, is conveyed. Well-known critics of the school system find fault in school education being subject- instead of competence-oriented and have come up with a large number of arguments for this, which are hard to deny (Struck 2007). Learning forms that are competence-oriented are still experimental advances in nature (Heitkämper 2000).

That said, the ignorance when it comes to competence-oriented forms of learning is easy to emphasize. Imparting informational knowledge can quite easily be described and checked. It is easier by far to juxtapose the kind of knowledge offered during lessons or lectures with that learned by students, evaluate it in forms of tests and exams, and grade it. Likewise, normed and standardized tasks make the mastering of problem-solving algorithms comparable and assessable on a national as well as an international level.[1] The question of competences, however, remains in the background: do children, teenagers, and students learn to deal with problematic

[1]Comparative tests like PISA, TIMSs, PIRLS aim at comparing knowledge niveaus on an international level.

situations in a self-organized and creative manner, using the knowledge they have acquired? Are they led from knowing to being able to do? Universities and teaching staff proudly point at the mostly very current informational knowledge that they have conveyed. Students can clearly and by means of grades for exams and tests prove that they have mastered exactly this kind of knowledge and are able to reproduce it. Grade averages and comparative assessments enable the distinct positioning of a university when it comes to achievement. And the parents, even the grandparents, of a student delight in his grades. Why should a system characterized by such simple and clear possibilities for assessment and mostly also feelings of success for all participants – students, universities, teaching staff, parents, educational politicians – be replaced by something as vague and methodologically hard to master as a system of assessing and developing competences?

This "conspiracy of assessors" hardly takes into account that the organizations, in which most of the graduates are ultimately going to work, are much less interested in the subject-specific knowledge which will soon be outdated and is furthermore accessible to all competitors. In fact, they are often presumed to possess this kind of knowledge. Rather, they are interested in the graduates' abilities to act creatively and in a self-organized manner in open and new problematic situations, as well as in their competences. An exception to this is the area of vocational training, because the teaching staff for vocational training directly experiences their customers' displeasure when it comes to insufficient or lacking competences. That is why, in that area, advances in the direction of assessing and developing competences are much better developed than at university and HEIs (Tenberg and Hess 2005).

22.2 Competence Development in Higher Education

Only a small number of higher education institutions and universities propagate a competence-oriented program of studies.[2] They follow the approach of systematically integrating the development of competences into their curriculum, not only by offering additional programs for developing competences.

The University of St. Gallen (Switzerland) has consequently integrated aspects of competences according to a European standard into all its programs for the first time by furthering *personal* competences (self-responsibility, self-reflection), *activity-related* competences (leadership), and *social* competences next to the normally sustained *subject-specific-methodological* competences (Gomez and Spoun 2002). It proclaimed in their "Vision 2005" under the title of "leading ideas for studying" that students would obtain the "best of all possible educations"

[2]In German speaking countries these are e.g., the University of St. Gallen, the University of Applied Sciences of Middle Classes in Bielefeld, the Steinbeis-University of Applied Sciences in Berlin or the University for Applied Management in Erding.

at this university, relating to their knowledge, abilities, and development of a personality in the sense of a self-reflexive and socially as well as culturally responsible empowerment. The competences to be developed are made clear and feasible by describing and defining them individually. In their "Vision," the University formulates their aim "to be able to prevail as a leading university for economics on an international level and let graduates who have been educated in the best of possible ways take their places in science, as well as practice." This comprises a solid conveying of competences. That is why studies there have been modernized into a three-level model since 2002. Its 1-year basic level consists of an assessment stage, which is made up of a shared basic program of studies over the course of two semesters. Three leading ideas define the concept behind the studies of the University of St. Gallen:

Students first – students receive the best of all possible educations and are actively involved in the continual improvement of the studies.

1. Organize your own studies – students plan their programs themselves, become involved in the daily academic life, and acquire knowledge and abilities, also thanks to their own initiative in practice.
2. We demand and further personality – students obtain and develop individual competence, both subject-specific as well as interdisciplinary.
3. Studying in the triangle of science, practice, and personality – what does this mean?

Science – that is research and teaching. Business administration, national economy, legal sciences, political sciences, business and economics education, cultural and social sciences, arts and their respective segments are concerned with theoretical questions and practical tasks, in order to gain insights and experiences for problem solving. Research provides the knowledge needed for teaching and makes it available for discussion. Thus, science is the basis for acquiring expert and reflected theoretical knowledge.

Practice – this is social life as well as the areas of work in which this knowledge is applied and where experiences and tasks for science are formed. Therefore the University of St. Gallen educates for practice with the help of practice.

Personality – this is distinctive individuality which participates in creating our world by using the acquired knowledge and abilities; which renders services for one's own goals in life as well as for society; which can and wants to take over tasks in leadership in organization in public life and in private circles while not neglecting ethical responsibilities (http://www.studium.unisg.ch).

The concept for studies at the Fachhochschule des Mittelstandes (FHM) comprises four areas of competence: in a subject-specific-methodological way the general economical competence and the specific competence in the area of handicraft management; personal competence; socio-communicative competence; as well as activity competence and empowerment.[3]

[3]Fachhochschule des Mittelstandes (FHM) (2008): Leitbild. Studieren mit Karriereaussichten. Bielefeld.

In the area of *subject-specific-methodological competences,* national- and business-economical knowledge, as well as methods for accounting and controlling, which are necessary for planning and controlling economical units, are conveyed with regard to general economical competence. The particular focus on handicraft is paid attention to when it comes to the specific economical competence. Therefore, questions and topics of handicraft management are central.

Personal and social competences play a pivotal role in the later vocational life. The purposeful buildup and further development of abilities when it comes to self-management and self-marketing enable the students not only to study effectively at university, but furthermore prepares them for a successful career.

The fourth area of competences, *activity competence and empowerment*, challenges and encourages the permanent exchange and cooperation with organizational practice (Fachhochschule des Mittelstandes 2008).

In a special way, the Steinbeis-Transfer-Institute "School of International Business and Entrepreneurship" (SIBE), one of the biggest internationally orientated Steinbeis-Transfer-Institutes, follows the principle of a consistent philosophy for the development of competences for young managers and executives. It has implemented national as well as international competence-based standards in vocational training with the concept of a project-competence-program of studies (PKS). Students develop sophisticated practical projects in cooperation with organizations, which are implemented at the companies themselves. Systematically working with projects relevant to the companies and the development of competence resulting from this are central parts of all programs of studies. Furthermore, the development of competences of each student is documented and mirrored back into the course of studies, using modern methods of measuring competences. Thus, the organizations are not only offered custom-fit qualifications in the sense of a practical training of graduates with a state-approved and internationally accredited master's degree for their employees. This kind of studies rather presents a consistent continuation of the dual principle in the area of competence development for potential young executives. Cooperation with leading international universities and HEIs and carrying out concrete projects for specific clients – usually well-known and important companies –secures not only the unique characteristics of this offered course of study, but also the gaining of practice orientation and the buildup of the required competences, which converge in the management competences of *personal, activity-related, subject-specific-methodological and socio-communicative* competences. The PKS turns out to be a true win-win situation for the companies providing the projects as well as for students involved in these projects. Learned knowledge does not remain abstract, but is consolidated in the form of competence with a concrete relation to practice (Löhn and Faix 2008).

The University for Applied Management LLC, Erding, founded in 2007, also formulates its claim for integrating the development of competences into its course of studies: "Knowledge is not power. It is being able to act that makes the difference. The competence of acting makes human beings attractive – to employers, colleagues, fellow humans, and society. Those who want to be successful above average have to be able to bring above-average use. This requires an adequate

profile of competences. A course of studies at the University of Applied Management offers you ideal qualifications for developing your *personal, social, methodological and subject-specific* competences into a unique and holistic profile of competences." The combination of studying at university with intensive and comprehensive practical experiences has also proved of value at the University of Applied Management. It creates the connection between scientists and practitioners; it gears the course of studies towards the requirements of the practical needs. Graduates of this dual course of education can be employed immediately, earn money faster, and develop more quickly than "mere" students (FHAM 2008).

It is to be expected that within the next few years several universities will establish their own systems of competence management, as well as, on their basis, their own procedures for measuring and developing competences.

Universities and HEIs that have established facultative systems for certifying and developing competences have to be looked at separately. Only two of numerous others shall be named at this point:

At the Higher Education Institution of Pforzheim, which has been dealing with the topic of competences for a while, a program for advancing competences in the department of economics and law (SIK) was founded. This program conveys what it terms key qualifications, which comprise *social competences* (the ability to work in a team), the *methodological competences* (among other things the ability to make presentations), and the *personal competences* (the ability to convince people and trustworthiness) as well as additionally the *intercultural competences*. These key qualifications are conveyed via seminars. The pivotal thought of the concept consists of the following interlocking of competences with the subject-specific studies with the aim of developing the ability to use and successfully implement the contents of the studies in the future jobs.

The Institute for Future-Oriented Competence Development (IZK), Bochum, is an addition to the subject-specific education of engineering and economics in the form of a centralized scientific institution of the University of Bochum by providing interdisciplinary educational offers. Under the label *key education,* it furthers interdisciplinary dialog, lateral thinking, and critical reflections and encourages organizational thinking and acting. Numerous classes aim at the development of *socio-communicative, methodological, and personal* competences.

In a survey of its "competence series," the Institute has summarized the opportunities for competence development next to the students' own subject-specific studies (Brinker and Müller 2008).

22.3 Cultural Change and Resistance

All developments dicussed above are part of a general cultural change that has seized the European universities and other HEIs. It has its adversaries, who resist the change. That resistance is given a further edge when e-Learning sequences enter into the equation. In another paper we have shown that especially Web 2.0

instruments are ideal instruments for conveying competences. Nevertheless, the principal (maybe better, general) will to support competence development *at all* needs to take center stage (Erpenbeck and Sauter 2007).

Counterarguments, however, start at a much lower level. There is doubt concerning the possibility to theoretically describe, practically comprehend, and in perspective assess competences. Today, we can answer these questions affirmatively without any doubt. In contrast to the area of theories of personality, among scientists researching competence, a fairly uniform reference to basic competences has been established (Erpenbeck and Rosenstiel 2009). A broad and valid arsenal of methods is available for grasping the concept of competences (Erpenbeck and von Rosenstiel 2007).

The term *competences* is often used unclearly and in a broader way than it should be. If one compares the definitions for competence used by different scientists, a picture of seemingly great heterogeneity emerges (Sydow et al. 2003). A closer analysis of the definitions of individual competence – and these are talked about here – results in finding the following common points:

- *Action orientation*: Competences are action-oriented, they want to grasp and improve future possibilities for actions
- *Relation to abilities*: Competences contain the abilities to act, but no random ones – such as merely repetitive or reproductive – but those that help solving problems in a self-organized and creative manner. They are dispositions for mental and physical actions in a self-organized manner, if you understand dispositions to mean the totality of all inner requirements, which have been development by a certain time of acting, for psychologically regulating the action (Erpenbeck and Heyse 2007).
- *Reason for self-organization (complexity*): Generally speaking, competences can be understood as being complex, adaptive systems – especially of human individuals, who have evolved over time for the purpose of reflectively and creatively solving problems by acting with regard to general classes of complex, selectively meaningful situations (paths) (Kappelhoff 2004). On one hand, it is assumed that competences have come into being in a phylogenetic, ontogenetic, and actualgenetic way. On the other, it is made clear that not every problematic situation can be solved competently.
- *Basic Competences:* Most of the scientists researching competences assume quite uniformly that there are certain basic competences (also: key competences). In the course of the text, I have highlighted them again and again, namely personal, activity-related, subject-specific and methodological, as well as socio-communicative. Activity-related competences are often counted as personal or socio-communicative, but are always named. Scientists researching personality, for example, do not work under the favorable conditions of there being a general consensus concerning basic dimensions.
- *Competence measurement:* There is also a consensus concerning the fact that competences can in principle – with different methods and to a different degree of accuracy – be measured. Competences can, for instance, be measured

quantitatively (tests), qualitatively (competence passes, competences biographies), by simulation (for example in a flight simulator), and in situations (work sample). Objectivity, validity and reliability of the procedures used can be estimated (Gnahs 2007). As a rule, the informative value of these systems is more precise than the systems for grading at schools, which have often been analyzed and criticized.

- *Competence development:* Scientists and employees involved in this topic might not agree about the individual methods, but they do agree about the possibilities and necessities of competence development. There is also a consensus about the fact that competences can in principle not be passed on using mere forms of knowledge conveyance.

Only few approaches in the pedagogic-psychological framework possess such a great stock of common experiences, beliefs, and methods!

Competences are not informational knowledge, they are not even knowledge in the narrow sense, but they are knowledge about actions, or knowledge in a broader sense – to use a figure of thought used by the Munich model of knowledge (Reinmann-Rothmeier 2001). Competences belong to the human capital; they even form one of its central areas as competence capital. They belong to the "intangible assets," that is the non-material constituents of an organization. They are not, however, as the other meaning of "intangible" suggests, hidden or impossible to grasp. Modern calculation of human capital includes them quite naturally. Moreover, they point at the pivotal meaning of competences for modern working and professional life.

22.4 Universities on the Path to Competence?

Why are universities, apart from exceptions especially in the area of private universities, as mentioned above, nevertheless so hesitant to follow down the path of competences?

The simple reason is the above-mentioned "conspiracy of assessors." The more profound reason for the resistance to step onto the path of competences is, however, more interesting theoretically and politically. Ever since the many fundamental studies of learning through experience, of circumstantial learning, situated learning, acquiring expertise, and the basic insights of constructivism and synergy, which relate to pedagogical processes, it is apparent that abilities, informational knowledge, and qualifications are indispensable foundations for competence development, but are not competences themselves. Competences are actually constituted by interiorized rules, values (validation), and norms: that is, rules, values (validation), and norms transformed into one's own emotions and motivations. The process of interiorization, however, is much more difficult to control, more open in its result, and basically entirely different in its makeup than

the simple passing on of knowledge. It is rather coaches, mentors, trainers, and competence managers who work on its design than teachers at school or university. Additionally, such processes can currently hardly be controlled or administrated on a federal or national level. That is why competence-oriented learning and studying is rejected implicitly, but sometimes also explicitly on a political level.

This can be demonstrated by using the example of the political rejection of nearly all creative forms of learning and teaching since the existence of the Federal Republic of Germany. If there were only three or four of such approaches – for example Waldorf, Montessori, Wagenschein, Freinet, it would be possible to find a reason for the rejection in faults that these approaches possess. There is, however, according to Heitkämper, a number of approaches in the three-digit range (Heitkämper 2000). Almost all of them focus on developing competences instead of passing on knowledge. This makes it hard to believe in unfortunate coincidences. Rather, it leads one to stating that competence development, even though it has been demanded by numerous university teachers and didactics and is urgently necessary for the economy, is made very difficult by a politico-administrative controlling behavior a la PISA, which focuses only on mastering and passing on of knowledge. Scientists researching competences should therefore refer overly ambitious demands back to the politicians.

22.5 Interiorization: Completing the Circle

The "conspiracy of assessors" is certainly an important reason for explaining why it is so difficult to establish competence development at university. A further reason, which relates directly to the learning process and the learner, is of even greater importance. It touches opon the basic difference between mere conveyance of knowledge and competence development.

What distinguishes competences from skills, informational knowledge, and qualifications? Without getting to the bottom of this question (Franke 2005), one can immediately state that with competences – just as experiences (Erpenbeck 1999) – something is "added" which enables us to act. Abilities alone, informational knowledge alone, qualifications alone do not lead the path to acting in situations that are problematic or in which decision has to be taken. These need *emotional-motivational* assessment of the situation, as well as the possibilities for acting, the actors, and the consequences. Such assessments *always* take place when emotions, feelings, desires, assumptions, doubts, fears, hopes, needs, interests, attitudes, opinions, points of view, convictions, prejudices, rejections, etc., play a part in our decisions. This is de facto always – unless our problem can be reduced to a simple factual decision.

The decisive point is, such *emotional-motivational* assessments can generally not be acquired in the say manner as skills, informational knowledge, or qualifications. Assessments and the results of such assessments can only lead to an action if

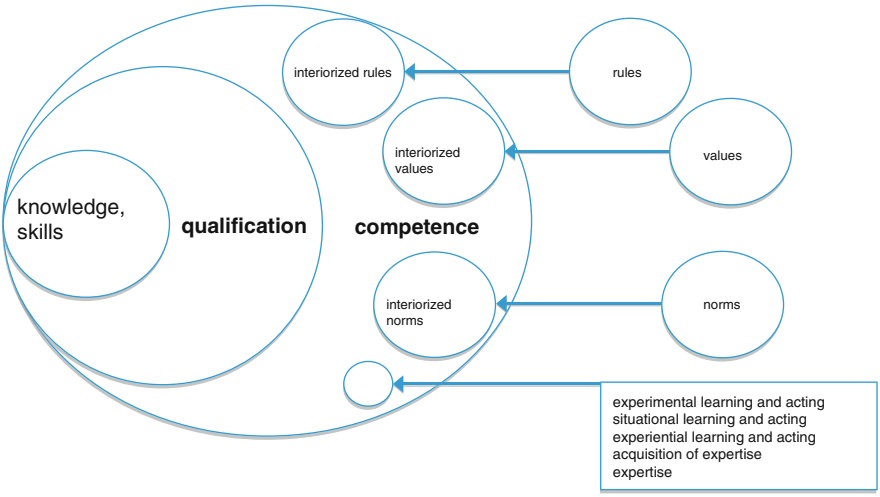

Fig. 22.1 Knowledge – qualification – competence

they are transformed into our own emotions and motivations. How this process of interiorization takes place is the pivotal point, psychologically viewed, of each competence development in practice, in training, in coaching.

Often, university teachers reject the impertinence of a consequent approach using competences: while conveying abilities and knowledge and successfully educating their students they already also conveyed competences, they say, because without out these, those would not exist. The correctness and relativity of this argument can be illustrated in form of an image (Fig. 22.1):

Indeed, knowledge in a narrower sense (informational subject-specific and specific knowledge), skill, and qualification are all requirements for all kinds of competence. The latter do not exist without the former. But knowledge, skill, and qualification are *not* competence. A thoughtful person can be hesitant to act; he can even be idiot savant, not to mention the large number of highly qualified incompetents. . ..

"Merely learned" values are, however, mostly ineffective. Only interiorized values affect a person's actions. Competence development must necessarily include the interiorization of values. One does not exist without the other. This is also true for rules and norms.

The process of transforming "merely learned" assessments of those found in a situation in which one had to act into one's own emotions and motivations is a central issue in various theories and models developed by pedagogic, cognitive psychology (cognitive dissonance theory), psychotherapy, and group sociology. The role that emotions play while and for learning is increasingly gaining importance (Arnold 2005). It turns out that all approaches of interiorization focus on a touching, irritating, breaking up and re-orientation of emotions as a "hub." This can be termed *emotional disorienting*. Without such emotional labilization, whichever

way one puts it in the individual case theoretically and practically, there is no learning and re-learning of values that has an impact on actions, and consequently no competence learning and no competence development can take place.

The process of emotional labilization is in the fewest of cases pleasant, at least cathartic. Processes of interiorization are by no means friendly happy happenings, but generally painful procedures (Bauer et al. 2007). This also explains why it can be relieving for the student as well as for the university teacher to dig in their heels at the point of imparting knowledge and not to take on the trouble of a form of didactic that enables the development of consequences. Forms of conveying competences, which are quite usual in vocational training and have here been hinted at by the terms experimental learning, experiential learning, situated learning, expertise learning, or are being more and more employed in organizational coaching and training, hardly play a role at university yet.

That is why it is necessary to be especially attentive if someone from the academic circle claims that their lectures, seminars, and classes contribute to competence development. One only has to ask: "And where is the point of emotional-motivational labilization?"

The question of the emotional labilization is, in my point of view, also the leading question when designing e-Learning that furthers competences.

Regarding the new instruments, methods, and processes of Web 2.0, it is possible to ask which potential they have to spark further and accompany true changes and development of competences when exhausting all possibilities. Leaving aside specific established Web 2.0 applications, such as Flickr, You-Tube, YiGG, Wikipedia, XING, etc., of which there are hundreds by now (The complete Web 2.0 Directory (2007): http://www.go2web20.net/), one can try to mark the degree of dissonance and labilization, which can be achieved in the case of the optimal use for the most common of them. This degree of dissonance and labilization can then be regarded as a – first – predictor for the potential these instruments and applications have for competence development.

The following Table 22.1 briefly explains the instruments and methods and lists the optimal potential for labilization (without, □, ■) as relating to personal (P), activity-related (A), subject-specific-methodological (S), and socio-communicative (SC) competences. A high degree of labilization concerning P means, for example, that this instrument can be used very effectively for the development of personal competence in e-Learning (Erpenbeck and Sauter 2007).

This completes the circle: following from the observation that competence development might be the verbally proclaimed, but practically hardly ever the realized goal of many HEIs, I asked for the causes leading to this discrepancy. For one, there is the fact that imparting knowledge can, up to this day, be planned, assessed, and controlled far more easily than the conveying of competences, which needs new ways of thinking and approaches. Teachers and learners, helpers and assessors, and especially people acting and planning educational politics are in the same way involved in this "conspiracy of assessors." Furthermore, conveying competences follows different forms of learning and teaching than imparting knowledge. Central to it is the question of acquiring rules, assessments (values),

Table 22.1 Instruments and methods and their potential for labilization

Instrument, method	Short description, explanation	P	A	S	SC
Meta-method "Folksonomy" (Tagging)	A "folksonomy" is a user-generated taxonomy (classification), which is used to categorize and reconstruct websites, photographs, weblinks and other web contents. This happens with the help of open, always replaceable, extendable, addable labeling, the so-called "tags" (word marks). The process of "tagging" creates a body of markings ("tag cloud"), which can easily be searched, enables the discovery of new interrelations, and allows navigating within the definitional context. A developed folksonomy is easily accessible and easily changeable for the primary user as a common shared vocabulary. Two widely known examples using folksonomy tagging are Flickr and del.icio.us.		□	■	
Meta-method Semantic Web	A semantic web is used to distinguish meanings from terms and to formalize and operationalize the relations between them. A simple example is the distinction between an occupational title and a family name – tailor and Tailor – in search engines. Interestingly, the idea of the semantic web is as old as the Internet itself. Its design and use, however, is a key to mastering the rapidly growing amount of information, especially today.		□	■	
Meta-method Peer-to-peer communication	Methods of distributing large amounts of data in a large area, without including the original distributor in the whole process of providing hardware, servers, and resources. Instead, each recipient becomes at the same time the distributor, which significantly reduces the cost for distribution and the individual effort, secures and stabilizes the distribution process because of the arising redundancies, and decreases the dependency on the original distributor. The best known example is the protocol and instrument BitTorrent.	□	□	■	■
Weblog (also shortened to Blog)	A diary written by a person or a group in the Internet, which is accessible to a defined learner group or all Internet users and the entries of which can usually be commented upon. The latest contributions are listed first. There is a broad spectrum of topics and qualities for the open blogs. An estimated 40,000–50,000 bloggers – that is, people writing a weblog – exist in Germany. They can focus on specific topics, for instance further education blogs, learning diary blogs, relationship blogs, etc. When it comes to learning processes, they mainly serve as learning or project diaries.	■	□		□
Vlog (videoblogs)	Blogs, which are recorded as a diary in video form.	■	□		□
Moblog	A blog consisting of pictures taken with a mobile phone, which supply the stations of the blogger over time with pictures.	■			□

(*continued*)

Table 22.1 (continued)

Instrument, method	Short description, explanation	P	A	S	SC
e-portfolio	e-portfolios (electronic portfolios) are used in digital form as work portfolios or project documentations at schools, universities, and also in companies, often designed as digital (competence) profiles, where they can be realized more innovatively using the new media. Often, personal online presences represent such an e-portfolio, for example in the sense of a show or application portfolio. e-portfolios are also used at the university, where "virtual" collections lend themselves to be forms of achievement submission in the case of *e-Learning*. They differ from "real" portfolios mostly only because of the presentation and less because of the contents.	■	□	□	
Wiki	The word is deduced from the Hawaiian and can roughly be translated as "quick" or "fast." The most famous Wiki is Wikipedia, the free encyclopedia of (worldwide) knowledge. Wikipedia is a multilingual, free, online encyclopedia penned by voluntary authors. The term is composed of "encyclopedia" and "wiki," a software with the help of which each internet user can improve or newly create articles using his/her browser. That which is accepted by the community will last. There is a high degree of self-organization. Until now, about 100,000 registered users and an unknown number of anonymous helpers have contributed to the project, and more than 400 authors constantly work on the German language edition. Wikis are online encyclopedias aimed at different topics and branches and partly reduced for certain people (e.g., companies). Wikis are an approach for making implicit knowledge explicit. In the course of a learning process wikis are suitable for tasks and projects in which common documents are to be developed.	□	□	□	■
Bliki (Wikiblog, WikiWeblog, Bloki, Wikilog)	A combination of weblog and wiki. It stands for software in which individual texts are chronologically presented in a weblog. The most current entries appear first.	□	□	□	■
RSS	Is an abbreviation for Really Simple Syndication or also for Rich Site Summary. It is data formats within internet pages, which allows someone to selectively and systematically call up the content of these pages using an RSS feed. The so-called Atom format is treated as a competitor and simultaneously as a potential successor. Its preferred use is the mutual referencing of weblog entries.			■	
RSS-feed (also News-feed)	PC software which can be used for compiling, transferring, reading, showing, as well as processing information from RSS-compatible internet pages according to one's personal interests (areas of knowledge, detailed information, etc.).	□	□	■	

(*continued*)

Table 22.1 (continued)

Instrument, method	Short description, explanation	P	A	S	SC
Podcasting	Names the production and publishing of audio files via the Internet in the form of a weblog with a special RSS feed. Podcasting is composed from "Pod," the denomination of the MP3 player called iPod successfully sold by the U.S. company Apple, and "casting," a short form of the term broadcasting.	■	□		□
Mobile learning	Learning and knowledge contents are formatted, so that they can be used on mobile devices (handheld PC, PDA, notebook, mobile phone, mp3-player, etc.) Information is accessible everywhere, a popular example is vocabulary training via cell phone.		□	■	
Rapid learning	Does not refer to quick learning, as could be assumed from its name. The terms refer to software tools that allow also relatively inexperienced users to quickly transfer the knowledge they possess into a multimedia and/or internet-based learning program. Rapid learning thus deals with the quick production of contents realized in a relatively simple way.		□	■	

Strong potential for dissonance/labilization: ■
Medium potential for dissonance/labilization: □
Little to no potential for dissonance/labilization: without marking

and norms in the form of one's own emotions and motivations: the core of said acquisition is emotional labilization. It is also the first criterion for assessing the effectiveness of Web 2.0 instruments for the purpose of competence development.

Knowledge alone is impotence. It is competence that enables someone to act. Emotional labilization secures the stability of competence development. And is this not what you are interested in?

Chapter 23
Education Innovation: Case Studies in e-Learning and Face-to-Face Teaching in Higher Education: What is the Best?

J.A. Boon

Abstract Education innovation is here to stay. This chapter gives the results of a study of the application of information and communication technology to advanced teaching and learning activities. It is strategically important that the technology opens up new ways of teaching and learning. The purpose of this chapter is firstly to identify the typical advanced teaching and learning activities/functions that can be applied in e-Learning and face-to-face teaching and learning. Case studies were selected from a group of teachers who have already been involved in both teaching modes for some years and thus have experience in blended teaching and learning. A number of teaching activities/functions were seen as positive in their application in the e-Learning situation. Those that stand out are peer review and collaboration, promotion of reflection and stimulation of critical and creative thinking, team teaching, promotion of discovery/extension of knowledge, and problematization of the curriculum. In face-to-face teaching and learning, inviting engagement, how to come to know, involving metaphors and analogies, teaching that connects to learning, inspire change, promote understanding, and others stand out. As seen by the teachers in the case studies, both e-Learning and face-to-face teaching and learning are seen as complementary to each other. We define this view as blended teaching and learning.

23.1 Introduction

In many cases, people see the application of technology in the educational field as education innovation. Education innovation is, however, more deeply concerned with the ways and methodologies of teaching and learning. It is not technology

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alone, but it is the use of technology to enhance our ways of teaching and learning. Strategically, information and communications technology (ICT) has to innovate on the way we perform our teaching and learning functions. Support services for teaching and learning at universities need to support staff to induce them into the new ways of teaching and learning that technology has opened up.

In 2002 Diana Laurillard stated that despite the information technology available, teaching methods have not evolved to the extent that they can keep pace with what is needed. The dominant model still seems to be the transmission model: the lecture, the book, the marked assignment (Laurillard 2002). Often, where technology is at hand, many teachers still use the talk-and-chalk method. Although there might be a good reason for teaching this way, for example in mathematics where transparent logic is exposed by using talk and chalk, the reasons for teaching this way in many other disciplines are in some cases unclear. Some reasons may stem from an unclear understanding among teachers in higher education of the role of e-Learning. Some may come from the fact that the basic teaching functions that learning platforms are offering may not be self-evident. It may also be that blended learning is still evolving and has not yet reached to the level of general acceptance or maturity. It could also be that many teachers in higher education, where research is regarded as dominant, do not have enough time to attend to all the teaching functions that are available in the e-Learning environment. The need to adapt teaching to the digital age effectively seems obvious.

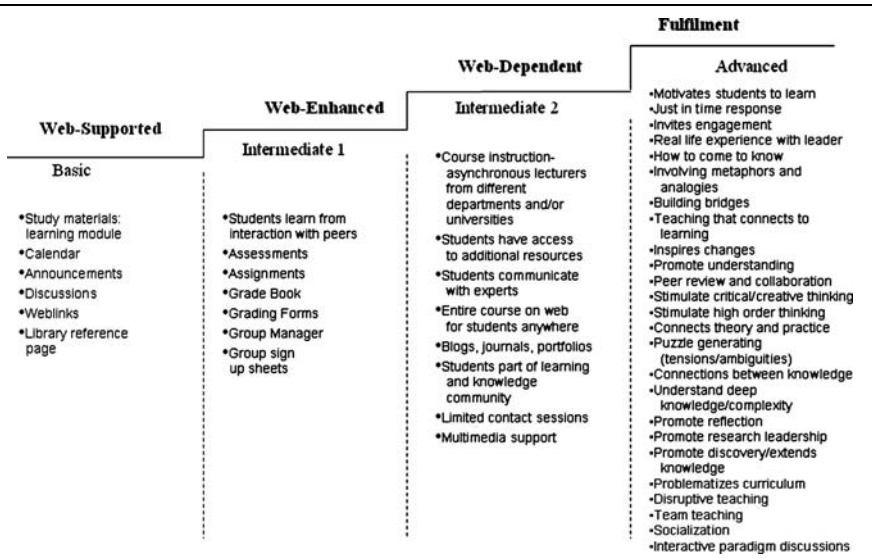
The aim of this article is to identify teaching functions from a teacher's point of view on the advanced levels of teaching and learning. In the blended teaching and learning, the question is which of the activities/functions do teachers feel positive about and which are seen negative in the two different modes: e-Learning and face-to-face teaching. It is important to find out what the unique place of e-Learning and face-to-face is so that each could add value to the other mode of teaching.

23.2 Context

Following Knowles, teaching is defined as "an activity undertaken or initiated by one or more agents (teachers) that is designed to effect changes in knowledge, skills and attitudes of individuals, groups or communities" (Knowles et al. 1988). The learning process is the acquirement of knowledge, behavioral change, skills, and attitudes. Especially on the higher education levels, advanced teaching and learning skills are important, e.g., how to come to know, building bridges between disciplines, connect theory and practice, promote research leadership, and promote students to extend knowledge.

Blended learning is defined as a hybrid between e-Learning functions (synchronous and asynchronous) and face-to-face teaching in such a way that real value is added to the learning environment. Blended teaching and learning is primarily not described as a mix of media, e.g., CD-ROM, web-supported, and contact time. The

Table 23.1 Teaching and learning activities – value adding on the web



blended has to do with the blend of teaching functions or activities that could be used by teachers in higher education as explained in Table 23.1 (advanced level) in this article. Blended teaching and learning offers an alternative to traditional teacher-led education in the class room or as to solely computer-led education. It normally is not teacher-centered but learner-centered.

In an article, Mödritscher (2006) highlights the pedagogical aspects of an e-Learning strategy. In this article, the characteristics of the learner are highlighted, but no indication is given of the role of the teacher in making this e-Learning a success. In a case study, he refers to a few important roles of the teacher, e.g., stimulation of reflection, analyzing students' attention, motivation, and emotional issues. In these cases, seeing students face to face still plays an important role, but not the only role.

The Educause Learning Initiative (ELI) has been rethinking the designs for interaction in the classroom that actively lead to greater engagement, retention, and competence. Apart from e-Learning, this project also addresses face-to-face situations in combination with e-Learning (ELI Summer Focus session 2005).

Hughes (2007) suggests that a combination of well-designed and supported blended learning with proactive help in a face-to-face mode can improve course-work submission and, therefore, module retention. Regarding large classes, Riffel and Sibley (2005) argue that a hybrid (synonym for blended) course simultaneously with traditional course in which lectures are used is beneficial to students. The results of a comparative study show that hybrid course formats can

substantially improve the amount of active learning in and effectiveness of large classes.

Hess (2006) argues that e-teaching without face-to-face contact is not beneficial to students. The extent to which information technology facilitates student-initiated or autonomous learning is overrated. IT would be helpful in all dimensions – cognitive, pragmatic, interpretative, and emotional. A rich body of source material and quick verification of questions would create a critical, questioning attitude and creative learning with students. It is believed web-based learning would provide students with an information advantage over peers and lecturers, which would then stimulate face-to-face discussions. There need to be intensive discussions in face-to-face situations based on pre-structured web teaching. The question remains as to what is the teaching functions' role in face-to-face situations. To reach optimal effect, e-Learning systems should be complementary to face-to-face teaching. To work with students in class situations face to face is important, but we have no indication as to which teaching functions are optimal in those situations. Learner support in classroom sessions on how to come to know, use metaphors and analogies, connect theory with practice, to name just a few teaching activities, is important. The question is whether face-to-face lectures will soon be replaced by e-Learning completely when requiring a deep learning and engagement in understanding knowledge from students. Are teachers still regarded as mentors, coaches, and stimulators in classroom situations? Another question is whether the Web will be the device for more relevant, exciting, and powerful learning in future in all instances, It is argued that face-to-face interactive direct instruction seems to be important for brainstorming, comparison and contrasting as well as the facilitation of group dynamics in a discipline and teaching activities referred to later in this article. On the other hand, it could be argued that e-Learning could go a long way in complementing and in some cases replacing face-to-face teaching functions. Could good teaching and learning functions be identified for each of the two modes of teaching?

From a learner's point of view, principles of good learning have been set up. A prominent example is the Learner-Centered Psychological Principles of the American Psychology Association (The Learner-Centered Psychological Principles 1995). However, in the era of learner- and student-centered teaching and learning we live in, the principles from a teacher's point of view have not been made clear enough. Higgins and O'Keefe (2004) express a belief that most, if not all, learners learn best in the blended learning mode. Donelly (2006) also is of opinion that online and face-to-face modes go together in problem-based teaching and learning and illustrates this by way of examples. It is important to identify the good principles of effective student learning. It might also be relevant to identify the teaching functions from a teacher's point of view. Technology opens up new possibilities to the so-called new teacher in higher education. What are the challenges of this new teacher in face-to-face as well as in e-Learning situations, both being components of blended teaching and learning. Boundaries of the traditional teaching and learning have been shifting for learners as well as for teachers. It is not

the intention of this article to contrast e-Learning to face-to-face teaching and learning, but to argue that these two are complementary to each other.

23.3 Methodology

A group of seven teachers in higher education were brought together in a focus group situation to identify the advanced teaching and learning functions. Teachers were made aware of the ideas of Boyne (1992) and Garrison et al. (2001) regarding advanced teaching and learning activities/functions. They were asked to take note of these two authors in compiling the list. It took two rounds of focus groups and a final refinement to finalize the list. This list was then put to five senior staff members of the Faculty of Education for further refinement. Eventually, a list was drawn up as part of Table 23.1 called the "advanced activities/functions of teaching and learning." The basic and intermediate levels are a summary of all Bonk's 10 levels and seen as applicable to e-Learning (Bonk 2000).

Another group of 11 experienced teachers in e-Learning as well as face-to-face modes (blended learning) were asked to act as case studies. The 11 teachers were asked regarding the two modes as to which teaching and learning activities/functions they feel positive about and which they regard as negative to the particular mode. These case studies (the teachers) were selected from a group of teachers who had already been involved in blended learning for some years and thus had experience in this type of teaching. Interviews with open questions were held with the 11 teachers. The questions that were asked to each person individually were as follows: to what extent would you use e-Learning and/or face-to-face in the blended teaching and learning situation pertaining to the functions depicted in Table 23.1 on the fourth level, the fulfillment level, or not? Thus respondents had to indicate which functions they feel positive about and which negative in the particular mode. The same questions were asked to all respondents. From case studies, one cannot derive the final answers but they help to get some indications of preliminary trends.

23.3.1 Teaching Activities/Functions

Table 23.1 is adapted from Bonk et al.'s (2000) 10-level web-integration continuum for higher education. These 10 levels were reduced to 3 levels: basic, intermediate 1, and intermediate 2. Bonk et al. (2000) argue that all these could be applied in the e-Learning mode. A fourth level was added, being the fulfillment or advanced level of teaching and learning. This list was drawn up by teachers as was discussed in a previous paragraph.

The final list was put forward to the 11 teachers. Some of the teachers in this study teach on undergraduate level and some on postgraduate or graduate level.

Teachers were asked to react positively or negatively to the functions/activities in the advanced list in the two modes: e-Learning and face-to-face teaching and learning.

23.3.2 Case Studies

All the 11 teachers have been involved in blended learning for approximately 4–10 years. They are all regarded as champions of e-Learning as assessed by their peers.

- Case1. A professor in communication pathology involved in e-Learning for 10 years. She serves students at the master's and doctoral level in a professional occupation.
- Case 2. A professor in engineering with 10 years of experience in e-Learning for 10 years. His students are senior students in engineering, who have all been involved in e-Learning for a number of years. They are highly information-literate.
- Case 3. A professor in mathematics involved in e-Learning on the first and second year level for 10 years. Her students are junior baccalaureate students in a professional course. They are not highly information-literate.
- Case 4. A lecturer involved in e-Learning for almost 4 years in urban planning. She serves both senior undergraduate and postgraduate students at the master's level.
- Case 5. A lecturer in biochemistry involved in e-Learning for 4 years. He teaches about 200 second-year students at the undergraduate level. He is supported by a number of tutor assistants who are involved in small groups.
- Case 6. A professor in human anatomy teaching to students in all year groups on their way to becoming medical doctors. He has experience with e-Learning for 10 years. The students have extensive practical sessions in which human bodies are dissected. The teacher teaches both at undergraduate and postgraduate levels.
- Case 7. A lecturer involved with first- and second-year students at the undergraduate level in information science. She has been a user of e-Learning for 4 years. Students are highly information-literate.
- Case 8. A senior instructional designer with 10 years of experience who teaches instructional design in the use of web teaching and learning.
- Case 9. A professor in e-Learning in the faculty of education regarded as the doyen of e-Learning at the higher education institution in which the case studies were selected. He has been teaching in the blended mode for more than 12 years to postgraduate students.
- Case 10. A teacher in the faculty of engineering at the postgraduate level. He has been involved in e-Learning for 10 years and has been highly involved in blended learning from the start. Students are highly information-literate.

- Case 11. A program manager in project management in the faculty of engineering at the postgraduate level. He has been involved in blended learning for 10 years.

23.4 Results

Table 23.2 gives an overview of the results of the 11 case studies. These tables should be read in the following way: e.g., in the case of the teaching function, "teaching that connects to learning," 5 out of 11 teachers feel positive of applying it in the e-Learning mode, while 6 feel negative about it. A second example of Table 23.2: In the case of "promote reflection," nine teachers were positive in applying this in e-Learning and two negative. With regard to face-to-face teaching and learning, eight feel negative about the application while only three feel positive.

When looking at Table 23.1, it should be remembered that e-Learning is already seen as the best mode for the teaching and learning functions at the basic, intermediate 1, and intermediate 2 levels. The results are only drawn from the advanced level in Table 23.1. Thus Table 23.2 only depicts the advanced level of teaching and learning activities.

In Table 23.2, the results of all the advanced teaching and learning activities/functions are given. Six is regarded as the cutoff point to distinguish positive from negative. It is however apparent that a 5:6 combination is nearly equal, and the

Table 23.2 Responses from case studies

Teaching and learning functions	e-Learning		Face-to-face	
	Positive	Negative	Positive	Negative
Inviting engagement	6	5	10	1
How to come to know	6	5	8	3
Involving metaphors and analogies	6	5	7	4
Building bridges	5	6	6	5
Teaching that connects to learning	5	6	8	3
Inspiring change	5	6	7	3
Promoting understanding	4	7	9	2
Peer review and collaboration	8	3	4	7
Stimulating critical/creative thinking	10	1	7	4
Connecting theory and practice	6	5	8	3
Puzzle generation (tensions/ambiguities)	5	6	5	6
Connecting between knowledge	6	5	6	5
Understanding deep knowledge/complexity	6	5	7	4
Promoting reflection	9	2	3	8
Promoting discovery/extends knowledge	7	4	5	6
Problematizing curriculum	7	4	6	5
Disruptive teaching	1	10	11	0
Team teaching	7	4	7	4
Discourse	2	9	9	2
Practicals	3	8	9	2

result should be interpreted cautiously. The following teaching and learning functions/activities were seen as positive (score of seven and higher) with regard to the e-Learning mode:

- Peer review and collaboration
- Stimulation of critical/creative thinking
- Promotion of reflection
- Promotion of discovery/extension of knowledge
- Problematization of the curriculum
- Team teaching

The following teaching and learning functions/activities were seen as very negative (score of seven and lower) by the teachers in their application in the e-Learning situation:

- Promotion of understanding
- Disruptive teaching
- Discourse

The teaching and learning functions/activities mentioned below were seen as very positive by the teachers with regard to the face-to-face mode:

- Inviting engagement
- How to come to know
- Involving metaphors and analogies
- Teaching that connects learning
- Inspiring change
- Promoting understanding
- Stimulating critical/creative thinking (note in the e-Learning mode this function was also seen as having a positive application)
- Connecting theory and practice
- Understanding deep knowledge/complexity
- Disruptive teaching
- Team teaching (note in the e-Learning mode this function was also seen as to have appositive application)
- Discourse
- Practicals

It is therefore clear that at this point of the development of e-Learning, the face-to-face mode is seen as applicable to more teaching and learning functions/activities than the e-Learning mode; however, as has been said previously, the e-Learning mode is already applied to the functions at the basic and intermediate levels. (see Table 23.1)

The following functions/activities were seen as very negative (score seven and lower) by the teachers in their application in the face to face situation.

- Peer review and collaboration
- Promoting reflection

In both cases, e-Learning is seen as a much better mode for teaching and learning. In their answers, the 11 teachers did not give a clear direction of positive in either e-Learning or face-to-face teaching. It can therefore be deducted that when this study was conducted, these functions could be done in both modes. The selection of a particular mode would probably be influenced by the individual teacher in different kinds of situations, e.g., large or small classes, subject content, and time availability.

23.5 Conclusions

Conclusions made in this section of the article cannot be seen as final findings as such, but should rather be regarded as hypothetical findings to be followed up by more studies on this topic. The reason why case studies were used was to get some idea of and direction on people's experience in and knowledge of blended learning regarding e-Learning and face-to-face teaching. However, these directions contribute to the strategic thinking on education innovation. It is important that new technologies change the way in which we teach and learn now. This is possible specifically when we think of higher order thinking skills as this paper has put to the fore. If teachers can concentrate on those skills in the face-to-face class situations, we will enhance the quality of teaching and learning. The conclusions are as follows:

1. It is hoped that the list of advanced teaching functions in higher education would contribute to the role that teachers play in blended teaching and learning apart from the functions on the basic and intermediate levels.
2. The results indicate that e-Learning positively influences the role of the teacher in higher education pertaining to advanced teaching and learning functions to a large extent. It gives more scope to enhance the quality of teaching and thus the learning process with students than in the typical, traditional, face-to-face situations of the past.
3. Case number 9 represents the doyen in the e-Learning in a country where the case studies were conducted. He has indicated that whereas he previously thought that all teaching activities could be done via the e-Learning route, this no longer holds. Blended teaching and learning is seen by him as the optimum in teaching and learning.
4. In a blended learning situation, a number of teaching functions in e-Learning and face-to-face modes are seen to be ideal in both cases. It means that teachers in higher education will probably choose one or the other in blended learning, depending on the circumstances.
5. Regarding a number of teaching functions, the case studies seem positive in blended learning in either e-Learning or face-to-face situations.

6. e-Learning now is an important and strong component in many teaching functions and add value to teaching and learning. It is possible to apply e-Learning to a considerable number of functions of the higher order teaching and learning situations.
7. There should be a strategic fit between the application of ICT and the classroom situation. The use of the technology helps us to enhance the quality of our higher order teaching and learning functions.

Chapter 24
The Homo Zappiens and its Consequences for Learning in Universities

Wim Veen and Jan-Paul van Staalduinen

Abstract Homo Zappiens is the new generation that is growing up with modern communication technologies shaping their views on the world around them. Prominent characteristics of Homo Zappiens include their preference for images and symbols as an enrichment of plain text, their seemingly effortless adoption of technology, and their cooperation and sharing in networks. They use technology in a functional manner, not touching what they cannot use, and increasingly this generation seems to take exploration and learning and discovering the world, into their own hands. Homo Zappiens shows us that we can increasingly rely on technology to connect us and allow us to organize and preserve our society as a group. In a networked society, the individual has more room for contributing his/her unique value, and innovation and knowledge reside in a network, rather than in each separate individual. Higher education institutions will evolve towards institutions that will function as hubs in knowledge networks, serving students working in fluid communities of research or learning on subjects of their interest. Realizing that we need a flexible structure for organizing ourselves and the world around us, we can look at Homo Zappiens for a clue.

24.1 Introduction

Homo Zappiens is the generation of people that is growing up with modern communication technologies shaping their views on the world around them. Through these technologies, they are learning to develop new skills and exhibiting new behavior that may show us a way how future society will be organized and

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dealing with technology. For today's universities, it is inevitable to realize these changes and productively incorporate them in the way learning, research, and cooperation is done.

Prominent characteristics of Homo Zappiens include their preference for images and symbols as an enrichment of plain text, their seemingly effortless adoption of technology, and their cooperation and sharing in networks. They use technology in a functional manner, not touching what they cannot use, and increasingly, this generation seems to take exploration and learning, discovering the world, into their own hands. This can be seen when we see Homo Zappiens gaming, zapping television, or handling multiple tasks at the same time: they choose their own frameworks for developing themselves and structuring the information that technology is making ever more pervasive. Due to their preference for Internet technology, Homo Zappiens is sometimes called the Net Generation (Oblinger and Oblinger 2005).

Underlying these characteristics are a few competences, which they have noticeably made more of a priority than any previous generation to this scale. This generation seems to be challenging every framework offered to them, not accepting any limits on their experimentation and learning. They learn to model their own experiences and structures early on in childhood, when they must make sense of the myriad of apparently different ways in which various media offer their abundant information. As they become fluent in the meta-language of each medium, they proactively demonstrate these skills by sampling and remixing content or producing content themselves, no longer being the passive consumers that many older generations became used to. Homo Zappiens learn to participate in society through networks, anticipating that different situations may require different roles and developing the competence to quickly switch between roles just as they switch between streams of information.

The technology that is allowing this generation to demonstrate such differences from previous generations has three main trends responsible for this contribution which can be seen as cornerstones for changing cultures in educational organizations, such as universities of the twenty-first century. First, technology is linking everything; many devices are converging and functionality is being transferred from traditionally separate devices into combined single units. Secondly, technology is increasingly organized in a distributed, parallel network, relying on the contribution of many different parts to increase its usefulness and addition to our lives. Lastly, technology is becoming ever more open sourced; in the true sense of sharing, many new and emerging technologies are being developed by the community instead of being patented and protected, subject to development in small teams behind closed doors. These trends in technology are not only driving society to mirror the same trends, but also have their impact in how universities are perceived as places of learning and development.

The rise of the Homo Zappiens triggers an organizational change in higher education (Oblinger and Oblinger 2005). As we perceive that we must change to a more networked view on organization of our learning, work, and society, it is important to single out a few of the discerning aspects that will help us implement

this new view on organization. Realizing that essentially every experience in our lives may be a source of learning, we can choose three of the most important aspects for redesigning our educational settings. Most importantly, we should depart from the setting of goals upfront because essentially these limit our experimentation that ultimately leads to increased competences. We should stimulate exaggerative, playful learning, realizing that all learning is essentially a continued refinement of more basic skills and understanding. We must also, rather than seeing learning as a means toward an end, encourage learning as a continuous process, stimulating increases in skill and competence with a decrease in structure and an increase in complexity, tailored to each individual's level of mastery.

Businesses and other forms of establishing economic value will have to take into account that, as the creation of value is becoming more networked and distributed, we should not cling to a linear structure for organizing work. Businesses should invest in their platforms for communication and sharing for their human assets, share with every employee the company's purpose, and allow them to contribute as they see fit. Instead of trying to control their process and market, and clinging to their current offering, businesses should rely more on innovation for sustained existence.

For society as a whole and individuals trying to incorporate these changes into their lives, it will be important to realize that everything that makes one unique is a source of potential value to the network. With a networked view on organization, we may come to see similarities on different levels of scale in the world around us and this provides us with the opportunity of transferring lessons learned between levels and from one situation to another. As it is increasingly important to advertise individual abilities, we also see society shifting from guarding privacy to competing for attention. Actively participating in society, work, and learning, by taking charge of your own knowledge and development, is precisely what makes Homo Zappiens so interesting.

24.2 Characteristics of a New Generation

Homo Zappiens is the generation that was born in the mid-nineties of the twentieth century when the Internet took off being a commodity in many households of Western Europe. This chapter wants to highlight trends in society as a whole, as we prefer to adopt the point of view that the characteristics and competences that are described below have an important impact on future social systems and institutions.

24.2.1 Iconic Preferences

Children nowadays train themselves to understand icons and images and include these in their searching for and processing of information. Using television and

computers from an early age on, children are confronted with a multitude of icons and images. Homo Zappiens' preference for images can be said to be the result of their exposure to visual cues. The preference for icons is a very necessary attitude to survive in an era where older generations are confronted with "information overload," yet Homo Zappiens seems capable of handling this phenomenon (Veen and Vrakking 2006). In its communications with peers, Homo Zappiens uses icons and abbreviations as well. Lindström and Seybold (2003) have labeled this language of shortcuts "TweenSpeak." In spoken conversations, this generation may have the tendency to communicate only the core of a message, making it seem to older generations as if they were speaking in telegram-style.

24.2.2 Technology is Air

Technology and new media are a natural part of the lives of this new generation. They are hardly fascinated by them and consider them just tools for a certain purpose. Homo Zappiens is merely interested in technology if it works, and will just as easily pick up something else if that suits their needs better. They often have little understanding of the fundamentals of the technology they are using, yet they can explain the functions that make a tool useful. Tapscott (1998) formulates this perception of technology as: "It doesn't exist. It's like the air." Oblinger and Oblinger (2005) summarize this attitude as: "Technology is only technology if it was invented after they were born."

24.2.3 Inversed Education

Through the use of the Internet, with many available sources, Homo Zappiens has learned to educate itself. Up to about the age of five, children seem to ask their parents how to use a personal computer. Most children start using the parent's computer at the age of three, playing around with CD games suitable for their age. From the age of six, most children have learned how to use the personal computer and will often first resort to asking friends, before they will ask their parents. From the age of eight upwards, this generation is educating their parents on how to use the technologies and tools that are available, such as e-mail, chat, and online banking (Veen and Jacobs 2005). This "inverse education" is typical for this generation.

24.2.4 Networking is Their Lifestyle

To the Net Generation, living in networks is as normal as breathing. Homo Zappiens' networks include both virtual and physical networks. They are almost

constantly connected to electronic networks, through which they stay in contact with their friends and a wide source of information available. Combined with mobile devices, these technological networks allow them to communicate, to game, and to learn, irrespective of their geographical location.

24.2.5 Cooperation

Homo Zappiens has made the use of networks a lifestyle. Where former generations might look for the answer to a problem in books or (online) manuals, for this generation the first option for finding answers is asking a friend. They use their network of contacts to provide them with the information they need and, if this network does not suffice, they ask an online community consisting of many individuals they do not know but who are willing to help. For the Homo Zappiens, knowledge sharing is common even with those whom they do not know at all.

24.2.6 Virtual is Real

Youth today do not make the same distinction between the "real" world and the "virtual" world that so much of society still does. To them, when they communicate with a friend through chat or in a game, this communication is not less real than a physical meeting. They also apply this attitude to persons they meet online but who they do not know in physical life. They consider them as if they were friends, although they realize that they have never met them physically. Not only are online friends just as valuable to this generation, but frequently they tend to communicate with their real-life friends through electronic means as well. Communities and social networks appear to be physical, virtual, and hybrid at the same time. (Oblinger and Oblinger 2005). Contact through e-mail, SMS or MSN is not necessarily less; it is just different.

24.2.7 Multiple Identities

Homo Zappiens has online and face-to-face identities as illustrated by a boy describing a friend: "Online he is okay, but at school he is a nerd" (Veen and Jacobs 2005). Young people are accustomed to playing with different characters or roles and feel the consequences of these different roles as other gamers react on them. Multiple identities occur, for example, in many online games where players might have several different characters. In fact, gamers are experimenting with social roles much more than they could do in "real" life. Experimenting with social roles in virtual worlds does not have the same consequences as playing a role in

physical life. There, negative consequences might be difficult to repair, whereas in games it is just "game over and start again." By developing different identities within different worlds and in different circumstances, children learn about having different roles.

24.2.8 Multitasking

One of the most frightening characteristics of this Net Generation is their ability to multitask: the ability to perform multiple tasks more or less at the same time. These children seem to be online, watch TV, talk on the phone, listen to the radio, and write a document, apparently all at the same time (Oblinger and Oblinger 2005). Although research doesn't yet show clear findings on how multitasking works in our brains, by observing children it seems that they do not process the information flows all at the same time. They seem to divide their attention across the different information flows, focusing only on one, but keeping a lower level of attention on the others. It might well be that multitasking is rather a way of leveling attention and flexible switching of attention than fully processing all information flows at a time. By using their attention flexibly, Homo Zappiens seems capable of handling much more information than previous generations (Veen and Vrakking 2006).

24.2.9 Critical Evaluation

Critical evaluation of information is what children do when selecting and filtering information flows. As a consequence of multitasking, they instantly and almost subconsciously value different streams of information to decide where to place their attention. Homo Zappiens is confronted with a lot of information, not all of which is to be taken at face value. They have learned that people may represent themselves differently on the Internet and may have hidden motives. They have also learned to distinguish between advertising and objective information.

24.2.10 Zapping

Today, there are dozens of channels available for viewing, but Homo Zappiens does not zap channels just because there are so many of them. Homo Zappiens seems to show a zapping behavior that is specifically aiming at filtering information from different programs at a time. The purpose is to get the message in order to understand. It allows them to select only those bits of information from each channel that are critical for understanding what the program is all about. This

way of zapping involves more than just selecting channels; it requires some basic knowledge about the structures and formats in which information is delivered on the various channels. Veen and Vrakking (2006) describe how young people can zap between different channels, sometimes keeping track of four or five channels at a time. To someone else, not holding the remote, zapping seems erratic behavior. Yet often, Homo Zappiens is able to summarize all five separate channels after having watched only bit and pieces of each channel.

24.2.11 Instant Payoff

The Net Generation has little patience and short attention spans. Their skills are aimed at processing various flows of different information quickly, but they have also come to expect this kind of high-density information streaming; anything less and they will become bored. They have difficulty in following a complete sequential storyline and expressing a preference to make their own choices and choose their own order. Youth today are looking for almost instant gratification in many of the things they do; Lindström and Seybold (2003) label them the "Instant Generation."

24.2.12 Self-Confidence Through Self-Direction

ICT offers youth control over not just devices, but communication, networks, and situations as well: situations which they will often have to master as adults (Tapscott 1998). Through the use of technology, this generation has added options for exploring their own individualism. Games are a prime example of this, as they allow any gamer an infinite number of tries to attempt to reach certain goals; games don't pass negative judgment or punish the gamer. This stimulates learning and discovery (Veen and Jacobs 2005). Games help children to master levels of performance, each of them providing an experience of "Yes, I've made it!" Even if the next level is very hard to complete, children feel challenged and show considerable time on task.

24.3 Core Competences of Homo Zappiens

Competences are abilities describing a combination of skills, attitudes, and knowledge. Homo Zappiens has several unique competences that set them apart from previous generations.

24.3.1 Dynamic Experimenting Through Games

Huizinga (1938) stated that most activities in life can be described as play, both in childhood as in professional life. To prepare students for their professional life, they need an environment where they can exercise in problem solving, in a way that allows for mistakes and failures from which they can learn. This is exactly what playing computer games is about; dynamic experimenting itself is best expressed when people are playing games. Playing is an important method for learning when children are young. It embeds the various concepts of trying, fun, immersion, exploration, and manipulation of resources. In essence, it is a state of mind that allows for unhindered exploration and discovery with a passion, dedication, and engagement that is not often seen in the learning activities that are set for us in regular educational institutions and, unfortunately, are rare in many jobs as well.

24.3.2 Imagining Identities for Multiperspective Enquiry

When playing a game, gamers assume the identity of an in-game persona; they may well play many different persona, and sometimes simultaneously, depending on the game. While interacting with the game world, through their character they will come to identify with their character and they will also invest something of their own in their character. Gee (2003) discusses "projective identity" in both senses of the word "project"; the gamer both projects himself into the game world through the avatar or character, and makes the building of the characters persona his project. When you see children playing out their favorite movies, books, stories, or when you see them adopting the role and attitudes of their in-game characters, they are similarly enacting what they have understood, integrating it with their own experiences and reproducing it augmented with their own vision or preferences.

24.3.3 Prosuming

Prosuming is a combination of two words: "producing" and "consuming." Increasingly, we can see Homo Zappiens producing digital content. Software tools enable them to remix MP3 files and video clips, and to create digital content in weblogs, webpages, pictures, stories, or videos. When children produce content, they do not often create out of thin air; they will use existing media, text, imagery, or sounds to experiment on and develop their skills. Homo Zappiens is increasingly using content from the Internet to create parody or fan fiction or exaggerations. Children may piece together video recording from a dozen different concerts, where the artist is singing the same song in each of them, just to create a richer visual composition. Through the technologies offered nowadays, it is much easier to use and restyle

multimedia, audio, images, and video, whereas earlier we mostly had written texts available. Children put (remixed) content on YouTube or Flickr and reach a worldwide audience that will value their content by the number of views and ratings. Producing is the competence of expressing one's creativity within the frameworks of the culture and traditions of the audience. What Homo Zappiens is doing differently from previous generations is that they simultaneously learn to distribute their creations to a wider audience for sharing and feedback.

24.3.4 Networking

In his book *Knowing Knowledge*, Siemens (2006) discusses how knowledge is increasing in the network; how knowledge is no longer a product but rather a process of interaction and negotiation. As we see society becoming more connected and thus creating all sorts of subdivisions such as Communities of Practice, Communities of Interest, and Communities of Participation, it is not hard to see why being able to select, filter, share, and disseminate information through networks is one of the main discerning competences of Homo Zappiens. Networks offer a means of distributed processing, allowing a search for information to be aided by a community of like-minded and similarly interested people; these distributed processes include association and filtering, with community members judging the accuracy and value of information as well as bringing new information to the attention of the group. To be able to work in a network, you must be able to outsource some of the tasks to be completed. You must also be able to keep a map of all the connected resources and retrieve them when needed. Furthermore, you must be able to value information, context, and sources. Most of all, however, you must be able to cooperate with others, making the most efficient use of each part of the network, while rising up to the occasion of contributing what one as an individual does best.

24.3.5 Challenging Traditional Higher Education

Immersion, interactivity, and communication are critical characteristics of the technologies Homo Zappiens has been using from early childhood on. Technologies have induced forms of behavior that will last in our future society and will further evolve as long as technologies will continue to offer new opportunities and windows for societies to use them in ways that are very hard to predict, as they depend on choices societies make adopting or rejecting technologies. This has important implications for educational and professional organizations. Young students and employees presume that their working place will look just like their homes, with unlimited access to the Internet and a variety of applications for social networking. As more young people will enter the labor market, organizations will

experience more pressure for these requests. However, these requests are not merely about technology; they are about a different way of organizing information, knowledge, knowledge sharing, and collaboration. In fact, they touch upon the very organizational structures of companies.

24.4 Consequences for Higher Education

Many of the concepts that we use to organize our lives, learning, work, and society have become obsolete from Homo Zappiens' point of view. Technology has taken dominance over society as a means of providing organization to our lives. As we perceive that we must change to a more networked view on organization of our learning, work, and society, it is important to single out a few of the discerning aspects that will help us implement this new view on organization.

24.4.1 Homo Zappiens as an Individual: Power to the User

For the individual, these are exciting times. While we are still, and even increasingly so, dependent on each other for our survival and many of our experiences, we can now take a more active approach to shaping how we participate in this society. Where hierarchy dictated a competition for scarce resources, positions, or complexity, a network offers to everyone an overwhelming opportunity to experience. To deal with this increased complexity, we need to prioritize a different set of skills:

- *Learn to cooperate and share in getting relevant information*. Nowadays, anyone can produce and broadcast information to anyone else, without an intermediate referee. The new important competence is that we learn how to discern and filter between useful and useless sources. Instead of relying on someone else to filter information for us, we must learn how to filter it ourselves. This is where groups of people with similar interest or experience come in. Already, on the Internet, we can see such groups gathering information that is relevant to them and recommending it to others within the group. Through a form of internal recommendation, information is filtered on the basis of perceived value and importance. Cooperation seems to provide an excellent mechanism for distributing this new increased load in determining for ourselves what is valuable.
- *Let others know about your knowledge and skills*. Another notable change in skill is our ability to keep our most prized knowledge and competences private and thus scarce. In an organizational system that promoted competition, this skill made sense. Yet in a network, where negotiation and communication seem to be the key elements, privacy is an outdated concept. As we can already see Homo Zappiens doing, for the individual participating in the networked society of tomorrow, it is increasingly important to broadcast to everyone else what

one's abilities, interests, and needs are so that anyone who may have something to offer or may be requiring your services is able to find you. The need for privacy is thus changing into its exact opposite, the need for attention.

- *Realize that everything is connected*. A final essential change for the individual as well as for the society of which we are all a part, will be the realization that everything is connected. As with a networked view on organization, creating value and learning through play, we must also see ourselves and all our experiences as being a part of us, just as we are all an equal part of society. This means that not only is the need for privacy disappearing and not only does our contribution in several groups of similar interest help both ourselves and the other group members, but also we may come to see that those parts, skills, and interests of ourselves that defined our very uniqueness and which we often kept hidden are the source for the most essential contributions we can make to society. By embracing a networked view on life, we are returning to more basic, underlying views of natural organization and dynamics.

24.4.2 Homo Zappiens in Organizations: The Networked Society

To Homo Zappiens the world is not linear; it is not delineated along the lines of high and low, many and few, skilled and unskilled. Homo Zappiens does not care much about hierarchy and rigid structures, but abides well in an environment of connectedness, parallel processing, and distributed knowledge. Looking at the way how teams are nowadays more often organized in an ad hoc manner or how coalitions shift allegiance with the shifting of political tides, we can already see how society has been increasingly incorporating this concept of flexible structures to the organization of dynamic reality. Too often, however, we still look at organizations from a rigid perspective and here we can learn from Homo Zappiens:

- *Replace hierarchy by distributed coordination within the network*. Information is ever more pervasive and we are thus removing the need for hierarchical structuring and defined tasks. A network enables every separate unit to make the same decisions based on the same logical rules. More and more, because of our interconnectedness, we are joining to become one unit, one substitutable group of nodes, where each node may substitute another, each node may direct others, and each node may take lead, keep track, or process. The logical structure that allowed a hierarchical society to divide tasks between separate entities will need to make way for a new form of working that allows for distributed coordination through communication.
- *Facilitate and support inter- and intraorganizational networks*. Society has been given the opportunity of providing each individual with a better contribution to the group result, through an increase in communication and sharing. A better way for organizing such a networked single entity is a system of distributed tasks

that minimize reliance. To provide their human assets with an environment where networked problem solving and working is encouraged, organizations will need to invest in communication platforms, information sharing, and reduction of control.

24.4.3 Homo Zappiens in Higher Education: Life is Play

"Life is just one big game." Looking at how Homo Zappiens playfully accepts technology, how they immerse in multiplayer gaming, and how they deal with complex problems through a hands-on, self-directed approach of exploration and cooperation, one could easily imagine it so. The logical direction for education and learning to develop, as we see society ever more embracing the uniqueness of each individual, is for the process of learning to become more natural. By recognizing that people will learn from any new experience and what they learn may often not be predicted, we should be able to see that there is really no way in which we can reach the optimum level of development for each individual through structured education, as we have been trying to do. We will need forms of mass individualization, flexibility, and playful exploration to allow children and adults to develop the necessary learning skills they need to deal with any new situation. When redesigning our educational systems, we should strive for a minimum of restrictive structure, so that as much as possible people may retain their natural ability to learn through play:

- *In a world of technology, using technology is the most important skill*. When we see Homo Zappiens adopting new technology, we are sometimes amazed by their proficiency with new tools. At the same time, we notice how they seem to be paying less attention to learning mathematical skills, grammar, and memorization; rather, they rely on calculators, icons, and search engines to provide them with the same information. When we truly look at Homo Zappiens' behavior, we will not see incapacity to learn grammar, math, or memorization, but rather latent abilities, which have not sufficiently been stimulated by their surroundings. When you look at Homo Zappiens' behavior, you won't see disinterest for "old concepts," but much more often you will see a form of prioritizing; they choose to learn the most important things first. In a world where technology is available, the most important skills are those that enable us to use that technology to enrich our lives.
- *Approach all students as true individuals*. To facilitate a more natural form of learning, we must realize that we cannot control the outcome of learning upfront. Setting goals for education is therefore completely contradictory to natural learning. Thus we must depart from the setting of goals upfront, because essentially these limit our experimentation that ultimately leads to increased competences. A better approach would be to use increasing levels of difficulty

for each student as they demonstrate increased abilities, leaving each to explore their skills at their own level.

- *Stimulate exaggerative, playful learning*. Playful exploration is encouraged by a rich and unknown set of experiences. Students benefit from being provided with experiences that would otherwise be hard to come by, thus opening the way for new paths of discovery. Therefore, we must stimulate exaggerative, playful learning, realizing that all learning is essentially a continued refinement of more basic skills and understanding. Exaggeration is the process of exploring skills and abilities, experiences, or concepts to their extremes, thereby more quickly defining the limits of one's scope for learning and improvement. Exaggeration can be described as learning from the outside in, first practicing the most crude behavior, movements, or abilities, before refining each towards the core of a mastered competence.
- *Frame learning as a continuous process*. Rather than seeing a student coming ever closer to a targeted state of mastery of particular concepts or competences, a naturally playful environment should decrease its level of structure and organization, while allowing for the increased complexity of everyday life, in order to keep challenging a learning individual to test his or her increased abilities in a wider range of situations and connecting learned experiences to a wider range of associations. Learning should be encouraged as a continuous process, stimulating increase in skill and competence with a decrease in structure and an increase in complexity, tailored to each individual's level of mastery.

24.5 Future Structures for Higher Education

Homo Zappiens and its culture of global networking and acting will have its influence on higher education institutions. Higher education institutions will evolve towards institutions that will function as hubs in knowledge networks, serving students working in fluid communities of research or learning on subjects of their interest. Higher education institutions will offer flexible opportunities for individualized learning. As far as initial programs are concerned, students will engage in specific learning arrangements that will give them standardized credit points for a highly individualized diploma. There will be less traveling around, as learning can take place in a blend of online and offline activities. Technology will help to reduce the scarcity of presence that is still limiting our possibilities to represent ourselves virtually today. Three-dimensional holograms will give the possibility to travel virtually without physical bodies to move around. Flexibility in learning opportunities will engender a different approach in using content. Content will be mainly accessible in open resource centers and software will provide easy possibilities to find quickly and adequately what you are looking for. Content will be user-generated to a large extent, researchers, teachers, and students alike contributing to the body of knowledge. Peer rating systems will ensure quality, reducing the influence of publishing companies. As a consequence, teachers will blend their

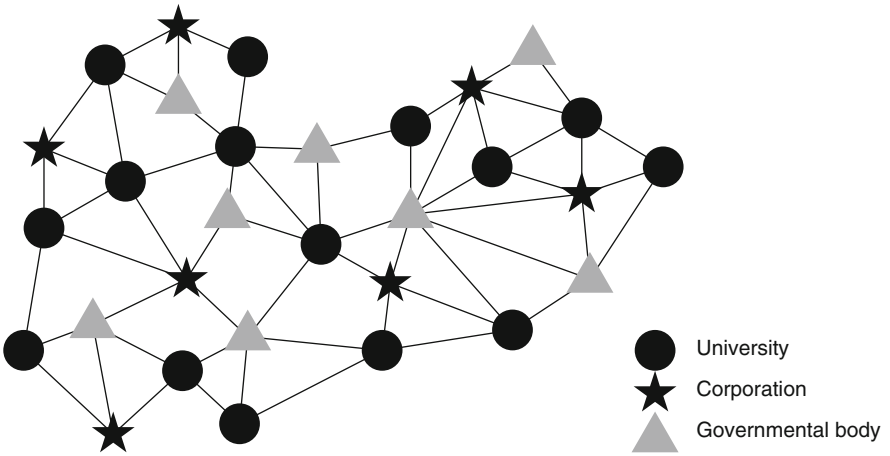

Fig. 24.1 Function of higher education institutions in online networks

face-to-face activities with virtual presence for teaching and discussing with students. Lifelong learning will become an integral part of the working life of individuals as networks will continue to exist between industry and higher education. As far as research is concerned, universities will participate in virtual research labs in which researchers from various institutions collaborate. Their outcomes will fuel the collaboration with industry, where alumni continue to be part of the academic networks. This view might sound like a scenario that will not come true to its full extension. However, there are strong developments such as globalization, virtual communities sharing knowledge, and specialization among scientific institutions at a global level, indicating towards structures that will make any university that will not participate in this worldwide progress an isolated regional or local school (Fig. 24.1).

Universities will become like "learning malls" and "virtual research studios," accessible from anywhere and appreciated by students according to their scientific reputation. Students will enrol and work within virtual communities, or go elsewhere, thus building their expertise, in many cases in close collaboration with industry. Higher education will become a sprawling, fluid learning network of universities, in which people are a part of constantly changing communities, attending and leaving different universities for individual courses. Following those courses does not mean you are reading an online book, or watching some streaming videos, but that your volunteering for projects within a knowledge community. Those projects revolve around solving a specific problem through discussion, or writing a scientific paper; every project has an end product! This means that the pedagogical approach will change. Future learning will be about externalizing knowledge of participants, each holding a part, and through communication new knowledge will be created.

More and more, higher education will focus on the solving of (practical) problems in corporations and other organizations, making those organizations nodes in the larger learning network as well. Ultimately, there will be a convergence of learning, meaning people will do most of their learning on the job, and in the context of their job. The future of higher education is a future in which learning cannot be separated from the professional practice: not even for people studying Medieval German.

Chapter 25
Roles and Domains to Teach in Online Learning Environments: Educational ICT Competency Framework for University Teachers

Teresa Guasch, Ibis Alvarez, and Anna Espasa

Abstract This chapter is aimed at presenting an integrated framework of the educational information and communications technology (ICT) competencies that university teachers should have to teach in an online learning environment. Teaching through ICT in higher education involves performing three main roles – pedagogical, socialist, and design/planning – and also two cross-cutting domains that arise from the online environment: technological and managerial. This framework as well as the competencies for university teachers associated with it were validated at a European level by a dual process of net-based focus groups of teachers and teacher trainers in each of the participating countries in a European Project (Elene-TLC) and an online Delphi method involving 78 experts from 14 universities of ten European countries. The competency framework and the examples provided in the chapter are the basis for designing innovative professional development activities in online university environments.

25.1 Why is it Necessary to Define an Information and Communications Technology (ICT) Competency Framework for Teachers?

Some authors assert that university teacher roles in an online learning environment are derived from traditional university teacher functions. However, online teaching and learning requirements are not limited to only a set of knowledge and experience; the challenges a university teacher faces are closely linked to the particularities of interacting and communicating online.

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Some of these studies suggest that a competency framework should be revised when the teaching and learning process takes place in an online learning environment in higher education (Beetham and Sharpe 2007; Klein et al. 2004; Mac Labhrainn et al. 2006). For this reason, it is necessary to elaborate teacher roles, while at the same time specifying which competencies are required by these roles within the particularities of the tasks teachers must carry out in online learning environments.

The study we present is based on a socioconstructivist and situated approach, which means that the actions people perform and the environment surrounding them are intertwined and, thus, they must be regarded as parts of a mutually constructed whole (Hung and Der-Thanq 2001; Jonassen 2003; Lave and Wenger 1991). Broadly speaking, learning is considered a distributed, interactive, and contextualized process resulting from learners' participation in a community of practice. A community of practice is a group of people who share certain values and cultural practices and a given organization aimed at the achievement of goals.

In order to clarify and specify teacher roles, an extensive review of the literature and an analysis of training actions were carried out in an earlier study (Alvarez et al. in press). A wide range of interpretations of the terms "teacher roles and functions" and "competencies" was found (Anderson et al. 2001; Dondi et al. 2006; Eraut 1998; Gonczi et al. 1993; Goodyear et al. 2001; Salmon 2000; Tigelaar et al. 2004; Westera 2001).

The concept of competency, unfortunately, is used in several differing ways. In general, there are two clear approaches: one viewing competency as a personal skill or ability, linked to behavior efficiency (Eraut 1998; McClelland 1998; Pearson 1984; Spencer and Spencer 1993), and the other approach that understands competency as strategic behavior, linked to the possibility of adjusting performance to the context demands. In our opinion, the latter approach seems more suited to refer to teacher competencies, whose exercise must unavoidably respond to the peculiarities of their given educational context. Accepting the social nature of competencies implies that it is the actors, and their expectations, that determine and shape the content of the competencies required to successfully perform in specific professional contexts (Eraut 1998; Gonzi et al. 1993; Westera 2001).

In view of this lack of precision, it seems necessary to delineate the competencies a university teacher should have to be able to teach in fully online learning environments.

25.2 Which Competencies are Considered Essential for Teaching in an Online Environment?

One of the pioneering studies dealing with this topic is that of Berge (1995), whose main assertion is to highlight as a priority the demands made on communicative competencies. This author refers to the online teacher function as that of an

instructor/facilitator and categorizes teacher roles into four areas (pedagogical, social, managerial, and technical), for each of which he offers recommendations that may assist the teacher during the teaching–learning process, paying special attention to the particularities of ICT.

The definition of teacher functions and roles, specifically for online teaching–learning environments, is more recent; it results from observing and analyzing the experiences of those teachers who, in their daily practice, respond to the challenge of teaching in online environments, and in general it is identified by this classification into four main areas proposed by Berge.

Among the most recent literature reviewed for this study, standing out from the rest for their methodological rigor, are the studies by Coppola et al. (2002), Klein et al. (2004), and Williams (2003). Williams defines four major dimensions to categorize university teacher functions in environments introducing ICT: (1) communication and interaction; (2) instruction and learning; (3) management and administration; and (4) use of technology (transversal to all). These functions are defined by the competencies they require in practice, which in this study are identified and classified utilizing the Delphi technique.

Coppola et al.(2002) focus their attention on the changes perceived by teachers as required for teaching in online environments. The most significant aspect of this research is the importance it places on the teachers' views on their functions; it shows that teachers view the change as a transition from "subject expert" to "performance coach" in a learning situation. The changes are linked to the styles of interaction with students and with other teachers: changes in the instructional design, particularly in organization, management, and control/assessment of the teaching–learning situation. Taking these statements into account, three specific university teacher roles are described for online environments: cognitive role, affective role, and managerial role.

Although not dealing exclusively with online teaching, it is also worth mentioning the study published by the International Board of Standards for Training, Performance and Instruction – ibstpi – (Klein et al. 2004). The list of competencies devised by ibstpi includes 18 clusters referring to five domains of teacher performance, which can be linked to their functions: professional foundations, planning and preparation, instructional methods and strategies, assessment and evaluation, and management. Besides detailing the competencies corresponding to each domain of performance, this study also describes 98 performance statements which allow for adequate representation of the competencies, both in terms of assessment as well as training. This study was validated globally with a sample of more than 1,300 practitioners in all regions of the world.

Other research pieces reviewed in this study, despite not aimed at clarifying teacher functions and competencies, do bring to the fore and argue that a teacher in an online environment should aim at encouraging creative thinking or the strategic and meaningful construction of knowledge, thus giving great importance to the communicative function (Gunawardena and Zittle 1997; Laurillard 2002; Salmon 2000; Prestera and Moller 2001).

In all these cases, the outlined functions are associated to different roles, which are in turn defined by the more or less precise set of competencies required by the teachers to perform in a online environment. The lack of agreement on what the roles are, and how they are distributed, can be explained by the fact that diverse roles are shaped in correspondence to the tasks performed by the teacher, paying attention to the particularities of each context, both organizationally and socially. From the analysis of the various studies cited above, we identified some specifications to each of the teacher functions/roles. However, the evident lack of consensus and the diversity of outlooks on the issue highlight the need to carry out a contextualized study to enable us to clarify and validate the functions and roles, as well as the competencies associated with them, so as to establish a competency framework, which will prove useful in the design of professional development actions for university teachers teaching in online environments.

25.3 Methodology

The methodology in most of the reviewed studies was based on two techniques, the focus group and the Delphi method (Egan and Akdere 2005; Klein et al. 2004; Williams 2003). This is the reason why both techniques were used to identify and prioritize the competencies exercised by a teacher in an online teaching and learning environment. The research process is described below.

In terms of the first technique, with the objective of approaching the roles of online teachers within the European higher education context, we chose to carry out a net-based focus group (Anderson and Kanuka 2003). The aim of the net focus group was to query teachers themselves on which competencies they identify as necessary for teachers to have in order to teach with ICT.

The participants in the focus groups posted their contributions to the discussion in an asynchronous online platform. These contributions were processed and analyzed to identify both the competencies to use ICT needed by the two targeted kinds of professionals – the teacher ($N = 40$) and the teacher trainer ($N = 30$) – and the methodologies that the participants considered as best suited to online teaching and learning processes. The net focus groups were simultaneously held in four European countries (France, Netherlands, Sweden, and Spain) with the participation of 16 universities. In total, seven net focus groups were held.

For the net-based focus group, a platform to facilitate online discussions was selected. Each partner carried out a net-based focus group with the identified two groups (net-based focus group with teacher trainers and net-based focus group with teachers). Each discussion group ran for around 15 days. The discussion in the net-based focus group centered on the following questions (a) *Which competencies do you identify that Higher Education teachers should have for teaching with ICT?* and (b) *Which teaching and learning methodologies do you consider good practices for the design of activities that promote the development of theses competencies?*

In a second phase, we consulted experts on the agreements reached by the net focus groups. The objective of the Delphi method was to reach a consensus so as to define a framework on ICT competencies required by higher education teachers, for which groups of experts from all over of Europe were enlisted.

The criteria used to identify and select the experts from the expert panel were the following: she/he must have made a noteworthy contribution to the field through writing on research journals; she/he must have at least 3 years of experience in the innovative use of ICT in university teaching; she/he must be able to read and write in English; and she/he must be willing to participate. Observing these criteria, 107 experts were invited to take part in our research. The final expert panel was composed of 78 teachers and researchers from 34 universities of 10 European countries, who all took part in two rounds of the Delphi method. To manage and analyze the questionnaires, NetQuest was used.

The experts selected were asked to answer an online questionnaire designed from the results obtained with the focus groups. The first-round questionnaire was aimed at measuring, with a Likert scale (1–5), the relative importance assigned by the experts to the proposed statements, which were about the definitions of roles and competencies associated with these roles. The results obtained from the first round enabled the researchers to refine the statements.

After the analysis of the first questionnaire, the second-round questionnaire was subsequently administered. The objective of this was to obtain strong agreement among the experts. The aim of this second round was to reach consensus on teacher roles and ICT competencies in higher education. Taking into account the agreement reached in the first round, in this second questionnaire experts were presented with a list, ordered according to importance, of roles and associated competencies teachers must have in order to perform using ICT. For this second proposal, roles and competencies were redefined, respecting the experts' comments, which were reiterated and better argued.

25.4 Results

To explain the results of our study, we will first focus on the analysis of the net-based focus group, and then we will present the results obtained through the Delphi method. With regards to the focus group results, the competencies identified by teachers were directly related to problems and specific tasks for the innovative use of the ICT: knowledge and skills at the conceptual and instrumental levels. Teachers view the use of ICT in a teaching situation as a means to better achieve the learning goals, but they consider ICT as a challenge. See the next example:

> Planning is more absolutely necessary in online teaching, the teacher has to be able to divide the syllabus into pedagogical objectives and associate them with teaching, evaluations, activities, and exercises necessary to reach those objectives in a defined time.

(Comment by a teacher participating in the net focus group at Université Nancy 2, France)

The university teachers taking part in net focus groups consider that, in order to teach in online learning environments, a teacher should have knowledge and skills at different levels, both instrumental and conceptual: what is possible, what is the best/most appropriate, etc. Both technical and pedagogical competencies are needed: competencies for design and planning; methodological competencies; competencies in communication; social presence; technical-disciplinary competency. Also, for the teachers it is important to consider the characteristics of the educational contexts/scenarios and to take into account the pedagogical model in which ICT is introduced, and the fact that generally it is a job carried out in coordination with others. The following comment is representative of the statements made by the teachers on this regard:

> In face-to-face or blended contexts the teacher does everything, which means the use of a wide range of competencies that include pedagogy, technology, design and planning, production, management and quality control, and it is likely that I'm forgetting some. In online or distance learning situations we know that the process is a bit different depending on the kind of university where the teacher works. The planning processes can be more rigorous, the task of production (mediation) can be carried out by specialized teams, and the implementation can be trusted to a team and must be well coordinated

(Comment by a teacher taking part in the net focus group at the Open University of Catalonia)

For their part, the teacher trainers discussed competencies in terms of "ability." They emphasized the importance of adjusting ICT to the educational context, the educational value of ICT and their innovative use. Nevertheless, the main competency that teachers have to develop was related to the instructive/cognitive task, according to the teacher trainers. In general, their comments were more structured, compared to those made by the teachers.

> The teachers have to be able to identify which aspects of the learning-teaching processes in their classrooms would benefit from the introduction of ICT and to promote the use of ICT in the mentioned processes.

More specifically the following competencies have been chosen:

- Knowledge and capacity to make fundamental decisions about which uses of ICT are required to teach what he/she wants to teach.
- In keeping with their classroom characteristics, being competent in the development of those learning/teaching activities using ICT which have been identified as possible optimizers of the students learning: "to promote the students' learning in activities of cooperative groups."
- Capacity for the design of teaching activities centered in the work of the students (to make decisions about the methodologies, the contents, activities, feedback, evaluation, etc.

(Comment by a teacher taking part in the net focus group at the Open University of Catalonia)

An analysis of the results from the discussion groups allows identifying a wide range of competencies, which can be grouped into five areas in relation to the tasks, roles, and functions that an online teacher may perform: (1) pedagogical, (2) social, (3) design/planning, (4) management and (5) ICT domain. The last two have a transversal nature.

Based on this analysis, the first questionnaire was designed to validate the proposal by means of an expert consultation via the Delphi method. All the universities that hosted the net-based focus groups took part in the creation and adjustment of this questionnaire.

In order to reach a consensus, we asked the experts to answer the questionnaire in two rounds. They were asked to prioritize the proposed statements in the first one. In the second, the goal was to obtain an agreement by consensus. The questionnaire was structured by the following information areas:

- Current teacher functions for ICT supported teaching and learning
- The specific competencies required by each teacher function
- Methodological criteria for designing teacher training practices to improve the teacher competencies for teaching with ICT in higher education.

Our chapter focuses on the analysis of the first two areas. In the first round concerning the roles, over 90% of the experts agreed that all the roles, i.e., the pedagogical role and the social, planning/design, managerial, and technological ones, were correctly defined. A majority added comments to justify their agreement or disagreement. The experts who expressed agreement suggested additional clarification to complement the definition. The following example shows some interesting comments made by the experts in the first round of the Delphi method, in relation to the definition of planning/design role.

25.4.1 Proposed Definition for Planning/Design Role

The teacher carries out the tasks of planning, monitoring, and organizing the learning process, as well as foreseeing enough actions for the communication between the students and with the students concerning the learning goals and the assignment.

25.4.2 Comments

The teacher *facilitates* the tasks of planning, monitoring and organizing the learning process *that the student are responsible for*, as well as *supporting tools for* enough actions

for the communication between the students and with the students concerning the learning goals and the assignment (*Reformulation proposal*).
It is important as well, that teachers do not "overplan" the learning situation. In some cases he should have the competency to ensure that there are "open situations" that must be designed by the students themselves, and the patience to let them work on their own and give the learning process a direction, that could not fully be foreseen or planned by the teacher (*Arguments*).

(Definition proposed in the first questionnaire and comments made by the experts)

The value attributed to the different roles was high in all the cases (over 80%), although there is a clear difference in the level of importance assigned to one role or another. The majority of the experts consulted attributed more importance to the pedagogical role (89%), followed by the social role (86%) and the planning/design role (83%). However, the technological and management domains were considered as less of a priority, although they were assigned significant importance (64 and 57% respectively). The following comments reflect the opinions prevailing among the experts with regard to the assignment of importance to the roles for university teachers to teach in online environments:

I personally think that the teacher's social role is the most important, because an atmosphere of indifference could easily demoralize the students. Also, this role becomes even more important if there is little actual social interaction involved in teaching as in the cases of very large lectures and e-Learning.

All of them are very important but in technological and organizational questions teachers could be aided by other technicians.

Technological and management skills are necessary within the organization, but an individual teacher may get along with a relatively basic level of knowledge about these topics.

The consultation on the competencies associated to each of the roles enables, on one hand, the validation of their formulation and, on the other, their ordering according to the importacne assigned to them in the development of the role in question. It is worth pointing out that in some cases (agreement of less than 65%), the experts recommend discarding those competencies considered less or not important. Other disagreements relate to the need of reformulating the definition of competency, and they also suggest including some others.

Looking at this analysis in more detail, we can see that the experts' answers also triggered a thorough revision of the competencies associated to the pedagogical role. They suggest new competencies for this role, such as the self-regulation of learning, the need to offer kinds of help harmonizing with students' current stage of development or to establish clear criteria for self-assessing learning.

Concerning the planning/designing role, the experts reached their strongest agreement about the competencies associated with it: the competencies most highly valued for this role were making decisions about methodologies appropriate to the learning objectives (87.5%), creating activities in relation to specific aims (86.1%), and designing feedback and evaluation adjusted to the learning–teaching process (88.9%). The experts' comments enabled the researchers to adapt and adjust their competencies proposal.

As in the case of the social role, 86.1% agreed that importance should be given to teachers' competency to provide feedback in order to promote the construction of knowledge.

For the pedagogical role, the competencies most highly valued were using ICT methodologies (blended, online, etc.) that support the goals/purpose of the course and the type of learning (90.3%); following students' learning processes/achievements: maintaining continuous feedback to promote knowledge construction (86.1%); communicating in an effective way by using ICT (79.2%); and using different learning methodologies adapted to the students' learning styles, previous knowledge, and motivation (74.9%).

The experts' strongest agreement on the competencies defining the technological role was reached in the competency related to understanding the functions of ICT (81.9%). Their contributions made it possible to clarify and improve the definition of the suggested competencies, but adding new competencies was unnecessary.

With regard to the managerial role, the consensus was under 80%. In contrast with the above-mentioned roles, consensus about the competencies associated with this role did not appear to be reached in the first round.

The results of the first-round questionnaire were the basis for creating a second questionnaire. The researchers redefined the role and its associated competencies, which were included in the questionnaire administered in the second round of the Delphi Method.

The second round results show greater agreement among the experts with the proposal of roles and competencies needed to teach in online university environments. There were plenty of comments to perfect the definitions, and also some aimed at including aspects they thought had been omitted. These comments were considered highly useful for this study objectives. The following example shows this development:

25.4.3 Redefinition of Planning/Design Role

The teacher facilitates the planning, monitoring, and organization of the learning process that students are responsible for, as well as providing supporting tools to enable sufficient communication between students and with students concerning learning goals and assignments. As learning technologies increasingly incorporate highly interactive/collaborative elements, the teacher must have a basic understanding of self-organizing processes. These cannot, and should not, be "planned" in the same way as traditional learning processes are planned.

It is also important that teachers do not "over plan" the learning situation. In some cases, they should have the confidence to allow "open situations" that are designed by the students themselves and the patience to let them work on their own, thereby giving the learning process a direction that could not be fully foreseen or planned by the teacher.

25.4.4 Comments

> Much better than the first version.
> Scaffolding is an omission I think; teachers should be able to "hand over" their planning to their students.
> I don't like the negative touch of the definition. It says that you should not do a lot of things. Instead, the definition ought to say what to do. For instance, teachers should plan to give students ample possibilities to manage and maintain their own learning processes. Teachers create possibilities, situations and tools that inspire and support student in this process.

(Some comments made by the experts in the second round)

Similarly, in the second round we observed greater agreement among the experts regarding the list of competencies associated to each role; on this occasion there was no suggestion of deleting any of the competencies shown, although we kept the comments requesting that the definitions be perfected. As a result of this second round, the competencies for each role were re-ordered, according to the importance assigned to them by the experts. The final results of this process enabled us to create a competency framework in relation to the competencies required by university teachers to teach in online environments.

25.5 Overall Competency Framework

First and foremost, this study, carried out with the objective of validating the roles and competencies of university teachers in online learning environments, necessarily links with the notion of situated learning.

In practice, teacher tasks in online environments are carried out by different professionals, so that a university teacher does not necessarily perform all the roles, but rather interacts with other teachers and professionals in general. In any case, the competencies required by the university teacher in the practice will depend not only on the role being performed but also on the nature and complexity of the task being carried out. Consequently, this notion implies there is an overlap of university teacher competencies in online learning environments.

The empirical study carried out in this research supports the conceptual framework which served as a starting point (Alvarez et al. in press). Teacher functions and competencies integrate and complement each other, sometimes even overlap, even though we can distinguish the competencies required for each function, as well as the need to outline the tasks required of them. The following diagram shows the interrelation between the different roles and domains we have identified (Fig. 25.1):

Special emphasis is given to the need to assimilate the concept of socially situated competency: that is, to pay attention to the nature of the tasks, and the particularities of the online learning environments where teaching takes place.

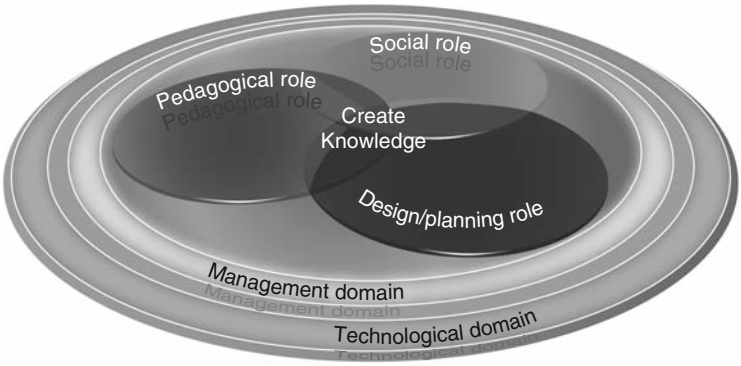

Fig. 25.1 Roles and domains for university teachers in online environments

This point of view means that any statements on the competencies required to teach in online learning environments must always be made in relation to context, and consequently, any such statements will be relative to these particular circumstances.

Below is the proposal for a competency framework for university teaching in online environments. In order to organize the information collected for this research, we have chosen to group the competencies identified around five main roles and domains, which are clearly differentiated in accordance with the nature of the tasks they are associated with. The roles are: pedagogical, social, and design or planning. The technology is considered part of the environment and is thus considered a "domain" rather than a specific role. The same is true of the management domain, which concerns the organizational environment in which teaching and learning take place.

25.5.1 Defining Planning/Design Role for Teaching in Online Environments

Teachers facilitate the planning, monitoring, and organization of the learning process. They provide supporting tools to enable interaction among students and with students concerning learning goals and assignments. Teachers plan the activities/supports that assist students in the acquisition of self-organization and self-regulation skills. The activities and supports must explicitly scaffold the acquisition of these skills in specific contexts related to specific domains.

As learning technologies increasingly incorporate highly interactive/collaborative elements, the teacher must have a basic understanding of self-organizing processes. This implies planning differently to what is involved in a traditional learning process. In this sense, it is important to know how to plan, how to use the planning, and how to adapt the planning depending on the dynamics of ongoing

learning activities. Teachers need to be aware that instant changes may occur and that they need to be prepared for that (with previous planning).

Competencies for planning/design role (in the order of importance)

1. Making decisions about methodologies appropriate to the learning objectives: team work, discussion, case analysis.
2. Creating activities related to specific aims. These activities have a close relationship with the knowledge to be acquired.
3. Designing feedback and evaluation adjusted to the learning and teaching process.
4. Planning student support during the teaching and learning process.
5. Being aware of the fact that students have different levels of ICT experience. Anticipating the problems students will face when working on an assignment or course.
6. Making decisions about how students are to interact and which tools are appropriate for a given type of interaction (e.g., wikis for collaborative construction, blogging for conversation-type activities, etc.).
7. Making decisions about how to present the content.
8. Creating materials and tools that adapt the use of ICT to students.
9. Ensuring that data protection legislation is rigorously applied.

25.5.2 Defining Pedagogical Role for Teaching in Online Environments

The teacher masters the field of expertise (strategic teacher and expert in his/her professional field), gives support during teaching and learning processes, and promotes deep learning that is both complex and critical. This role refers to the abilities necessary to create learning situations by proposing activities that will have to be linked to specific contents. Active, contingent, varied teacher assistance throughout the process is needed in order to fit teaching to students' needs, expectations, interests, and prior knowledge.

Teachers must be able to oversee the consequences of their actions (instruction, expectation, use of ICT, setting goals, discussion, interaction, etc.). This involves the instruction and structuring of activities for the whole class, monitoring activities, intervening with individuals and small groups, and drawing the class together in group discussions where appropriate.

Competencies for pedagogical role (in order of importance)

1. Communicating in an effective way (i.e., clearly and precisely) by using ICT.
2. Supporting students' acquisition of learning strategies (to seek, organize, analyze, apply, etc.) and self-regulation skills.
3. Following students' learning processes/achievements: maintaining continuous feedback to promote knowledge construction.
4. Making improvements to teaching delivery according to feedback received from students about methods, communication.

5. Using ICT methodologies (blended, online, etc.) that support the goal/purpose of the course and the type of learning.
6. Assisting students when necessary.
7. Being aware of different kinds of pedagogical models and using them in an appropriate way in different teaching/learning situations (taking into account students).
8. Knowing how to facilitate collaboration between students through synchronous and asynchronous technologies.
9. Using ICT tools to effectively assess students' knowledge/capacities (to promote self-assessment, formative and summative assessment).
10. Knowing how to use ICT tools to create and facilitate "a community of practice."
11. Knowing how to deal with self-organizing processes that emerge unplanned.

25.5.3 Defining Social Role for Teaching in Online Environments

The teacher stimulates the process to promote a communicative atmosphere (cohesion, team motivation, commitment) that encourages interaction and cooperative knowledge construction. The teacher must foster the creation of a community of learners in order to diminish the feeling of isolation and help creating a group identity.

Competencies for social role (in order of importance)

1. Promoting collaboration among students.
2. Setting a trustful atmosphere for communication.
3. Maintaining continuous, positive, and constructive feedback to encourage student participation.
4. Supporting clear communication with students in virtual environments.
5. Promoting communication between students.
6. Providing strategies to avoid misunderstandings, interruptions, and incomprehension.
7. Keeping a high level of motivation among students.
8. Recognizing the differences between students, due to different backgrounds (social, cultural, and knowledge) and the differences in level of experience in the use of ICT.
9. Building a feeling of belonging to an online learning community.
10. Using different technological resources and tools (i.e., e-mail, blogs, wiki, videoconference, chat, etc.).

25.5.4 Defining ICT Domain

The teacher must be competent in the use of ICT within an educational framework. This means to understand technology as partner in the learning process (Jonassen

et al. 1999); that is, depending on the techno-pedagogical use of the ICT, meaningful learning can be promoted.

Competencies for ICT domain (in order of importance)

1. Understanding the possibilities (functions) of ICT: what is possible (its potential and constraints), which tool is most appropriate for a specific aim, situation, and student. It also depends on the ICT support available in one's institution.
2. Knowing who is available in one's institution or network to help out with technical issues and/or keeping up to date with the latest changes and advancements in the technology being used.
3. Knowing how to work with the basic tools for creating multimedia content (multiple choice questionnaire, or animated presentations).

25.5.5 Defining Management Domain

The teacher must be competent in the organization of information, either in a blended or in a fully online learning environment, before, during, and after the teaching and learning process.

Competencies for management domain (in order of importance)

1. Being able to manage a team: supporting students and colleagues with time management (e.g., deadline management, chronograms).
2. Being able to manage different types of information from different sources.
3. Working with other teachers in the process of designing, developing, and evaluating teaching with ICT (having basic skills in effective team management).

In addition to the identified roles, experts pointed out that teachers should work in a team with other professionals that give them support on the planning/design, technological, and organizational tasks. This means that teachers are fully in control of the learning process, but they receive support from some teams depending on the teacher's demands.

25.6 Conclusions

The analysis performed in the study, as presented above, allowed us to define an ICT competency framework for teachers and teacher trainers, which is currently being validated through designing and implementing professional development activities developed at a European level by means of a Europe-wide collaborative space for teachers, trainers, instructional designers, and learners in educational ICT use to meet the skills, needs, and expectations of the Internet-generation students – eLene TLC project http://www.elene-tlc.net – *Teaching and Learning service Center* – which was launched at the beginning of 2007 with e-Learning program funding from European Commission.

Above all, the conceptual framework arising from this research – definition of functions and competencies for university teachers in online environments – attempts to make a contribution to better planning of their training, so that these conclusions turn out to be useful in terms of helping to clarify the methodological criteria, which to a great extent guarantee the efficiency of training in two senses: meeting teacher training needs and consequently, improving teacher practices in university online environments.

This competency framework can be used both from a teacher trainer's and online environment teacher's perspectives. The results of this research provide teacher trainers with a conceptual approach as a point of reference, which alludes to teacher functions and competencies in online learning environments (Guasch et al. 2009). The teachers may use the competency framework as a self-assessing tool, that is, as a guide to self-regulation, to understand which roles and competencies she/he masters and which she/he should devote more time and effort to. Clearly, this is not an exhaustive or closed proposal, but it is rather intended to be a reference point in continous development.

Chapter 26
Stories of Change: e/merge @ the University of Cape Town

Tony Carr

The Center for Educational Technology (CET) is located at the University of Cape Town, which is a leading South African research and teaching university. This implies great opportunities and challenges since we are poised between the experience of and conditions faced by colleagues in other parts of Africa and those of the colleagues in first-world countries. We have access to the intellectual and professional networks of the first world and our university features on global rankings, yet our resourcing, while generous in terms of most other universities in our continent, is a fraction of that enjoyed by first-world universities of similar size and scope. Both globalization and developmental imperatives require us to rapidly extend the effective use of educational technology in our university for teaching and learning. The received models of e-Learning integration developed mostly in first-world countries need to be adapted for contexts with scarce resources.

We are physically distant both from most of our African colleagues and from the heartlands of educational technology in North America and Europe, so we cannot rely on the physical conference circuit for information sharing and network building due to the high cost of travel and limited funding for conference attendance. By 2002, it became clear that not only did we have limited networks across Africa but also that colleagues in South African universities tended to network more with peers in universities in other continents than with local colleagues. One of our responses to this anomaly was to establish a biannual online conference on the use of educational technology in Africa, which drew together colleagues across an increasing number of African countries and a smaller number of participants from

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other continents. Our overt agenda was to support the growth of communities of practice of educational technologists and educational technology researchers first across Southern Africa and later across Anglophone Africa. We were able to generate value for the broader community and to grow our own networks at the same time. Fortunately, we were in a good position to host an online conference such as e/merge because of both our complex context and our capacity in areas such as educational technology research, the customization of learning and collaboration environments, and online facilitation.

e/merge started with a conversation in late 2002 about the large gap between the ambitions of South African face-to-face e-Learning conferences and the limited experiential base, which many participants including presenters were able to bring to bear on the conceptual and pragmatic conversations about integrating the use of educational technology within teaching, learning, and administrative processes in their universities. Perhaps an online conference could address this gap by facilitating learning about the use of technology for teaching and learning within an experience of online learning community. It took 18 months to conceptualize the conference, raise fund, market the conference, recruit presenters, customize the conference environment, and train online facilitators. We were only able to get the first conference going by tapping into the experience, wisdom, and energy of all our existing networks across the educational technology world in Southern Africa and globally. Our reflection is that you cannot suddenly kick-start a major community building project outside your institution without a significant prior investment in growing a community of shared interest around your work.

CET and its predecessor unit (The Multimedia Education Group) have invested significant amounts of our most scarce resource, i.e., our staff time, in the design, marketing, development, and running of the e/merge online conferences. Our commitment to the broader e-Learning community in our continent has been yielding dividends for several years. Our software development for e/merge has generated code to improve the learning experience of students at the University of Cape Town and in many other places through our contribution to an open source learning environment. e/merge has brought us new and deeper connections with colleagues in our own university, and across Africa and the world, leading to enhanced opportunities for partnership projects where we don't need to grow connection and trust from scratch because after all we have learnt and celebrated together in e/emerge. e/merge has also exposed our staff to the complexities and constraints faced by colleagues in many other parts of Africa and to the strategies which they employ locally. Hopefully, this enhanced sensitivity to the contexts of our colleagues will help to make us more suitable potential partners in shared projects. Beyond this, e/merge has also brought us two members of our full time staff and some of our visiting students for a master's degree designed to enrich the understandings and practice of e-Learning colleagues spread across Africa.

We are starting to plan for the World Cup e/merge in 2010 and to seek stronger organizational partnerships for the implementation of e/merge because it is time to share even more of the benefits with the community.

Chapter 27
The Impact of Collaborative e-Learning on Concepts of Teaching

(or e-Competent to teach Homo Zappiens?)

Tony Churchill

Abstract Much has been written about the way in which e-Learning has changed learning in higher education without transforming it to meet the needs and expectations of Homo Zappiens (Homo Zappiens: Growing Up in a Digital Age. London: Network Continuum Education, 2006). The beliefs and practices of teachers in the sector have remained largely unchanged despite the widespread adoption of e-Learning. This study identifies key differences in the beliefs and practices of practitioners, reflecting levels of engagement with e-Learning. It shows how many e-Learning initiatives have led to the internalization of such change, with the adoption of exemplars and best practice. It considers why the examples of externalization (where exemplars are adapted to context and the modifications passed to others) are much more limited. Using activity theory, the barriers to such change are explained and lessons for future approaches to professional development derived. The nature of the transformation needed is explored in order to make the switch in higher education learning and teaching from analog to digital. Through an exploration of the nature of e-Learning innovation, it considers the learning communities that should be at the heart of such transformation. It should, therefore, be of value to practitioners wishing to innovate and those who design and deliver the professional development programs to support them.

27.1 Introduction

At the heart of the constructivist paradigm is the idea that a learner has a conceptual framework that is modifiable. The term "constructivism" embraces a substantial body of learning theories holding that students' experience enables them to reconstruct their understanding of the world or to change their concepts (Biggs 2003).

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This study aims to understand the impact of engagement by higher education practitioners with collaborative e-Learning on their conceptual frameworks. It seeks to establish whether such engagement can contribute to the transformation of teaching in higher education to a more constructivist paradigm. The nature of the communities that they are engaged in and create will also be considered. The key questions this study seeks to address are:

1. What are the beliefs and practices of higher education practitioners engaging with collaborative e-Learning?
2. To what extent are practitioners' beliefs and practices modified by their engagement with collaborative e-Learning?
3. What is the nature of the communities – both formal and informal – that practitioners engage in to support their engagement and do they provide effective support?

The purpose of the study is to inform staff development practice to encourage engagement with collaborative e-Learning. It is also hoped to contribute to the theoretical understanding of how such practice can enable the changes in higher education necessary to meet the needs and expectations of Homo Zappiens.

27.2 Theoretical Framework

For most practitioners in higher education, the subjects or focus of the activities they engage in are cohorts of students. The object of such activity is to develop students' understanding of an aspect of the discipline they are studying or a relevant skill. The broader outcome that this contributes to is developing students with reflective approaches to the discipline which is recognized by the award of an academic qualification.

This is not a simple, linear process but is mediated by a range of artifacts used by practitioners such as the lectures and seminars they deliver. In the early twentieth century, both Dewey (1961) and Vygotsky (1978) observed the importance of mediating artifacts in the learning process, with the latter citing examples ranging from a knotted handkerchief (to jog the memory) to a civic monument (to provide historic context (Dewey 1961; Vygotsky 1978). The classic representation of such an activity system involves using a simple triangle showing the mediated relationship between subject, object, and artifact (Fig. 27.1). This suggests that when introducing a new tool – such as an e-Learning innovation – we are looking at the simple replacement of one mediating artifact by another. On the basis of such an analysis, the key external obstacles to such innovation are the willingness and ability of the individual practitioner to pass this on to their students. This, therefore, suggests a training intervention focused on the technology itself, involving developing the motivation and technical competence of the practitioner to introduce the change.

As this and other studies show, these factors are necessary, but not sufficient, for a successful professional development program to promote e-Learning. Mayes

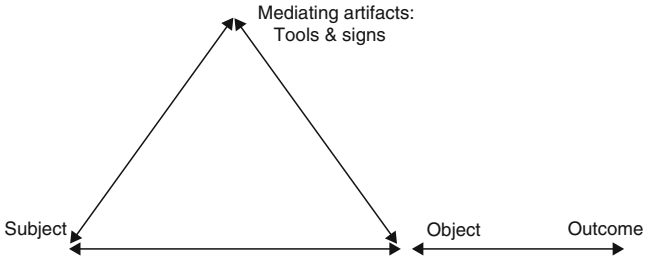

Fig. 27.1 A basic activity system

likened this repeated cycle of e-Learning failing to transform higher education to the film "Groundhog Day" in which actor Bill Murray constantly relived the same day. Whatever the innovation, there was no fundamental change or transformation of the outcome (Mayes 1995).

The concept of e-Competence (Schneckenberg 2008) encompasses a range of skills, experience and support necessary to achieve transformative e-Learning projects. It is defined as, "...the integration of pedagogical concepts and institutional frameworks into the process of technological innovation in teaching and learning" (The European e-Competence Initiative 2009). There are clearly aspects of e-Competence beyond the technical ability and motivation to implement e-Learning innovations. Authors of activity theory like Leont'ev (1981) and Engestrom (1987) emphasize the importance of the mediating influence of societal context (i.e., social mediation) as well as the impact of the artifacts selected (Leont'ev 1981; Engeström 1987). Such approaches place the activity being studied in a collaborative system. Engeström developed a more complex representation of such systems (Fig. 27.2) which introduces three contextual factors to activity theory:

1. *Rules*: The organizational restrictions and conventions within which the practitioner is expected to operate.
2. *Community*: The group (or groups) of colleagues within which the practitioner operates.
3. *Division of labor*: The compartmentalization evident in the organization between disciplines (e.g., faculties and schools) and staff groupings (e.g., academic and support) (after Engeström 1999).

Without this broader conception, it is difficult to explain the apparent failure of many well-structured and delivered training interventions intended to develop e-Competence. Using such activity systems as the basis of analysis enables a focus on the tensions and contradictions of such systems which Engeström suggests, "... are the motive force of change and developments" (Engeström et al. 1999). Such contradictions can be categorized as either primary (level 1) or secondary (level 2). The former refers to an inner tension within an element of the system (e.g., rules and procedures, community, division of labor, subject, object, tools, and signs), while the latter refers to a tension between elements of the system (Engeström

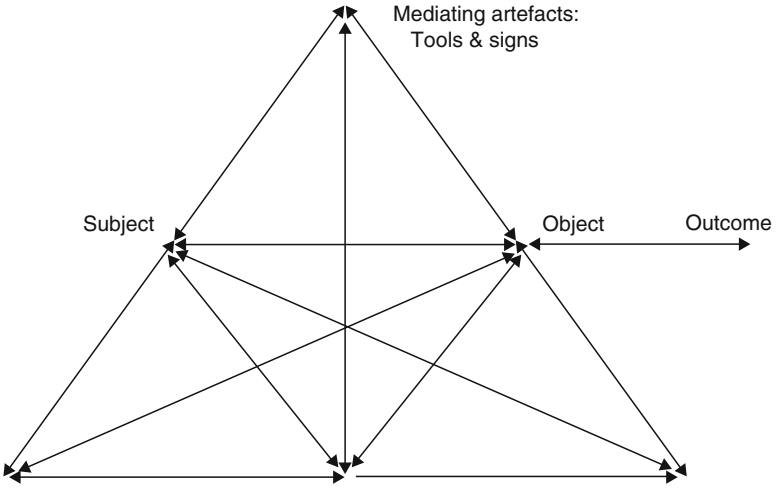

Fig. 27.2 Cultural-historical activity system (after Engeström 1987, Sharples et al. 2007)

1987). This helps to develop an understanding of the effectiveness of an e-Learning innovation and of any barriers (either primary or secondary contradictions) that prevent it achieving the immediate objective of the resultant activity system.

If we accept the importance of such social mediation, then it is also necessary to consider developing the e-Competence of practitioners in the context of their beliefs and practices. For the purposes of this study, the conceptual framework of practitioners was analyzed using six dimensions of beliefs and practices. This is based on Samuelowicz and Bain's original scheme (Samuelowicz et al. 1992) as adapted by Ho (2000). This suggests a spectrum of beliefs and practices within each dimension that range from (A) teacher-centered beliefs and practices to (B) learning-centered beliefs and practices.

The six dimensions address expectations of learning outcomes, use of knowledge, students' existing conceptions, teacher–student interaction, main responsibility for transformation of knowledge, and control of content (Table 27.1).

The teacher-centered beliefs and practices are generally referred to as associationist in the literature, where e-Learning initiatives would be, "... characterized by an analysis of the learning outcomes into subject matter units" (Mayes et al. 2004). Student- or learning-centered beliefs and practices are generally referred to as either cognitive constructivist ("... characterized by active ownership of the learning and teaching activities by the learners") or social constructivist ("... characterized by active discussion across groups of learners") (Mayes and de Freitas 2004). Two of Samuelowicz and Bain's dimensions also have intermediate dimensions ("A/B") – transition stages between associationist and constructivist approaches (Fig. 27.3).

Table 27.1 Samuelowicz and Bain's dimensions of constructivism (after Samuelowicz, Bain 1992 and Ho 2000)

Dimension 1: Expected learning outcomes	A *Reproduction of information* – Increase in knowledge achieved mainly through reproduction of received information.
	AB *Basic understanding* – Increased or changed knowledge achieved through limited manipulation of information.
	B *Transformational understanding* – Increased or changed knowledge achieved through substantial transformation of information.
Dimension 2: Expected use of knowledge	A *Curriculum-bound* – Knowledge conceived as confined within the subject area.
	B *Interpretation of reality* – Knowledge is used to make sense of reality.
Dimension 3: Students' existing conceptions	A *Ignored* – Not taken into account, it is assumed that at the beginning of the course students have no conceptions of the phenomena dealt with in the subject.
	AB *Meant as difficulties* – Taken into account, meant as common difficulties students have with particular concepts, etc.
	B *Considered* – Taken into account and treated as the starting point of the teaching and learning process.
Dimension 4: Teacher–student interaction	A *One-way* – One-way communication flowing from teacher to student.
	B *Two-way* – Two-way communication with both teacher and students actively involved.
Dimension 5: Main responsibility for transformation of knowledge	A *Receive passively* – Students seen as passive recipients of knowledge packaged by teacher.
	B *Self-develop knowledge* – Students expected to transform information and actively develop private knowledge.
Dimension 6: Control of content	A *Teacher-controlled* – Teacher in control of the content of teaching/learning.
	B *Student-controlled* – Students in control of the content of teaching/learning.

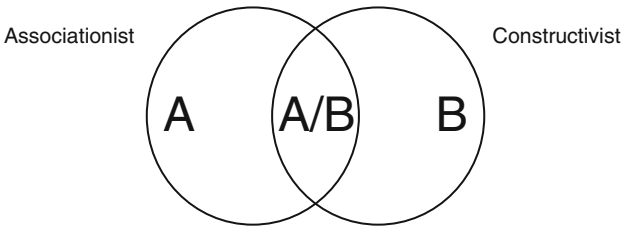

Fig. 27.3 Spectrum of beliefs and practices

27.3 Developing e-Competence

The following analysis focuses on the social mediating elements of activity systems. It draws heavily on the author's study of practitioners using e-Learning in their teaching at a research-intensive university in the United Kingdom (UK). Approaches to e-Learning is an area of research which it has developed strongly

in recent years. The institution is also recognized for the quality of its teaching as reflected in student views expressed in the UK's annual National Student Survey.

Since the study sought to identify factors influencing practitioners' frameworks of belief and practice, the majority selected for interview had also engaged in professional development programs designed to modify concepts of teaching. A number of approaches to coding and analyzing the data were used to provide triangulation. The transcribed interviews were coded using structured coding (of interviewees' beliefs and practices), semistructured coding (of the extent of engagement with e-Learning), and unstructured coding (of emergent themes). The nature of interviewees' engagement with e-Learning was considered by structuring and analyzing the case studies based on Engeström's approach to activity theory (see above).

The common feature linking all the elements added to the simple activity system is that they address elements of the social system within which e-Learning takes place – rules and procedures, community, and division of labor. For the purpose of this study, these three elements will be collectively referred to as the "learning community" since they reflect the interaction with other students, staff, and the institution's administrative function.

In the context of this study, the development of the terminology suggested by Sharples et al. in their "Theory of Learning for the Mobile Age" may be more appropriate because they are designed to be more relevant to those engaged in e-Learning – whether from a technical or pedagogic perspective (Sharples et al. 2007). It is also possible to relate the learning community elements to the dimensions of beliefs and practices identified by Samuelowicz and Bain (Table 27.1).

27.3.1 Control in Learning Communities

The term "control of the learning community" encompasses the rules and procedures of the institution, including the guidelines, support, and constraints influencing the activity. These were not seen as significant barriers to innovation by practitioners interviewed for this study. Much of the 15-year history of e-Learning innovation has depended on the actions and enthusiasm of individuals – the early adopters. It was these individuals who faced (and addressed) the initial barriers to innovation posed by the rules of the organization. The only aspect of the governance of the institution referred to as a "barrier to innovation" by the practitioners interviewed for this study was the allocation of resources, particularly in terms of staff time.

Sharples' broader conception of control encompasses the direct control of learning in the classroom (or wherever else it takes place) as well as the policies and procedures of the department and institution within which practitioners operate (Sharples et al. 2007). The less formal conventions of control which influence learning – "how things are done here" – were referred to as barriers by a number of interviewees. Sharples et al. note that, while control is traditionally seen as being

vested with the teacher, "...it may be distributed among the learners" (Sharples et al. 2007).

Control of the content of teaching and/or learning can be placed on a spectrum between teacher and student control (Dimension 6, Table 27.1). All but one of the 18 interviewees referred to this dimension, with 10 making comments coded as referring to student control of content. In some case studies, the technology acts as a surrogate for the teacher, controlling the release of information to the learner. Learner control in such circumstances is limited to being able to "access materials when convenient, and ... the pace and style of interaction" (Sharples et al. 2007). This was evident within a first-year module ensuring that students had the building blocks essential for subsequent modules. Online mini-lectures were prepared providing convenient access to content supported by diagnostic, formative, and summative objective assessments (consisting of a series of multiple-choice questions). Feedback from the diagnostic exercise enabled participants to plan the nature and scale of their interaction with the resources. Where it showed that they already understood the issues addressed, they were given the option to progress directly to the summative assessment. The practitioners were, therefore, able to focus their time on supporting students with significant gaps in their existing knowledge. This was clearly an example of effective e-Learning, addressing a long-recognized developmental need for the course. It was evident, however, that this remained an essentially teacher-centered approach to the control of learning.

Examples of learning-centered approaches to control identified in the case studies included group creation of content for use by and/or consideration by all students (four cases), requiring individual students to choose and share the subject of their assessment within broad parameters (three cases), departing from linear delivery to respond to the interests and needs of participants (two cases), and encouraging past students to engage in a forum sharing ideas on teaching with current cohorts.

A further dimension referring to control of learning refers to the expected learning outcomes (Dimension 1, Table 27.1), which range from expecting the reproduction of information to increase to an expectation of transformational understanding to be achieved through substantial transformation of information. A specific transitionary stage (A/B) on this spectrum of expectations is also identified by Samuelowicz and Bain as "basic understanding" achieved through limited manipulation of information. Although all interviewees made comments coded under this dimension, only five interviewees made comments coded as demonstrating learning-centered beliefs and practices.

27.3.2 Context of Learning Communities

Sharples' expands Engeström's notion of community to embrace, "... the multiple communities of actors (both people and interactive technology)." The former also expands this concept to include the way in which communities, "... interact around

shared objectives, mutual knowledge, orientations to study, styles and strategies of learning" (Sharples et al. 2007). This takes into account that the various communities within which interviewees operate have local, national, and international dimensions. Examples of such communities are evident:

1. Within the course teams introducing e-Learning; and
2. Among the students who are engaged in the e-Learning generated.

Research suggests that the actions of the early adopters have been (or are perceived to be) (Armstrong and Franklin 2008) tolerated, but often not embraced, by the organizations within which they operate (Taylor 1998, p. 50; Armstrong 2008). The communities have consisted of other early adopters within their institution and beyond. For there to be a transformation of teaching within the sector, innovation needs to embrace a disciplinary-based community. While this may not consist of the full course team, there needs to be sufficient engagement with e-Learning for such innovation to be considered transformative.

One indicator of the context of communities anticipated is provided by the practitioner's view of the degree of student responsibility for the transformation of knowledge (Dimension 5, Table 27.1). The spectrum ranges from students being seen as passive recipients of knowledge packaged for the community by the lecturer to being a community of active participants, transforming information to develop their private knowledge. Only 4 of the interviewees did not refer to this dimension, with 14 making comments regarded as learning-centered expecting students to take a significant responsibility for transformation of knowledge.

The approaches used to engage students in this process included continuous assessment (three cases), encouraging students to evaluate a pool of resources as part of a personalized assessment (two cases), a highly individual piece of work such as personal development portfolio or dissertation proposal (two cases), online "expert witnesses" for them to question, providing formative quizzes for them to evaluate their own progress, collaborative problem solving with an element of peer assessment, and sharing opinions and preconceptions on a subject as a basis for a session.

Further insight into the nature of the communities created is provided by a consideration of the expected use of knowledge (Dimension 2, Table 27.1). This can involve a spectrum between knowledge being conceived as confined within the curriculum and it being used to make sense of reality.

27.3.3 Workflow in Learning Communities

The final socially mediated element identified by Engeström is division of labor, referring to the engagement of others in the delivery of the object of the activity system. For Sharples et al., this becomes communication addressing the broad range of interactivity that takes place within activity systems (Sharples et al. 2007).

The productive process involved here is the production of knowledge. The subjects of the process – the students – have the objective of achieving their

accreditation. There is widespread recognition that, while the traditional one-way flow of communication from teacher to student may achieve this immediate objective, it does not achieve deeper learning objectives. Nor does it meet the changing needs and expectations of students. The term "Homo Zappiens" has been coined to sum up students who are seen as increasingly, "... active processors of information, skilled problem solvers using gaming strategies and effective communicators" (Veen and Vrakking 2006). This leads to a change in their attitude to educational institutions which are seen as increasingly disconnected from their wider networks. Their conception of learning fits more effectively with Dierking's notion of lifelong learning as, "... a cumulative process involving connections and reinforcement among the variety of learning experiences people encounter in their lives: at home, during schooling, and out in the community and workplace" (Dierking et al. 2003).

There is a clear divide with the scholarly community consisting of the practitioners, and the students being subject of rather than directly engaged in that community's workflow. The transformation of learning and teaching to meet the needs and expectations of Homo Zappiens envisages students becoming a part of this production process rather than just consumers of outputs like lectures, seminars, and assessments.

Interviewees in this study have a clear aspiration for a two-way flow of communication (Dimension 4, Table 27.1) with both teacher and students actively involved (14 of 18 interviewees). Among the approaches observed in case studies are extending discussions beyond the classroom (three cases), peer knowledge exchange and even peer tutoring (three cases), personal development among a geographically dispersed cohort of professionals (two cases) including synchronous meetings, collaboration to achieve assessed group objectives (two cases), mutual support during placements, tailoring content to student needs and interests identified in online collaboration, peer evaluation of contributions for assessment, facilitating professional decision making, reflective learning journals, using online collaboration as a starting point for face-to-face discussion, and the exchange of ideas and experience between year groups.

A further insight into the nature of workflow in communities is given by the use practitioners make of students' conceptions of the phenomena dealt with in the subject (Dimension 3, Table 27.1). The spectrum presented by Samuelowicz and Bain (1992) ranges from an assumption that students have no such conceptions at the beginning of the course, through the transitionary stage of them being considered as common difficulties students have with particular concepts, to them being treated as the starting point of the teaching and learning process.

27.4 Beliefs and Practices

Analysis of the breadth (number of interviewees) and depth (proportion of text units and nature of statements) of learning-centered concepts reveals distinctive patterns. Three of the dimensions identified by Samuelowicz and Bains (Dimensions 4, 5,

and 6, Table 27.1) are evident in the approaches of most practitioners involved in e-Learning (14 of 18 interviewees). The other three dimensions – expectations of learning outcomes, use of knowledge, and students' existing conceptions – were evident in five or less of the interviews. The practitioners indicating deeper learning (providing evidence in two or even three of these dimensions) were also those whose engagement in e-Learning demonstrated transformative aspects. On the basis of this study, it is possible to derive a three-stage hierarchy of beliefs and practices (related to engagement with e-Learning):

1. *Limited engagement or e-Competence*: No or limited evidence of learning-centered beliefs and practices with such evidence in at most one of the six dimensions. The evidence, therefore, suggests predominantly teacher-centered beliefs and practices. This applies to four interviewees and could be described as an associationist approach to learning and teaching.
2. *Transitionary engagement or e-Competence*: Evidence of learning-centered beliefs and practices in at least two of the dimensions addressing expectations of control of content, teacher–student interaction, and main responsibility for transformation of knowledge but no more than one of the deeper dimensions. The evidence, therefore, suggests some learning-centered beliefs and practices. This applies to 10 interviewees.
3. *Transformative engagement or e-Competence*: Evidence of a transitionary approach with further evidence of learning-centered beliefs and practices in at least two of the deeper dimensions addressing expectations of learning outcomes, use of knowledge, or students' existing conceptions. The evidence, therefore, suggests substantial engagement with learning-centered beliefs and practices. This applies to four interviewees and could be described as a constructivist approach to learning and teaching.

It should be stressed that this characterization of individual's approaches can only be related to their engagement with e-Learning. Further consideration needs to be given to the extent to which this can be said to characterize their wider approaches. It certainly builds on the notion of Knowles that teachers are increasingly expected to change their roles to that of "process managers" rather than being "content transmitters" (Knowles and Swanson 2005).

27.5 Implications for e-Competence Development Programs

In planning programs to promote e-Competence, there are, therefore, two main barriers to overcome. One is focused on moving practitioners from limited (or no) engagement to transitionary engagement. The other is to move from transitionary to transformative engagement.

As has been made clear above, the development required to move to transitionary engagement involves far more than just technical e-Competence. The defining characteristics of transitionary engagement include an acceptance of the need for

learning to become a two-way discourse between practitioners and students. Furthermore, a transitionary engagement includes a degree of acceptance of student control of the content learned and their involvement in transforming information to actively develop knowledge.

Efforts to create programs to develop e-Competence that move beyond technical proficiency have been widely reported. For example, Salmon's "carpe diem" initiative involves 2- or 3-day training events focused on a team of practitioners responsible for developing a particular course (Armellini and Jones 2007). A substantial element of each event involves exploring the aspirations of the course team and sharing a design model intended to facilitate a more constructivist approach through e-Learning. Such a foundation is considered essential to motivate practitioners to develop technical e-Competence. The broader aim, however, is to develop a learning community.

Where a program is based on a predetermined model, the likely outcome is internalization – the reproduction of an existing culture (Engeström 1999). However innovative the model may be, practitioners will at best be enabled to implement existing good practice within the context of the existing culture rather than play an active role in transformation.

As this study shows, the existing culture in higher education has embraced the adoption of half of Samuelowicz and Bain's dimensions (1992). This demonstrates that, in discourse at least, constructivism is emerging as the prevalent paradigm in the sector. Practitioners have "bought into" student- or learning-centered approaches to e-Learning in terms of control of content, interaction with students, and responsibility for transformation of knowledge. These dimensions act as strong indicators of the effective engagement with e-Learning. Further evidence can be provided through the use of activity theory for evaluation using the lack of either level 1 or level 2 contradictions as criteria of efficient implementation of e-Learning innovation. Such evaluation provides widespread examples of where e-Learning either enhances or replaces traditional approaches to learning.

Many cases lack contradictions (either primary or secondary) and demonstrate the three basic dimensions (Dimensions 4, 5 and 6, Table 27.1) but do not provide evidence of transformative engagement. They provide evidence of a transitionary stepping stone rather than transformative engagement through e-Learning. A minority of cases provide evidence of contributing to transformative learning including the deeper learning dimensions – expectations regarding the transformational nature of learning outcomes, the students' use of knowledge, and embracing students' existing conceptions as the starting point for the learning process. This provides the basis for what Engeström calls externalization, involving transformation of existing culture through the creation of new artifacts (Engeström 1999).

Any program seeking to develop the e-Competence necessary for externalization needs to focus on changing the conceptual framework of practitioners – their beliefs and practices. Various attempts have been made to establish the elements of the conceptual framework of teachers indicating the following:

1. Such frameworks are derived from the individual's experiences as a learner and a teacher.
2. The individual's framework will influence their approach to teaching. An individual whose concepts are teacher-centered will be attracted to methods that focus on content delivery. An individual who is more student-centered will be attracted to innovations that are more facilitative.
3. Attempts to modify the frameworks tend to be filtered by existing concepts. The frameworks, therefore, tend to be self perpetuating.

This study reinforces the findings that efforts to modify teaching methods must be focused on changing the concepts of the individual teacher. This strongly indicates that any program intended to move practitioners from a transitionary to a transformative approach must fill the significant gap in their experience – that few practitioners have learned using e-Learning. This suggests it should be delivered using the online tools and artifacts that the program is intended to promote.

A range of examples are available of online professional development courses. The derivative program attended by a third of the interviewees for this study incorporated a range of the features of the published examples. This includes emphasis on the following:

1. Low initial hurdles building the motivation and initial skills to participate (see 2 below). Even where participants have extensive experience of the tools used, they are encouraged to engage and evaluate this as a starting point for their own participants.
2. A clear (but not prescriptive) model for program design. In this case, Salmon's five-stage model (Salmon 2004) was used but with substantial modification to the e-tivities framework suggested for implementing this. Other models (e.g., Laurillard's conversational framework) were introduced as part of the process.
3. Collaborative creation of artifacts that can be reused in a number of contexts. This is developed through the identification of a range of learning objects that have proved successful in face-to-face contexts. Participants then voted on which they would like to collaboratively develop for online use. In addition to developing a framework for its use, participants were required to provide an example of how the learning object could be used in their own discipline.
4. Participants developing a broader "learning experience" (at least 3 hours learning time) for their own students. All participants were expected to act as "critical friends," supporting each other as they moved through this process.
5. Participants developing their own evaluation frameworks (with a number of models provided as examples).

The early stages of this program clearly focus on the internalization of ideas form the basis of the current e-Learning culture. As the participants share the results of their own innovations within the context of their own disciplines, then externalization comes to the fore. For a genuinely transformative or expansive cycle to develop, then the results of the innovation should form the starting point for future practitioners joining the community (Fig. 27.4).

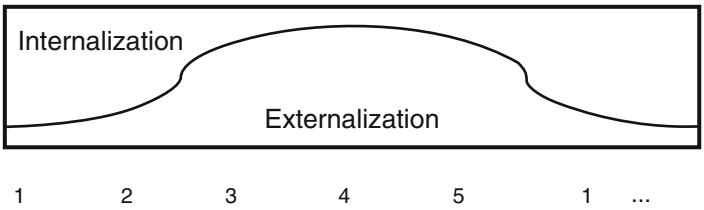

Fig. 27.4 Expansive cycles in e-Competence training

The participants in this program appeared disproportionately in the transformative engagement group of the study. The fact that participation in the program was on a self-selecting basis means that further research is necessary to establish whether such a program can indeed promote externalization. One significant finding was that the only participant in the program who did not feature in the transformative engagement group (or at least at the transformative end of the transitionary spectrum) experienced significant difficulty in engaging in reflection. The criteria identified by Engeström for transformative or expansive change (see below) are:

1. "... reflective analysis of the existing activity structure – one must learn to know and understand what one wants to transcend",
2. "... reflective appropriation of existing culturally advanced models and tools offer ways out of the internal contradictions" (Engeström 1999).

The only other indicator associated with transformative approaches in this study was participation in a complete program of academic practice development which embraces reflection. This strongly suggests that e-Competence development should be associated with such programs, particularly for new academic staff.

27.6 Looking Beyond the Course (and Institution)

The final element required for expansive change is that the wider outcome envisaged for an individual activity system should be compatible with, and reinforce, a wider institutional activity system promoting transformative change. There are a variety of examples in the study which clearly achieved the immediate object but no wider outcome was evident. These, therefore, represented effective e-Learning but did not provide any evidence of being part of expansive systems. Even when an activity system is regarded as effective (i.e., no Level 1 or 2 contradictions), achieving the broader outcome anticipated depends on the interaction with other activity systems. This gives rise to two further potential levels of contradiction:

- Level 3 or tertiary contradiction – a tension, "... *between* the object/motive of the dominant form of the central activity and the object/motive of a culturally more advanced form of the central activity."

- Level 4 or quaternary contradiction – a tension between the central activity and similar linked or neighboring activities.

It is at the level of outcomes that the multilayered nature of activity systems developed by Engeström becomes evident. Consideration should, therefore, be given to the extent to which the outcomes from the individual course and wider activity system(s) are compatible. Engeström considers addressing these levels of contradiction to be the driver of expansive learning (Fig. 27.5).

Those practitioners exhibiting transformative engagement were involved in two inter-related activity systems. The engagements were evident at the following levels:

1. Disciplinary level – involving the students who are engaged in the e-Learning and the course team generating it;
2. Institutional level – The wider institutional initiatives to promote e-Learning and other colleagues introducing the e-Learning.

The degree of separation perceived between these activity systems varied significantly between practitioners. Although further consideration needs to be given to the nature of the communities that practitioners are engaged in, initial analysis suggests that this can be linked to the level of contradictions they successfully address. A range of communities and collaborative activities were observed in this study (Table 27.2).

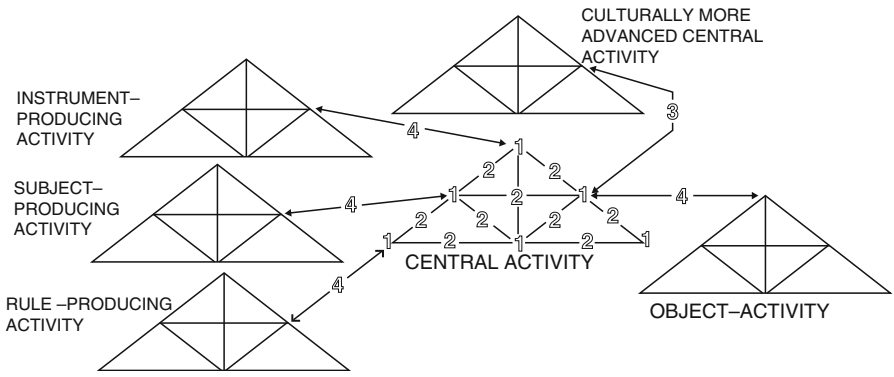

Fig. 27.5 Levels of contradiction within a multi-layered activity system (Engeström, 1987)

Table 27.2 Types of communities

Type of community	Notes	Remaining contradictions
Community of self	Private, individual	Level (1), 2, 3, and 4
Community of need	Team/group; cohort/class	Level (2), 3, and 4
Community of interest	Social, collective	Level (3) and 4
Community of practice	Affinity to a professional or discipline area	Level (4)

() = While contradictions may remain, a focus of the community is to address them

27.7 Conclusions

Activity theory is a cultural-historical form of analysis. Much of the above is derived from an analysis of the history of e-Learning engagement for practitioners in one particular institution. It is hoped that the findings have sufficient resonance to experiences elsewhere to be of value in planning e-Competence development programs. Their focus should be on the externalization of e-Learning innovation through the development of learning communities with the aspiration that they will become communities of practice.

Some older colleagues in the sector believe there was a "golden age" of higher education that has been lost with recent massification. They point to the impact on learning communities of growth in student numbers without equivalent growth in available resources (e.g., for the past decade the UK government's target has been for 50% of 18–24-year-olds to receive a higher education "experience"). Skeptics among us might suggest that if there ever was such a "golden age," it was lost when the first wave of new technology – the printed book – hit higher education.

The creation of learning communities is implicit in the notion of e-Competence. The new tools and artifacts at our disposal provide a basis on which we can place learning communities at the heart of higher education. This will not be achieved unless our e-Competence development programs are delivered through online, socially mediated tools and artifacts. We and our colleagues are unlikely ever to be native speakers of the language of Homo Zappiens – that takes a lifetime of familiarity that we cannot acquire. We can, however, develop a working knowledge of their language and culture. The way we can do this is by ensuring our e-Competence development programs are in themselves learning communities.

Chapter 28
Stories of Change: TieVie – The Support Service for Finnish Universities Toward the Information Society

Anna-Kaarina Kairamo and Matti Sinko

28.1 Introduction

In this article, the authors discuss and evaluate the TieVie capacity building project for Finnish universities in a larger historical context of strategic developments in the use of information and communications technology (ICT) in learning. The TieVie project was a support service project for the Finnish Virtual University (FVU)[1] which offered training in the educational use of ICT to the staff of Finnish universities in 2001–2008. It was financed by the Ministry of Education as part of the Virtual University project funding till the end of 2006. During 2007–2008, the program was fee-funded. The project was designed and implemented by the educational development support service units of five universities: Universities of Oulu, Turku, Jyväskylä, and Helsinki, and Helsinki University of Technology. The TieVie project was launched on the basis of the need to strengthen the e-Learning skills and expertise among Finnish university staff. This need was recognized in the national strategy for education, training, and research in the information society outlined by the Ministry of Education[2] in 2000.

The TieVie project organized two national training programs: the TieVie training program (5 ECTS credits) providing basic skills in the use of ICT in teaching for university teachers, and the TieVie expert training program (15 ECTS credits) aimed at the teaching, support, and development staff at the universities to improve their expertise in the use of ICT in teaching and learning. Throughout the years,

[1]See the Finnish Virtual University portal at http://www.virtuaaliyliopisto.fi/vy_front_page_eng.asp.

[2]Education, Training and Research in the Information Society: A National Strategy for 2000–2004.

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about 1,200 staff took part in the TieVie programs, and there were participants from all the 21 universities in Finland.

As a product and activity characteristic of its time, the TieVie project offers interesting viewpoints to observe. It presents the reflections of the European and Finnish information society discussion, and it also epitomizes many issues typical to the national higher education policy of recent years in a microcosm. TieVie avails interesting possibilities to scrutinize the integration of ICT into higher education (HE) pedagogy, from the viewpoints of different traditions of education and teaching and development trends in the use of ICT in teaching.

28.2 TieVie and the Guidelines for the Finnish Information Society

In the HE institutions (HEIs) in Finland, the introduction of ICT in teaching stemmed largely from a different tradition than in schools and vocational education institutions. In HEIs emerged two main streams: on the one hand, the culture of high-powered computation performed in centralized supercomputer environments coupled with computer science, information technology and electronic data processing of the administration; and, on the other, the reflection of the development of different forms of distant teaching into the world of HE. In this second stream, university continuing education centers and open universities have played an important role.

Development of information society and the strategic importance of teacher education in this context did not become an issue in Finland until by the implementation of the first national information society strategy in 1995–1999.[3] Overall, the discussion on the improvement of teaching skills and pedagogical competence of teachers in HE in general only started to spread in the nineties. Therefore, higher education pedagogy, still in its infancy, immediately had to tackle with the implementation of ICT with all the related controversies. In the HE sector, the focus was on improving the computer facilities, networks, library applications, and applications serving the information and communication needs of researchers. The Internet, net communications and learning platforms, net courses, digital materials, and learning object repositories had their breakthrough during the period of the first information society strategy actually without significant guidance derived from the strategy.

At the same time, an interesting convergence of several separate small traditions into a wide and diverse mainstream of ICT-enhanced teaching and learning was taking place as a result of the fact that use of ICT in teaching was becoming more widespread. On one side, the experts of ICT in classroom teaching (computer-aided learning) noticed how the Internet was enabling classrooms become more virtual; on the other side, education technologists of distant teaching and learning became increasingly aware that the network pedagogy could offer possibilities beyond such

[3]The National information strategy for education and research 1995–1999. 1995.

practices such as electronic distribution of teaching materials, returning assignments through the net, or using video conferencing and telephone in communication. Many who had been awakened by the Internet found the research and development done by the forerunners. The virtual, often informal, networks of experts and learning started to evolve into genuine fora of lifelong learning, the most famous forerunner being the worldwide network of Linux[4] developers and users. From this mainstream confluence rose also the TieVie project.

In order to tackle the challenges of constructing and consolidating the structures of information society at the university level, the FVU was developed as a unifying concept. The frame for the ICT competence development of all teachers was outlined by the national three-level OPE.FI system.[5] Its implementation for higher education was the TieVie project, as one of the FVU's development projects. Especially, the intermediate and advanced levels were considered too challenging to be implemented independently by most HEIs, and were therefore implemented nationally. Thus the systematic and wide-ranging development of the skills of university personnel in the use of ICT in teaching was initiated. Therefore, TieVie was an attempt for a quick solution to the emerging societal need to implement the information society strategy in HE.

In the mid-2000s, the foci were set on establishing productive and economically viable practices and on encouraging exploitation of ICT in social innovations. The purpose for consolidating the Virtual University was that projects and services initially operating on national funding should eventually be transferred to the respective universities. This principle was put to practice already in 2005, when responsibility for the OPE.FI level II education in HE was transferred to the universities in charge of the project. Materials prepared during the national training program could be reused by the universities providing education on demand locally, which was in line with one of the objectives of the information society program to produce learning materials for common usage. However, there is no evidence of how successfully this idea was implemented because no statistics of the usage of the materials exploited has been gathered.

In 2007, the TieVie expert training became a fee-based service supported by the FVU service unit. The greatest benefit gained from the TieVie programs as seen by participants was always networking. The TieVie program has won the admiration of European colleagues for two reasons: The number of university personnel educated within the TieVie framework has been exceptionally high. It was also noted how wide the network became and how the participants came from nearly all fields of HE. There was sustained interest among teaching staff of the universities to take part in the program, but the universities did not commit to finance the program.

[4]The Linux operating system for PC computers was initiated when Linus Torvalds developed the Linux kernel and publicly released it for commenting and further development in an Internet news group in 1992 which grew then into a likeminded developers' community.

[5]The national OPE.FI encompassed the capacity building of teachers on all levels of education consisting of OPE.FI I Information and communication technology basic skills; OPE.FI II The skills for the use of ICT in teaching; OPE.FI III, Special information technology skills.

The training was nevertheless continued under the new modalities for 1 year but did not survive and withered away. A new concept, however, emerged instead soon: the monthly webinars offered by the FVU, free for all participants and easy to access from one's desktop. The network of Finnish HEI actors was already there and could act effectively in spreading information on such new learning possibilities and supporting teaching staff to participate in such kind of activities.

28.3 Information Society as Content of TieVie

The themes and requirements of the information society program were reflected in the contents, themes, and realizations of TieVie. The OPE II level program (5 ECTS) was aimed at supporting the realization of courses and separate services using ICT. The contents were heavily oriented toward production processes. In the beginning, this was a way of supporting the development of virtual teaching, with the emphasis being on net-based learning and teaching. The aim was to support the participants to develop courses that benefit from ICT. The OPE.FI level III expert program (15 ECTS) was aimed at empowering teaching and support personnel in universities and in the development initiatives of the national virtual university by giving them competencies required in striving for pedagogical, technological, and organizational changes within universities. Links with local activities were supported through development projects of the participants and local mentoring. This provided a way to strengthen the goal of the information society program, viz., the information society structures in universities, by developing human support networks to complement the earlier emphasis on strengthening the technical infrastructure.

Development of digital materials proved to be a strong focus in the TieVie training. What makes the teaching material production at university level so interesting is that materials for primary and secondary level education are provided by strong institutions, such as YLE (the Finnish Broadcasting Company) and the major publishing houses, while the responsibility for the domestic production of materials for higher education rests mainly on the institutions themselves.

The technological advancement reflected itself strongly on the TieVie project as well. During the initial phases, materials were produced mainly into the open web, and the tools for interaction were those designed for mass education. Many platforms and tools were still in their infancy in terms of usability. It soon became necessary to move the education on standardized interoperable platforms to cope with the demands of usability and pedagogical principles. However, since a decision about a common learning and content management system was not made in Finland, the aim of TieVie was to give the participants experience on many environments and tools, and to develop the participants' ability to work in any virtual environment after the training. The year 2006 could be considered the advent of social networking programs and the so-called Web 2.0 concept, which in TieVie was seen as an example in the implementation of blogging tools in seminars and in participants' development projects implementing social software in many ways. It was interesting to follow what the forms and roles that social

networking programs acquired were, partly formed by an ideology contrary to institutionalization of learning and centralized systems, and the methods of social networking closely associated with them.

Since 2005, the information society program's goal of integrating ICT as part of everyday activity was reflected in the TieVie expert program, for example, in the way that the theme of technological change was integrated into the contents of the program, and was no longer presented as a theme of its own. The shift in thinking was seen in that the use of ICT as a separate concept was largely replaced by the concept of an ICT-supported university. This meant that ICT is and should be integrated into all activities. The Bologna process helped to raise the quality of HE into the focus of the Finnish and European university pedagogic discussion. TieVie tried to meet this challenge by renewing its contents and by directing the participants toward systematic development of the activities, quality awareness, and the development of quality expertise in the use of ICT in teaching.

This could also be seen as a model to answering the challenge posed by the latest national information society program in striking the balance between technological, cultural, and social development.

28.4 The Way Forward

The financial and operational responsibility of the activities of Finnish Virtual Universty has been delegated gradually to the universities, also in respect to the support networks. The TieVie case was an interesting experiment on how a government-funded staff development program was transformed into a fee-based service between universities and then soon coming to its end. TieVie was on the avant-garde of current trends, the project-based economy. Activities such as TieVie and the Virtual University of Finland were expected to reach a point where their activities could be financially independent. If genuine demand exists, HEIs will assign funds for these activities. It can be seen, however, that the readiness for such "market orientation" is not yet high enough in the HEIs to sustain the services set up with government support. Another interpretation could be that such staff development activities are not in the focus of universities.

In the development of university pedagogy and the use of ICT in teaching, there can be expected no slowing down. The use of ICT has not yet become embedded as an integral part in the regular development of teaching services. Is the development of ICT in teaching already so strong and networked that a national framework such as TieVie is no longer needed? Or is the operational logic of universities such in nature that it tends to slow down networking in teaching if it is not supported or directed from outside? However, many challenges and possibilities that wait in the horizon of development of teaching might be too big for a single university or a coalition of few universities to tackle. There has been significant building of trust and practicing of common network-based activity in the past. Could programs on the European level supercede the joint national activity as the new goal set in order to preserve the momentum developed by TieVie?

Section C
Innovation and Quality through e-Learning in Universities

Although universities use technologies in their daily work, an authentic culture of quality in e-Learning frequently remains weakly developed. In particular, European universities focus on the technological side of e-Learning rather than on wider pedagogical and organisational aspects; we need a holistic view on the general impact that ICT has at different institutional levels – like the strategic management of universities, their business models and revenue streams, or their positioning in the markets and international academic collaboration schemes. This lack of a holistic vision can be explained by the fact that technology-enhanced education is still a new phenomenon in universities, which leaves blank spaces to be investigated – it is, for example, very difficult to compare content-based e-Learning and activity-based e-Learning.

Despite the broad consensus that much more effort should be put into the question of quality awareness, improvement and management at university level, the quality of both the products and programs in the field of ICT-based learning varies widely between higher education institutions. There is a strong need for a common concept of quality improvement that is theoretically sound and the same time meets the expectations of stakeholders from the field of practice. In addition, it is not fully understood today how closely quality development and improvement in higher education institutions links to innovation of the ways how universities use ICT for teaching and learning; this area is neither explored nor implemented in a sufficient way. This chapter outlines on basis of a comprehensive analysis of established quality management strategies the challenges for an innovative approach to quality development in universities.

Chapter 29
Stories of Change: The Ruhr University of Bochum

Holger Hansen

With more than 32,000 students and 20 faculties, the Ruhr University of Bochum (RUB) is one of the larger universities in Germany. Together with the Technical University of Dortmund and the University of Duisburg-Essen, it forms the "University Alliance Metropolis Ruhr" (UAMR). This close cooperation creates a unique variety of subjects, which allow for numerous combinations and therefore various study possibilities. In the field of e-Learning, there is the RUBeL network, founded in 2003. Nowadays, it is coordinated by the Unit for e-Learning, an administrative department of the Rectorate. Partners in this network are the Computer Center, the Multimedia Support Center, the Unit for On-the-Job Training and Counseling, and the University Library. The network and collaboration with further central facilities provide a great thematic variety of e-Learning. Permanent duties and collective projects of the Unit for e-Learning and different partners are fixed by agreements, in order to achieve the maximum amount of expertise and quality.

29.1 Quality Management as a Central Responsibility

Quality management in central e-Learning is in the responsibility of the Unit for e-Learning. It consists of the following areas:

- Basic services
- Internal communication
- Implementation projects.

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Basic services first of all focus on quality and especially on the usability of technical applications and programs. In addition to prespecified technical requirements, the choice of technical solutions is dominated by aspects of easy manageability of the products. The basis of the solution being accepted by lecturers and students is a preferably intuitive usability. On this account, the target groups are actively involved in the process of picking out new software products. By default, a systematic implementation into university only takes place after a close inspection by lecturers, students, and e-Learning experts during a pilot phase.

After a successful test period, product-related information is compiled and user support is established. The first-level support of the central learning management system is provided by the helpdesk of the computer center. Virtually all the tickets are dealt with on the same workday.

Within the scope of quality management, another emphasis is internal communication, which has gained importance over the past years. Public relations range from the central e-Learning homepage and flyers to specific offers and regular publications in university newspapers and newsletters. In addition, there are special activities such as poster advertising, radio interviews, etc.

Information does not only focus on technical areas, but rather on didactical and methodical application of e-Learning elements. Lecturers particularly appreciate guidelines and good-practice examples.

29.2 Students at the Core of Quality Development

Measures of quality development and quality assurance in the field of implementation in the RUB most notably implicate active involvement of students in the design process of blended learning activities. Apart from traditional qualifying workshops for lecturers, there are numerous projects where students and lecturers team up in planning, realizing, and evaluating various kinds of e-Learning elements for different teaching formats.

In a module called "e-tutoring," for instance, students first of all are trained in technology and didactics of e-Learning throughout a week of qualification. In addition, the unit "advisory skills" prepares them for their role and function as student advisors. In a phase of practical involvement, a team of two students each assists lecturers with their activity-related e-Learning projects. Since the winter semester of 2006/2007, a total of 130 student e-tutors have been trained in the RUB. In many cases, the results of the collaboration of lecturers and students consisted in the development of innovative teaching and learning scenarios. The sustainability of the e-tutoring project especially becomes apparent when student e-tutors continue to work as student assistants at various faculties and use the proven concepts also in following semesters.

Another building block of quality management in the field of implementation is the conduct of e-Learning competitions. The contest "5 $\times$ 5000," for example, is organized by students. For the last four semesters, a jury made up of students

has awarded 25,000 Euros at a time for e-Learning projects in faculties. Furthermore, biddings within the UAMR have promoted e-Learning-based courses for RuhrCampusOnline.

29.3 Quality Campaign for Good e-Learning

In the focus of quality, the project "quality campaign e-Learning" can be especially pointed out. In this project, which started in January 2009, lecturers and students of different faculties are in the process of agreeing on the principles of "good e-Learning" by means of several workshops, moderated by the Unit for e-Learning. The outcome of this process is expected to provide indicators for high-quality e-Learning. As the result of a comprehensive university discussion, these indicators are meant to be bindingly stipulated.

Chapter 30
Moving from Control to Culture in Higher Education Quality

Ulf-Daniel Ehlers

Abstract In this article, it is argued that quality development in higher education needs to go beyond the implementation of rules and processes for quality management purposes to improve the educational quality. Quality development has to rather focus on promoting a quality culture, which enables individual actors to continuously improve their profession. While this understanding of quality as part of the organizational culture gains more importance, there is still a lack of fundamental research and conceptual understanding of the phenomenon in itself. This article aims to lay the foundations for a comprehensive understanding of quality culture in organizations focusing on higher education. For this purpose, the state of the art in research on organizational culture is discussed and a model of quality culture is presented.

30.1 Introduction: A Culture of Quality in Higher Education

We are entering a new era in quality management for higher education. While it is difficult to mark its exact beginning, it is clear that it is a move away from approaching quality in higher education as something mechanistic, towards a new understanding that quality development in higher education in essence demands for the development of an organizational culture that is based on shared values, necessary competencies, and new professionalism. While much attention has been paid to mastering instruments of quality control or accreditation in the past decade, the focus is more and more on mastering change and enabling/empowering professionals in higher education contexts (Wolff 2004).

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Concepts such as quality control and quality management are often perceived as technocratic top-down approaches, which frequently fail in higher education (Sursock 2004). For a long time, the current belief and followed approach was rather modularistic and separated the different educational processes from one another, describing and assuring their quality. The new generation – or era – focuses on a different approach. It is focusing on change more than on control, development rather than assurance, and innovation more than standards compliance. It tries to identify the *enabling* factors in the competence portfolios of the various stakeholders. The former – traditional – understanding of organizational management, promoted by theorists like Michael Porter (1980), inherently represents the belief that strategies can be predetermined and precisely planned. The latter, promoted most prominently by Henry Mintzberg (1994), affirms that change in organizations is rather emergent and results from employees' competences and organizational culture (see also Prahalad and Hamel 1990). In this understanding, aspects such as quality management systems and instruments, competencies, and individual and organizational values are not seen as separate entities of a quality development process but are combined in holistic concepts. None of them is superior to the other. The definition of educational quality cannot be normatively predefined and imposed but has to be developed in negotiation and through stakeholder participation. It is important to emphasize that viewing quality in the light of an organizational cultural perspective means to take on a holistic view: Quality culture combines cultural elements, structural dimensions, and competences into one holistic framework, supporting stakeholders to develop visions, shared values, and beliefs. Communication, participation, and the combination of top-down and bottom-up interaction are of key importance to the success of a quality culture.

It has been noted that many quality development attempts in educational organizations have been motivated through pressure from the outside market or new legislation (Wirth 2006). They function through the development of extensive systems of process description and regulations, which often serve in the best case as process management systems – focussed on routines, following the paradigm of control, and assuring an already existing status quo – trying to regulate. Although the advantages of these systems, especially in the field of customer and result orientation and systematizing complex procedures, are apparent, the actual *educational* process, the interaction between the learners and their learning environments in which the educational quality is "co-produced" (Ehlers 2006, 2005, 2004), is often not addressed effectively (Wirth 2006; Ehlers 2005). Even through processes to simplify complicated procedures in the management of educational organizations have been implemented with much success, the development of a concept of educational quality (e.g., answering the question "what is good learning?") and its implications for the teaching strategies of educational professionals as well as the learning strategies of students have not been taken care of sufficiently.

Quality assurance is no longer a novelty to higher education. National and institutional systems for evaluation, assessment, accreditation, and audit are largely a routine in most European countries (Schwarz and Westerheijden 2004). Paradoxically, however, this does not mean that the core educational activities are changing.

Available evidence rather suggests that while systems, procedures, and rules are being laid down, generating much data, many reports, and much attention (Stensaker 2003), there is still a lack of staff and student attachment and active involvement in the quality assurance processes (Newton 2000). The core pedagogical quality development process, which demands professional strategies of negotiating values and strategies between active participating learners and teachers, is often not addressed. The development of such an *education-oriented,* comprehensive concept for educational quality in organizations – as a part of the quality development activities – is still underdeveloped (Newton 2000).

In earlier works we have suggested that activities of quality management and development in education have to have an impact on the teaching and learning process by incorporating new values, skills, and attitudes into professional behavior (Ehlers 2006a, 2007a, b). We observed and analyzed that many quality management approaches follow the implicit logic that the quality of educational processes – such as teaching and learning – is the direct result of the quality of the previously accomplished preparation and planning processes, often ignoring or neglecting the fact that educational quality is established in a co-production process in the actual learning situation (Ehlers 2006, 2005, 2004). Such educational quality is then the result of a negotiation process of the stakeholders participating in the educational situation. We were then emphasizing the importance of competences rather then mere process definitions in order to enable the stakeholders of teaching and learning processes to act as competent quality managers of their own educational environments. The so-called quality competences were developed and described in the concept of quality literacy (Ehlers 2006a, 2007a–c).

In this article, we will combine the elements of process-oriented quality management and the concept of quality literacy to a more comprehensive and holistic concept of quality culture for educational organizations, especially in the field of higher education. Quality culture will be presented as an incorporation of processes, rules, and regulations against the background of the knowledge, skills, and attitudes of organizations stakeholders. We will argue that quality development in educational organizations leaves imprints on the organization's cultural patterns, such as rituals, beliefs, values, and everyday procedures.

In the second section we will answer the question "what is organizational culture?" by discussing and examining the state-of-the-art research in organizational culture. We will present and compare the currently discussed approaches. After having introduced the concept of culture from an organizational perspective, we will then show the relation between quality and culture, referring specifically to higher education organizations (third section). In this section, we will answer the question where a connection between quality and organizational culture can be seen. Moreover, we will deal with the distinction of culture as something an organization *has*, as opposed to culture as something an organization *is*. The fourth section answers the question how a model of quality culture looks like. On basis of what has been discussed in the previous two sections, we will present a model of quality culture which is described and embedded into research findings in the field of educational quality. The model of quality culture takes into account *structural*

quality management elements as well as the approach of quality literacy in order to form a comprehensive model of organizational quality culture.

30.2 The Need of Quality Culture in Higher Education

Where is the connection between quality culture and organizational culture? In the following section the need for a new view on quality from a perspective of organizational culture is described.

Jean Monnet once said, "If I would again start with the unification of Europe, I would start with the culture and not with the economy" (In Haas and Hanselmann 2005, pp. 463–464). The same could be observed for the introduction of quality management strategies in higher education, where often the used instruments and tools are introduced without respecting the given cultural situation. The quality of teaching and learning interaction between students and educational professionals in higher education is influenced by a variety of factors, including attitudes and skills of teachers, abilities and motivation of learners, organizational backgrounds, contexts and values, and the existing structures, such as rules, regulations, legislation, and the like. Most approaches to assess, assure, manage, or develop quality, however, are directed towards improvement or regulation of organizational processes (in the case of process-oriented quality management approaches), the assessment of the outcomes of activities (in case of assurance or evaluations approaches), or on development of individual abilities (in case of quality development through professional training approaches). While the awareness for the networked and "total systems" character of quality as a holistic concept in higher education is developing more and more (Wirth 2006; Harvey 2007), only little empirical research and conceptual development has been undertaken in this field so far.

There is an urgent need to introduce an understanding of quality in education from a more comprehensive picture than just analyzing single, isolated factors. In industry, the concept of total quality management has introduced the idea of quality as a characteristic of an organizational culture, seeing quality in the wholeness of organizational factors interplaying when striving for an improved portfolio of professional activities. For higher education quality, the idea of thinking in terms of quality culture, rather than quality criteria or processes, is of high relevance because it provides the grounds to understand quality under a holistic perspective, taking into account all factors influencing quality, like attitudes and skills of teachers, abilities and motivation of learners, organizational backgrounds, contexts and values, and the existing structures, such as rules, regulations, legislation, and so on.

Such a *deep* understanding of quality in higher education, understood as the "constitution, measured against the needs and expectations of the stakeholder groups" (Seghezzi 2003 St. Gallen), has at least two sides: the side of *structural systems* (quality management handbooks, process definitions, instruments, tools) and the side of the value-based *culture* of an organization (relating to the

commitment of its members, the underlying values, skills, and attitudes). We suggest that one side cannot be developed without the other unfolding as well. In this field, there is still an extensive need for research to be done. This article intends to lay the foundation for an empirical analysis by presenting a model, which shows the elements of quality culture and their relationships. It incorporates *structural* elements as well as elements of organizational contexts, stakeholders' competences, and commitment.

Quality culture takes a specific perspective on higher education quality. As part of the overall organizational culture, it is not something which exists or does not exist, but rather something which is always there, even though existing in different shapes. Educational quality in higher education is always connected to other characteristics, such as the organization of work, technology, organizational structure, business strategy, and financial decision making. Through its networked and interdependent character, it gains a complexity that has the effect so that it is often reduced to an everyday expression that does not explain anything anymore. The next section will explore some models of organizational culture in order to later construct a comprehensive model to analyze organizational culture under a perspective of quality considerations.

30.3 State of the Art in Organisational Culture

In this section, we will give an overview on concepts of organizational culture proposed by different authors. The approaches are selected according to their influence on the scientific debate and also according to the diversity of approaching the field of organizational culture.

In the past 25 years, the concept of *organizational culture* has gained wide acceptance as a way to understand human systems. From an "open-systems" perspective, each aspect of organizational culture can be seen as an important environmental condition affecting the system and its subsystems. However, only very little efforts have been made so far to transfer the concepts to the field of quality culture for higher education. In this section, we give an overview of the current state of the art in the field of organizational culture in research. We start by explaining its relevance and history and give an overview on some important models of organizational culture.

Glendon and Stanton (2000) state that the concept of *organizational culture* has been in common use since the 1980s. Initial research focused on *organizational climate,* but in the 1980s the climate concept was to some extent replaced by the concept of culture (Glendon and Stanton 2000, p. 198). However, there is still no generally accepted definition of either concept (Smircich 1983; Alvesson and Berg 1992; Moran and Volkwein 1992). Organizational culture refers, e.g., to organizations' values (Deal and Kennedy 1982), generally accepted systems of meaning (Pettigrew 1979), or an organization's operating philosophy (Ouchi 1981). Although uncertain in its definition, the significance of culture is perceived,

especially in the corporate world. The field of education and higher education only recently started to take the first step to adopt it (e.g., Seufert and Euler 2004). The main reasons are that traditional, mechanistic management models have often been judged inadequate and that new concepts were needed to describe and explain individuals' actions in an organization so that their working capacity could be improved (Alvesson and Berg 1992). In the following, first a short account of the development of organizational culture is given and then the most influential models of organizational culture are analyzed.

Mabawonku (2003) defines culture as the "definitive, dynamic purposes and tools (values, ethics, rules, knowledge systems) that are developed to attain group goals." Kinuthia and Nkonge (2005) define these knowledge systems as "pertinent to people's understanding of themselves, their world, and influences on education." Taking a closer look at the very meaning of the word *culture,* we can establish that it stems from the Latin term *cultura,* which in turn stems from *colere*, meaning *to cultivate*. Today, it generally refers to patterns of human activity and the symbolic structures that give them their meaning (Williams 1983, p. 87). There are, however, different definitions of culture that reflect different theoretical basis of understanding human behavior. Kogan (1999) states that a common description or agreed-on definition can hardly be found given the vast and diverse coverage of the term in literature. In the field of higher education, he argues, often an uncritical approach has been followed and the concept has been introduced in a rather unreflected way. However, it appears that for quality – and organizational – development in the field of education, the term bears so far unseen capabilities to combine individual and organizational conditions of professional behavior and development.

Alvesson and Berg (1992) suggest that researchers of organizational culture can be divided into two basic camps: on one side those seeing culture as something an organization *has*, that is, culture as a potentially identifiable and manipulative factor; on the other side, those seeing culture as something an organization *is*, that is, culture as an integrated product of social interaction and organizational life, impossible to differentiate from other factors. In the latter version, culture was an integrated dimension of (most often) sociological and anthropological research into social behavior. In the former version, culture has been emphasized as a new organizational instrument for consultants and management gurus (Kogan 1999, p. 64). Culture became an umbrella term for all possible intangible factors in organizational life. The idea that organizational culture was underlying the organizations' performance stems from this perspective. One of the central ideas of combining quality and culture of organizations is very much related to the attempt to provide a research and management perspective that takes into account not only the visible and tangible factors of organizational development and performance but also those factors that strongly influence behavior and performance but are not so easily identifiable (Miccklетwait and Wooldridge 1996, p. 274).

Schein (1992) states that organizational culture is the response to the challenges an organization has and to fulfilling its purposes; Ouchi (1981) argues in the same vein. It can be observed in the way the organization's members communicate, in their shared beliefs, shared values, symbols, and rituals. It can be compared to the

Table 30.1 Different approaches to organizational culture

Author	Approach	Cultural elements
1. Edgar Schein (1992)	1. Culture is a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid	• Values • Artifacts • Assumptions
2. Gerent Hofstede (1991)	2. Culture is mental coding which allows acting coherently; it can be described according to symbols, heroes, values and rituals.	• Symbols • Heroes • Rituals • Values
3. Johannes Ruuegg Stuerm (2002)	3. Culture is comparable with grammar rules and semantic regulations of a language, resp. a community.	• Norms and values • Oppinions and attitudes • Stories and myths • Patterns of thought • Language habits • Collective expectations
4. Gareth Morgan (2002)	4. Culture is a social and collective phenomenon which refers to the ideas and values of a social group and is influencing their action without them noticing it explicitly.	• Values • Knowledge • Belief • Legislation • Rituals

implicit unspoken rules of communication which are never touched upon but everybody is aware of. The culture of one organization is distinct from that of the other organizations, and its members have to undergo a phase of *enculturalization* when they enter the organization. Organizational culture is not uniform and there can be *subcultures* and *subgroups* within an organization which have partly or totally different cultural patterns than others. Table 30.1 shows a summary of all elements that could be identified as important in the different approaches to organizational cultures.

The described approaches have some elements in common and can be compared in the following dimensions:

- Quality culture is part of the overall organizational culture. Both cannot be separated but rather quality culture is a part of organizational cultures. Different subcultures can be observed in organizations, such as communication cultures, management cultures, and quality cultures. An analytic focus on an organization's *quality* culture can be established by asking in which way an organization is responding to its *quality* challenges and is fulfilling its *quality* purpose.
- Organizational culture is a multifactorial phenomenon and consists of several elements (depending on the approach chosen) which can be described and

identified. For the previously presented approaches they are summarized in Table 30.1. Quality culture builds on these elements and represents configurations of these elements under the focus of organizational quality enhancement.

- Considering the above-described approaches, some common elements of culture can be identified and used in a quality culture model: all approaches emphasize *shared* values as a central element for organizational culture. Most of them consider shared basic and underlying assumptions and shared beliefs and symbols, rituals, and patterns as important. Quality culture is a socially mediated and negotiated phenomenon leading to shared results of meaning construction, which is largely unconscious and only in some elements directly visible to the outside.
- Organizational culture – and thus quality culture – is always there, and not a phenomenon that has to be established first. In all four presented approaches, the view of culture as something an organization *is* – rather than *has* – has been expressed. It is important to realize that the quality of educational processes is always using the underlying assumption of what good teaching and learning is.
- Quality cultures have tangible and intangible as well as visible and invisible parts. A culture of quality can be further developed best when tangible structural elements, such as quality management mechanisms, tools, and instruments, develop *in parallel* with intangible elements like commitment, values, rituals, and symbols.
- Organizational culture is a social and collective phenomenon, and individuals contribute and constitute culture through negotiation and interaction by establishing shared values, rituals, and so on.
- Culture is not a uniform phenomenon but a diverse one – in organizations, usually several cultures, among them also quality cultures, can be observed.

30.4 A Model of Quality Culture for Higher Education

In the following section a model for quality culture is presented. It is composed of four important elements:

1. A *structural element* which represents the quality system of an organization. This can be, e.g., an existing quality management approach for higher education, the tools and mechanisms in place to assure and enhance the quality of the organization;
2. The *enabling factors,* which represent those that enable organizations to incorporate quality regimes into their culture;
3. The *quality culture* element, which represents the manifested artifacts, symbols, and rituals of an organization;
4. *Transversal elements,* which link different components to each other through participation, trust, and communication.

Quality culture is embedded into the organizational context and the organizational cultures. As seen in the above theories about organizational culture, organizational culture is not something which an organization has or does not have, but it is an element of every organization – be it consciously perceived or not. Organizational culture can be supported and further developed but does not have to be developed or established from scratch, as marketing slogans of consulting companies suggest sometimes. The distinction between different types or kinds of organizational cultures should, however, not be seen too fundamental: Describing a quality culture of an organization is strongly connected to analyzing also other "types" of culture, such as management culture, communication culture, or the organizational culture as a whole. A good way of finding an analytic approach to different types of cultures is suggested in the definition of Schein (1992) who states that an organization's culture is the answer to the challenge an organization has in a certain field. The way things are done in an organization relates to a certain challenge or problem. For the field of quality in higher education, an analysis of quality culture would start with the question about how a higher education organization is realizing the challenge of enhancing quality in a certain field, e.g., the area of teaching and learning or the area of research. The model of quality culture then gives a framework of concepts that helps to analyze concepts and developments in different areas which are of importance to quality culture and to identify the strength and weaknesses (Fig. 30.1).

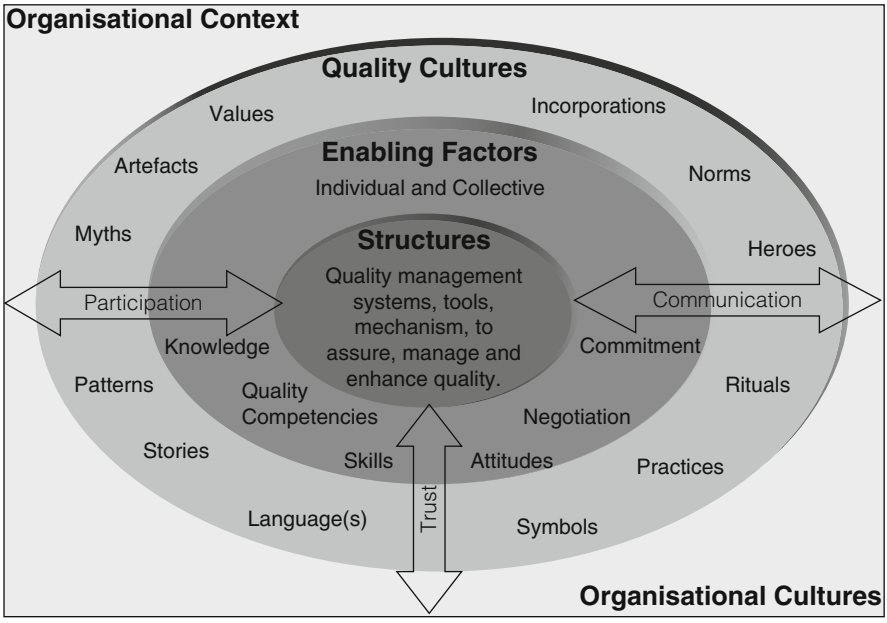

Fig. 30.1 Model of quality culture

In Fig. 30.1 we show our model of quality culture for education with the different components of quality culture. It takes into account existing research and models and further develops them with a strong focus on quality and education. It is a conceptual and structural model which identifies the structure and different components of the concept quality culture and relates them to each other. However, it does not give a clear direction of impacts or effects the different components have in their interdependency, so it is not a flow graph. In the following lines, the different components are described in detail and related to work that has been done previously.

30.4.1 Component 1: Structures

The structural elements of quality in higher education are represented through quality management approaches. They relate to systems, tools, and mechanisms to assure, manage, enhance, or accredit quality in a suitable way. A variety of concepts exist in this field. In previous works, we have developed classification schemes (Ehlers and Pawlowski 2004, 2006; Ehlers et al. 2005, 2004) and electronic databases to collect and make available quality approaches and strategies. Recently, there have been many efforts to design and implement instruments for quality development in education in general and e-Learning in particular. Several publications systematically describe and explain these approaches and their respective backgrounds (see Gonon 1998; Riddy et al. 2002; Srikanthan and Dalrymple 2002, p. 216).[1] The various existing publications reveal a large number of different concepts and approaches for quality management in the educational sector. Already, a smaller study by the Danish Institute for Evaluation has identified and analyzed up to 34 quality assurance agencies in 24 countries (Danish Evaluation Institute 2003, p. 17). A study by Bertzeletou (2003) has even identified 90 national and international quality approaches for quality certification and accreditation. Woodhouse (2003) counts more than 140 quality approaches that are associated with the International Network of Quality Assurance Agencies in Higher Education (called INQAAHE). Most of these certification and accreditation bodies follow their own quality approaches and have their own evaluation, certification, and accreditation offerings. Most of the mentioned studies and papers address traditional certification and accreditation frameworks for higher education, but only a few include newer quality approaches that specifically focus on recent educational innovations and e-Learning. To compare different concepts and approaches to assure and develop quality with each other is difficult because of their different scope and nature. However, there have been attempts to develop reference models, such as the European Quality Observatory Model (Ehlers et al. 2004) or the one by the International Standardization Organization (ISO/IEC 2005). Wirth (2006)

[1]See also the European Initiative "European Quality Observatory" (http://www.eqo.info).

suggests a simple but effective method to categorize different quality approaches and instruments into four fields:

- *Field 1* represents large international organizations that can be identified with standardization drives and the development of generic quality management approaches (Bötel et al. 2002; Dembski and Lorenz 1995; Gonon 1998). Their transferability to the educational sector is still discussed controversially. Therefore, recently three developments have been initiated (ISO 10015, DIN PAS 1032, DIN PAS 1037) which were focused specifically on the educational context.
- *Field 2* lists the recommendations (i.e., American Federation of Teachers 2000; Hollands 2000), guidelines (i.e., Open and Distance Learning Quality Council 2001), or criteria catalogs (Gottfried et al. 2002) and checklists (American Council on Education 2001; Bellinger 2004).
- *Field 3* represents accreditation and certification approaches, which focus on different educational aspects and levels.
- Finally, *field 4* summarizes the awards and prizes.

30.4.2 Component 2: The Enabling Factors

The "enabling factors" component comprises those elements that enable individuals and groups to take up the new processes, regulations, mechanisms, and rules which are inherently represented in quality systems and incorporate them into their own actions. In principle, three groups of factors can be identified that support and enable actors and groups in these processes: (a) commitment, (b) negotiation, and (c) general and specific competences for quality development.

1. Individual and collective commitment describes the degree of identification with the organization's goals and working processes. Ownership and being an important part of the organization's processes are determining elements of these factors (European University Association 2006). The European University Association is advocating this factor in their approach to quality culture of universities and is stressing the fact that commitment is at the same time a necessary *condition* of quality culture as well as a *result* of a quality culture (ibid).
2. Negotiation is an important element for successful quality development in higher education organizations. As educational quality is not an inherent characteristic of any educational material or teaching offer but has to be developed in negotiation between learners and the educational environment (in our case the higher education organization, the lecture room, the seminar, the project, etc.), the element of negotiation becomes a crucial element for a quality development process. Providing a successful process of negotiation between students and educational providers is a precondition for any quality development process which focuses on educational quality. In earlier works we have developed this

aspect in extensive research and publication (Ehlers 2006, 2005, 2004). It is important to understand that quality first and foremost is a *potential* which can be realized through negotiation in educational scenarios but which is not automatically represented as a characteristic of an educational environment (ibid). The potential exists on the side of students as well on the side of educational provides (e.g., the higher education institutions). Negotiation thus is of crucial importance to any successful quality development.

3. General and specific competences are a basis for any quality development process. *General competences* are constituted through the three elements of knowledge, skills, and attitudes (Adelsberger et al. 2007; Ehlers and Schneckenberg 2007; Ehlers 2007d, 2005a). Any quality development process which is directed towards enhancing educational processes needs to build the capacity of professionals. Quality development that aims to have an effect on educational processes has to support teachers and other stakeholders in professionalization processes. In the literature, this has been described as *quality through professionalization* of teaching and learning processes (e.g., Arnold 1997, 1999). Ehlers has added to this the focus on the learner's side (Ehlers 2005). Not only on the side of teachers but also on the side of learners and other stakeholders, professionalization processes have to take effect for successful quality development. Professionalization – in the sense of building knowledge, skills, and attitudes of stakeholders in the higher education organization – is thus one important element when building quality cultures in organizations (Fig. 30.2).

Apart from the general competences, we have worked out and described a set of specific competences (Ehlers 2007a). Under the label *quality literacy* we have described a set of four competences which are specifically important in processes of educational quality enhancement: Quality knowledge, quality experience, quality innovation, quality analysis.

1. Quality knowledge: This dimension addresses the "pure" knowledge about the possibilities of today's quality development and up-to-date quality strategies in e-Learning and education.
2. Quality experiences: This dimension describes the ability of using quality strategies with a certain intention.

Fig. 30.2 Quality literacy (Ehlers, 2007a)

3. Quality innovation: This dimension relates to the ability which goes beyond the simple use of existing instruments and strategies. It refers to the modification, creation, and development of quality strategies and/or instruments for one's own purpose. An innovative and creative aspect is important for this dimension.
4. Quality analysis: *Quality analysis* relates to the ability to analyze the processes of quality development critically in the light of one's own experiences and to reflect upon one's own situation and context. It enables actors to evaluate different objectives of quality development and negotiate between different perspectives of stakeholders. To "analyze critically" means the ability of differentiation and reflection of existing knowledge and experiences in the light of quality development challenges.

Table 30.2 summarizes the key factors of the four dimensions of quality literacy and gives some examples.

The concept is highly relevant today because research indicates reservations towards the effectiveness of quality strategies to improve the quality of the learning processes in general and for e-Learning in particular (Eaton 2003; Franz 2004, p. 107; Fröhlich and Jütte 2004, p. 12; Leef 2003; Simon 2001, p. 155). Often it is argued that there is a danger of certified input process and output processes to become *inflexible, dictctorial* rules that may stifle future innovations and real

Table 30.2 Dimensions of quality literacy (Ehlers, 2007a)

Quality literacy dimension	Questions/examples
Dimension 1: Quality knowledge	
Information	What is a quality approach? What is evaluation, quality management, quality assurance, quality development?
Instrumental/qualification	How can an evaluation questionnaire be applied in an educational context, eg. a classroom? How can a benchmark be used to assess one system against another?
Dimension 2: Quality experience	
Intentional use	How can I use quality strategies in a certain way to improve the educational process?
Dimension 3: Quality innovation	
Adaptation	How can a certain quality management concept be extended to a number of processes and categories in order to adapt it to the organizations' specific needs?
Creation/innovation	Create an evaluation questionnaire for the assessment of a course when existing tools fail to analyze the desired questions. Create a new method to consult with learners before a course starts in order to assess their needs and goals.
Dimension 4: Quality analysis	
Analytic Quality analysis	What is the state of the art of the quality discussion and what are important developments in the debate?
Reflexive Quality analysis	Development of future goals and strategies for either oneself as an individual learner or as an organization.

quality improvements. With regard to the use of e-Learning, Tulloch and Sneed conclude even that traditional quality systems in higher education mislead many institutions to imitate classical face-to-face trainings instead of fostering and leveraging strategic advantages of media-supported learning scenarios (Tulloch and Sneed 2000, p. 9). Meyer in particular draws a negative picture of accreditation: "Accreditation has become a battlefield between those who would use traditional accrediting standards to forestall the changes wrought by distance education and those who would change accreditation" (Meyer 2002, p. 9). Friend-Pereira et al. (2002, p. 22) agree with this by concluding that quality accreditation may become dangerous if it only serves for legitimatization purposes. They point to moving to a stage of quality development in which the stakeholders change their behavior and reflect upon their professional values and attitudes – as a result of a quality development process. Quality development understood in this sense becomes a matter of further developing a professional attitude stimulated by a set of processes, rules, and values which are understood and incorporated and lead to improved behavior in educational contexts – both on the side of the provider as well as on the side of the clients (see also Sect. 30.5 for an exact account on how clients and providers are co-producing quality).

Recently, an empirical study by Lagrosen et al. (2004, p. 65) indicated that internal quality evaluation gains more and more in importance compared to external quality assessments. This is also confirmed and further elaborated by an international study by Ehlers et al. (2005), which shows that a distinction can be made between the so-called *explicit quality* strategies – official instruments and concepts of quality development, designed either externally or internally – and *implicit procedures*, in which quality development is left to individuals and is not part of an official strategy:

- Quality strategies or instruments coming from externally adopted approaches (e.g., ISO, EFQM, BAOL Quality Mark) (explicit);
- Quality strategies that are developed within an organization (explicit);
- Quality development is not part of an official strategy but is rather left to individuals' professional activities (implicit).

The survey shows that internally (35%) and externally developed (26%) quality approaches are used in particular. One-quarter of the respondents (24%) work in institutions in which quality development is left to the staff. Around one out of six (15%) uses no quality strategies for e-Learning. Overall therefore, around 4 out of 10 respondents (39%) do not use any official quality strategy.

30.4.3 Component 3: The Quality Cultures Component

The idea of the model of a quality culture is that every quality development process, which has a comprehensive structural element and is carried out by actors who are committed, competent, and understand quality as a relation that has to be realized in

negotiation processes will leave visible and invisible imprints in the organizational quality culture(s). The elements that are influenced through quality development processes are summarized in the outer rim of the model; they are taken from the analysis of different models of organizational culture in Chap. 3. Quality development processes can thus have manifestations in the existing assumptions about quality and teaching, newly discussed and shared values, rituals, and tangible cultural artifacts. *Heroes* represent particular successful quality enhancement processes in higher education (e.g., expressed in terms of awards given to them) and can be the promotors of quality development within the organizations. *Values* about teaching and learning (e.g., "what is good and successful learning?") are agreed on and documented. The organization has shared *symbols*, *practices*, *stories,* and *patterns*.

Quality culture is not necessarily a uniform concept for a complete higher education organization. The plural form *quality cultures* is the most likely form of occurrence, especially in such diverse organizations as higher education organizations. Quality cultures can vary from department to department and might have a few elements in common while others being different. For higher education, the situation of quality cultures is in many respects different from more homogenous organizations, such as, e.g., enterprises are usually. The heterogeneous nature of universities, which is structured in different chairs, institutes and schools and which often finds their reward systems not inside the organization but outside from the peers, rather suggests that *culture* is a category of analysis which rather applies to subunits of the organization than to the university as a whole. Quality culture is always a part of the organization's culture as a whole and is situated in the organizational context (represented through the contextual frame in the Fig. 30.3). It is a context-specific concept and only visible through actual performance in those elements that are described as cultural factors above. It can be perceived, but not directly and mechanistically installed in an organization, but is the result of individual and collective involvement and interaction against the background of an existing quality system. Quality culture as an artifact cannot be transferred directly to other organizations but it can be studied and learned from.

30.4.4 Component 4: The Transversal Elements

The model of quality culture contains three elements that are transversal in nature. They are necessary to provide a link between concepts and cultural representation. A cultural representation of concepts is established through *participation* of stakeholders and mediated and agreed on through *communication* between them internally and with others externally. *Trust* is the necessary condition for the stimulation of individual and collective efforts which are in turn the prerequisites for turning quality potentials into culturally rooted quality realities, expressed in symbols, artifacts, values, rituals, and other elements of quality culture. It is important to notice that especially these elements suggest that development of a

quality culture cannot be totally externally steered and managed. It relies on the identification and ownership of individual actors of an organization. Only with the conditions for creating a quality culture can management and communication and participation be encouraged to stimulate trust throughout the organization.

30.5 Summary and Conclusions

The article starts by outlining the main challenges which current practices of quality management for education, especially higher education, have posed. It concludes that concepts such as quality control and quality management are often perceived as technocratic top-down approaches which frequently fail in higher education. It is suggested that in recent times the field of quality management in higher education is changing. The new generation – or era – focuses on different and more holistic quality approaches. Here change is in the foreground instead of control, in development rather than assurance, and in innovation more than standards compliance. In this understanding, quality management systems and instruments, competencies, and individual and organizational values are not seen as separate entities of a quality development process but are combined in a holistic concept – the concept of quality culture.

Quality culture as a concept of higher education has not yet received much attention in research or management literature. The concept of quality culture is developed as one particular concept based on organizational culture. By analyzing the specific particularities of different culture concepts from the literature, the basis for a concept of quality culture has been laid. Quality culture has been constructed as a concept with four basic components. First is a structural component which represents the quality management system in itself, covering instruments, rules, and regulations. The second component represents the enabling factors. These are generic and specific quality competences and commitment and the concept of negotiation as a basic concept for any quality development. The third component represents the cultural factors, such as values, rituals, symbols, and so on. All three components are linked through communication and participation of individuals and groups in social interaction with the aim to build trust. It is important to emphasize that viewing quality in the light of an organizational cultural perspective means to take on a holistic view. Quality culture combines cultural elements, structural dimensions, and competences into one holistic framework, supporting stakeholders to develop visions, shared values, and beliefs. Communication, participation, and the combination of top-down and bottom-up interactions are of key importance to the success of a quality culture.

The development of a quality culture, as well as its implementation in organizational contexts, as a part of the overall organization's culture, has not yet developed a strong tradition in research and theory. Although there seems to be ample evidence that quality development demands for a broader view of developing the organization's culture, on incorporating new values and negotiations of future

directions with the aim to root them in rituals, symbols, and activities of the organization, up to now, only little work has been published. It is with this intent that we want to close this article by suggesting to now move on to the field of empirical research and try to find evidence, good practices, and methodologies to stimulate quality development and root them in holistic approaches to organizational culture.

Chapter 31
Quality for Global Knowledge-Intensive Organizations: A Step-by-Step Guide

Jan M. Pawlowski and Monika Walter

Abstract Learning and education as well as knowledge-intensive work processes have become more and more internationalized. Knowledge workers are distributed around the world, study programs are exported across borders, and learners work in globally distributed groups. However, the quality of their work differs in many cases. In this paper, an approach to manage quality within the process of internationalization for globally distributed knowledge-intensive organizations (such as universities) is presented. A particular focus is the field of e-Learning. The key quality factors for internationalization of global learning are defined and examples for quality criteria resulting from these factors are introduced.

31.1 Introduction

This chapter presents a quality approach for organizations in knowledge-intensive global settings such as education or training.

Particularly, knowledge-intensive work as well as education becomes more and more internationalized in a variety of shapes. Many parts of the workforce or, as part of the Bologna process, students should be mobile, and study credits should be transferable across Europe (Haug 2003). A variety of global (virtual) universities have been built involving learners across the globe, such as the African Virtual University (Bateman 2006) or Universitas 21 (Lam 2005). Furthermore, many educational institutions cooperate with foreign partners or offer their products to the global market. Other approaches aim at sharing resources across the globe

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(Ternier et al. 2008), supporting resource exchange and improvement, with an increasing number using open content (Pawlowski and Zimmermann 2007).

Globalization for knowledge-intensive work as well as education globalization leads to diverse challenges. One important challenge is the quality of knowledge transfer as well as education in global settings. A variety of approaches for the quality of this field has been developed. Most of them do neither directly or indirectly address the process of internationalization.

The first section of this chapter describes the factors that influence global learning and knowledge processes from a general point of view. The second part introduces aspects of the process of internationalization. The following part shows as a step-by-step guide how a quality approach should be implemented in an international organization.

31.2 Internationalizing Knowledge and Learning Processes

31.2.1 The Context of Internationalization

In this section, the context and main influence factors on knowledge and learning processes, in particular information technology (IT) supported processes, in a global environment are identified. Those processes become more and more internationalized in different contexts. Typical scenarios for this are as follows:

- *Internationalization/Adaptation of knowledge*: Learning and knowledge contents are prepared and adapted to or adopted in a different country.
- *Cooperative development*: Educational and knowledge-intensive products or services are developed cooperatively within different countries. This includes outsourcing/offshoring solutions.
- *Mobility*: Staff members work and learn in different locations as part of a study program or lifelong education.

Of course, these scenarios do not cover all internationalization scenarios and challenges but they show the main aspects and typical challenges for institutions and individuals. As an example, the advantage of global e-Learning is emphasized by Mason's (2002) arguments: Non-native speakers find that they can manage online courses in the second language more easily than taking part in a comparable face-to-face course. There is a range of perspectives, which a global online environment facilitates, and working in global teams is exciting and rewarding.

Several studies emphasize the importance of culture. Different perspectives on culture can be distinguished. One approach is to identify models that represent national cultures with a controllable set of attributes (Hall and Hall 1990; Hofstede and Hofstede 2005; Trompenaars and Hampden-Turner 1997). Additionally, many studies have analyzed specific aspects of cultural influences for knowledge-intensive domains, in particular education (Edmundson 2007; Henderson 2007).

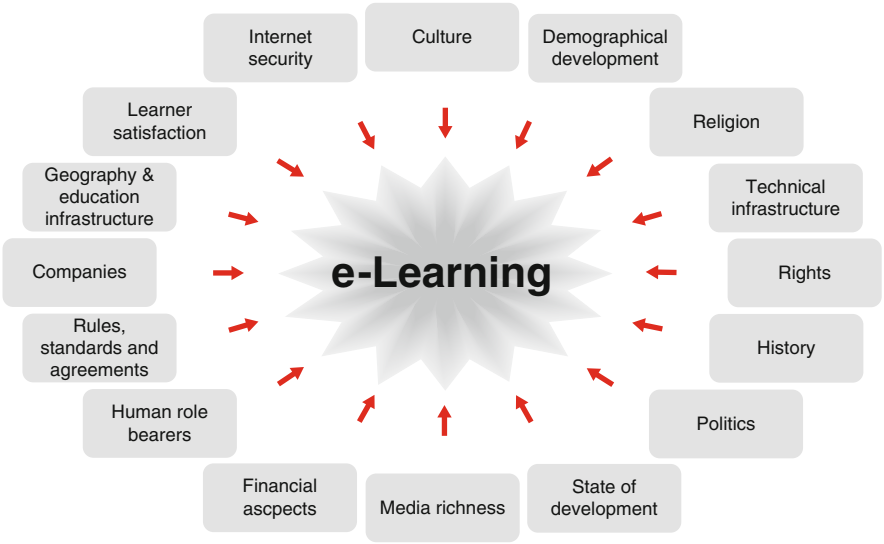

Fig. 31.1 Influence factors on learning processes (Richter and Pawlowski, 2007)

In an earlier work, we have summarized and extended those factors, showing the main fields of influence for learning processes (Richter and Pawlowski 2007). Those factors represent cultural factors as well as other factors influencing learning (see Fig. 31.1).

These categories show the context to be considered within the process of internationalization. However, concrete factors influencing quality need to be determined.

31.2.2 Influence Factors

In the following, aspects influencing the internationalization of knowledge and learning processes are outlined.

As mentioned before, the global processes and operations have become more and more important in global organizations. It is necessary to implement a *strategy for the internationalization* within the organization, which includes all relevant points and is integrated in the overall strategy. The strategies of internationalization and verified processes are well established within business companies. Strategies for internationalization are, e.g., export, licensing, joint ventures, and subsidiaries in the target countries (Pausenberger 1994). Scheer et al. (2005) developed a process for the internationalization of services. Main steps within a cycle are the design of the service, the start-up, supply of the service, and the evaluation.

These concepts focus on the sales side of the business. On the procurement side, a concept for internationalization is established, called global sourcing (Arnold 2002). This strategy expands the supply chain management and adds elements for innovation, international integration, and economies of scope. All mentioned concepts are not really evaluated for use in global education, so our approach was to transfer these established strategies from business to education. The strategy of internationalization needs to cover the following aspects:

- Identification of competitive advantages and potentials in the target market;
- Implementation of a geographical structure that covers the focused target market;
- Concepts for the target market entry, as a single competitor, within a network of partners or in collaboration with locally established partners;
- Designing processes for coordination, communication, and risk management;
- Decisions concerning the virtual education framework such as blended learning aspects, degrees of tutoring, and support.

It is necessary to analyze the relevant cultural aspects on the target market including aspects such as perception of provision of services and quality, learning strategies/concepts, and communication. International markets often offer different standards of infrastructure. It is necessary to analyze the available technical standards and to consider these during the conception of the product. Olaniran (2007) distinguishes between the less economically developed countries (LECDs) and economically developed countries. There is disparity in access to information and communication technology (ICT) infrastructure, and certain infrastructure such as high-speed internet access may simply not be commonplace in the target market. Nevertheless, there is a great potential for virtual education in markets, i.e., in Asia, China, or Africa. Figures on rising usage of the Internet and personal computers document this development.

Another aspect is the decision about the *language* of the globally distributed or developed product. Obviously English may be the first choice, but this has to be proved with reference to the target market. Other languages may be more adequate, and even common English may have to be adapted to local usage.

The *implementation of knowledge and learning processes* is inextricably connected with the special virtual culture of cyberspace. This concept first was explained by Chase et al. (2002) within the analysis of online courses at the Center for Intercultural Communication at the University of British Columbia in 1996. They identified several points, which should be regarded in the implementation of global learning products and therefore should be considered within the internationalization strategy. There is a special online culture comparable with a subculture within the courses. This course culture reflects the values of its developers, and this culture is maintained overtly by guideline creation and covertly by facilitators and participants. Features include "etiquette," rules of formality/informality, flexibility, interaction style (including greetings/farewells, use of apology), expectations of response speed, and work ethic (tensions between relationship building communications and "on-task" communications). Distinct communication pattern

differences are apparent when comparing e-mail-based and Web-based exchanges. Success rate of some communicators may be inferred from the frequency with which they elicit responses from the group. Significant cultural differences become apparent in the ways in which participants write about their own identity in online postings. Aspects of participant expectations and facilitator expectations within groups of different cultural background vary, so explicit and implicit assumptions about "time" and punctuality emerge, and cultural attitudes towards these become apparent from the ways in which participants and facilitators account (or not) for lateness.

For the implementation of a promising internationalization strategy, the differentiation between mono-national and multinational products is useful. A mono-national product is offered in one country and can be much more specialized to the requirements of the cultural background. A multinational product is designed for several countries and the focus should be on a more generally accepted design than on specialization. The differentiation between the two concepts in the advance of strategy creation avoids inconsistencies within the strategy.

As shown in these examples, a variety of aspects can influence global processes in the field of knowledge and learning processes. As a next step, it is necessary to identify how the quality of such a process can be determined and managed.

31.3 Quality Approaches

31.3.1 Quality for Knowledge Organizations

Generally, there is a variety of quality approaches that are used in knowledge-intensive organization and the field of learning, education, and training. They are either generic or specific. All of them differ in their scope, objective, or methodology (for a discussion of the variety, see Pawlowski 2007a).

Generic approaches such as ISO 9000:2000 (ISO 2000) or EFQM (2003) are widely used also in educational organizations. The reason is their wide popularity, their acceptance, and the organisations' will to certify and promote quality. For educational organizations, the effort to adapt those approaches is very high. Usually an organization has no domain-specific guideline to provide process descriptions of their educational processes. In spite of those difficulties, a variety of successful examples (e.g., Barron 2003; Cruickshank 2003) show that it is possible to use and utilize those standards in the context of learning, education, and training, but the effort to adapt this standards is still high.

To avoid the large adaptation efforts, specific approaches for the field of knowledge and learning processes have been developed. As already mentioned earlier, they differ in scope and methodology, ranging from quality management systems for education to content development criteria (Leacock and Nesbit 2007) or competency requirements (Ehlers 2007). Finally, a variety of related approaches for

a specific quality objective exist. Those standards are used to assure quality for very specific aspects, such as data quality or interoperability (Currier 2004).

In general, all quality approaches – generic, specific, and related approaches – can be helpful for educational organizations. However, several weaknesses exist. One of the main problems is the effort to adapt generic standards. Secondly, specific standards (e.g., developed by a certain user group or community) are usually not widely used and not well known in the community (Olaniran 2007). Additionally, none of those approaches covers aspects for the internationalization and therefore needs to be extended.

31.3.2 Quality for a Global Context

Generally, all the above-mentioned classes of quality approaches can be found for the international context as well. Some of those approaches are already intended for and used in global organizations such as ISO9000. However, there is a lack of support to design and assess global processes and more specific aspects, such as facilitating teams or incorporating cultural aspects in those generic models.

Hence, many specific approaches in the global context have been developed in organizational contexts, particularly in large global enterprises or cooperations and networks. Usually, an organization develops quality procedures or guidelines to fulfill the special requirements in its context. As examples, multinational networks have developed their own principles and requirements regarding quality. For the above-mentioned African Virtual University, Dzvimbo and Kariuki (2006) describe key areas of quality such as curriculum development, materials development, or technology management using checklists. Van Damme (2001) provides key areas for the internationalization of higher education, such as internationalization of policies, recognition of achievements, or delivery of materials. Both approaches show the different perspective, scope, and methodology of their quality approaches. This is common to most approaches, as there is currently no well-established and adopted standard.

A comprehensive approach is the UNESCO Guideline for Cross-Border Higher Education (2005). This approach provides abstract guidelines for governments, higher education institutions, student bodies, accreditation bodies, and professional bodies on an abstract level. Since the recommendations are on a rather abstract level (e.g., provision of quality systems, recommendation to share experiences), they must be extended. As an example for such an extension, Hope (2001) provides guidelines regarding policies, content development, and learner involvement.

Process-oriented approaches are one solution to prepare tasks and teams in a globally distributed environment (Evaristo et al. 2003). Karolak (1998) emphasizes the importance of a well-organized process and its planning. However, there is currently no approach that provides a framework for such a process for global organizations.

Even though several approaches for both fields, i.e., general quality and process management as well as educational quality, exist, there is currently no approach that covers aspects of the process of internationalization of global knowledge and learning processes. Hence, relevant aspects are derived and are explained in the next sections.

31.4 Quality of International Knowledge and Learning Processes: A Step-by-Step Guide

In the following lines, we introduce a step-by-step guide for quality projects within globally distributed, knowledge-intensive organization. It is the outcome of a long-term research in the field of quality, based on two main concepts:

1. *Global Learning Quality* (Pawlowski 2008): This approach addresses the question of which aspects should be covered in global educational settings.
2. *The Quality Adaptation Model (QAM)* (Pawlowski 2007) identifies the steps on how quality management and assurance should be introduced and deployed in knowledge-intensive organizations.

Our approach covers the main areas of global cooperation processes, IT support, as well as learning and training aspects.

31.4.1 Step 1: Vision-Building and Quality Awareness

In a global setting, a common vision is highly necessary when setting the context for quality development. It should ensure that quality development is anchored and present in all parts of an organization. This is in particular a challenge, as quality is perceived in different ways in the cultures of different countries or organizations.

The organization's long-term objectives, externally and internally, are contained in its vision, strategy, and policy. If an organization is committed to quality development, it should be reflected in its statements. In most organizations, quality, and specifically quality of e-Learning, is not adequately represented. Therefore, the process to improve vision, strategies, and policies needs to be established (Ittner and Larker 1997).

The redefinition should not be only the management's responsibility. The process should be at least transparent to all staff members. It can be recommended to include participants from all staff groups into this process which actively sets new directions for the organization. As an example, the strategy/policy should explain what "Quality of e-Learning" means in relation to the organization's core competencies and how it influences the main operations.

The outcome of this phase should be revised vision, strategy, and policy documents showing the organizations long-term view of quality and the consequences for all parts of an organization.

31.4.2 Step 2: Raising Awareness on Culture and Quality

Directly related is the process of awareness raising. Quality development will not be successful if it is a top-down regulation. Quality development should be part of everyday operations and related to all activities. Therefore, all members of an organization should be aware of quality and its meaning for their personal actions. This process should be combined with a process of cultural awareness raising. This means that members of cooperating organizations should undergo workshops or trainings where the corresponding cultures (national, professional, organizational) are introduced, compared, and reflected, e.g., through cultural profiling (Pawlowski 2008).

The outcomes of this phase are competencies of staff members regarding quality as well as cultural aspects. All staff groups should be aware of and involved in this process.

31.4.3 Step3: Defining the Main Fields and Aspects of Quality

Quality can be seen on many different levels. As a first step, areas and topics (processes, products, services) should be defined in which quality should be addressed. In universities, this can be, for example, study programs (accreditation), courses (evaluation), or the overall educational quality of the organization.

Generally, the main aspects of global quality have been derived in the previous section: strategy and policy, process design, coordination, communication and knowledge exchange, competencies, context, and cultural aspects. Each of these aspects should be validated and checked for inclusion.

The main outcome of this phase is a list of fields and topics that should be addressed in the organization's quality approach.

31.4.4 Step 4: Modeling Process-Oriented Quality

In order to achieve a transparent quality approach for an organization, the important processes and related quality objectives should be modeled and clearly defined.

If an organization has already modeled its basic processes, this model can be utilized and extended. For each process, clear quality objectives should be set.

Table 31.1 Extended process model for global learning quality

Category Process	Strategy/ policy	Process design	Coordination	Communication and knowledge exchange	Competencies	Context	Cultural aspects
Needs analysis	SP		PR	SP	PR	SP	SP
Framework analysis	SP			SP	PR	SP	SP
Conception/ design		SP	PR	SP	PR	PR	SP
Development/ production		SP	PR	SP		PR	PR
Implementation		SP	SP	SP		PR	PR
Learning process		SP	SP	SP	SP	SP	SP
Evaluation/ optimization	PR	SP	PR	SP	SP	PR	SP

SP: Adding new subprocess(es)
PR: Process refinement

A process model does not have to be developed from scratch – as an example, educational organizations could use a standard model, containing the most important processes. For educational organizations, the standard ISO/IEC 19796-1 "Reference Model for the Description of Quality Approaches (RFDQ)" (ISO/IEC 2005) can be helpful, as it already covers many processes that are common for education or knowledge-intensive processes.

However, for global operations, the model must be extended in most cases (e.g., how the cooperation or communication process is designed). The aspects of global quality have to be taken into account. In a process-oriented view, this means that they have to be mapped to specific processes. As an example, a process to achieve and assure intercultural competencies of staff members could be added to the generic model. This can be realized by either adding a new subprocess or modifying an existing process of the model.

Table 31.1 shows how typical processes (based on ISO/IEC 19796-1) and global quality aspects (see previous section) should be added or refined for a global setting. In some cases, an additional subprocess is necessary.

It has to be defined what quality means for each process, in particular which "global" aspects are addressed:

- Strategy/policy: A common strategy and policy plays a crucial role when working in international cooperative projects. It is essential to define a common strategy in the early phases (needs analysis/framework analysis). The quality of a common international strategy is specific to the needs of organizations involved. However, the strategy needs to be defined, followed, and continuously evaluated throughout the project.
- Process design: This aspect is crucial, as in international projects new processes are introduced (e.g., negotiation processes, coordination processes). Therefore, new processes have to be added to the standard ones, clarifying (as a minimum) tasks, coordination, and the responsibilities of the organizations involved.

The quality of process design means how, for example, process models support the actors involved.

- Coordination: Coordinating tasks and results depend heavily on the cultural context. An international project needs to clearly define in which time periods and in which form results are exchanged, discussed, and validated. The quality of coordination means, for example, how timely working tasks and results and exchanged.
- Communication: Communication plays also a crucial role when working in an international context. For each phase of an educational project, modes and rules for communication should be defined. As this is not contained in ISO/IEC 19796-1, additional processes should be added organizing communication and knowledge exchange. The quality of communication means, for example, how actors understand and interpret each other and how this influences their working relationships.
- Competencies: Generally, competencies are defined as knowledge or skills that are successfully applied by individuals in complex problem situations (see Adelsberger et al. 2008). In particular, international projects require different competencies from the stakeholders involved (e.g., project coordinator, media developers or teachers abroad, outsourcing partners, learners distributed across the globe). In particular, during the learning process it has to be ensured that learners and teachers can, for example, communicate appropriately in multicultural teams.
- Contextual/Cultural aspects: This is particularly necessary during the analysis phases of an educational project. More information on the context (e.g., about legal regulation, curricula frameworks) and on cultural aspects (national as well as organizational) have to be gathered and utilized. As an example, cultural aspects have to be addressed in most phases of the development of a global educational product. During the "needs analysis," it should be addressed which cultural experiences and competencies stakeholders have or how cultural aspects could influence the outcome. Quality of contextual/cultural aspects means how information on influence factors are gathered and how educational projects are adapted with respect to those factors.

The aspects are either addressed in new subprocesses or in refined processes in the generic process model, in our example in the model of ISO/IEC 19796-1. This adaptation process cannot be completely predefined. However, the matrix presented in Table 31.1 is a guideline on which aspects should be addressed in which process.

31.4.5 Step 5: Making Quality Explicit: Setting Quality Objectives/Choosing Methods and Metrics

So far, it has been identified in which processes specific quality needs occur. However, all stakeholders need to be aware of their individual quality objectives.

Table 31.2 Sample description (Pawlowski 2008)

ID	Category	Process	Description
2.2	Framework Analysis	Analysis of staff resources	Identification and description of actors, their qualifications and competencies, and availability
Subprocesses/ Subaspects		· Roles/functions · Competencies (skills/knowledge applied in complex problem situations)/ formal qualifications (skills/knowledge which have been assessed and formally certified by an educational or professional organization) · Availability of actors · Intercultural competencies · International experiences	
Objective		· To clearly identify and correctly assess the roles/functions, competencies/ qualifications, gaps, and availability of actors and users who will be involved in top management courses. · For global organization, staff members should continuously increase their intercultural competencies and experiences. · Project managers must have a sufficient expertise and achievements in international teams and specific experiences in target countries.	
Method		· Profiling: organizational chart, competency profiles, HR development plan · Cultural profiles: Each staff member shall have a continuously updated profile regarding cultural experiences and competencies. · Competency development: Each year or after a project ends, each team member and manager shall reflect on their cultural experiences and define newly achieved competencies as well as gaps. · Training sessions: Each staff member shall select and join seminars to fill culture gaps and prepare for new experiences.	
Result		· Description of roles/functions, competencies/formal qualifications, and availability of staff · Culture profiles · Culture competency development plan (including trainings) · Continuously increased cultural competencies and experiences	
Actors		· Project manager; HR development, teachers, learners, internationalization manager	
Metrics/Criteria		· Number and level of intercultural competencies · Number of matches for project requirements against available competencies · Number and level of intercultural trainings · Number of identified competency gaps	

This means that each actor should specify the quality objectives for his role in an organization. Additionally, it is necessary to determine indicators of whether a quality objective has been achieved or not.

A quality objective represents how a process can be successfully realized. After this specification, stakeholders have to determine adequate methods of how the objective can be achieved and how the outcome of such an objective is measured. A typical specification containing quality objectives and the corresponding methods/ measures is shown the Table 31.2. In the example, the process "Analysis of staff resources" has been extended for global organizations. The changes and extensions are shown in italics. The process "Framework Analysis" already covers an analysis

of staff competencies: This process analyzes which domain-specific competencies or personal/social competencies are already available in an organization. This process has to be extended covering global influence factors, such as intercultural competencies. The example focuses on the assurance and improvement of cultural competencies, for example by using cultural profiles. For each quality objective, at least one method to achieve this objective was specified. Additionally, indicators have to be developed to measure the success of the process.

Specifying, prioritizing, and agreeing on quality objectives is the most complex process of a quality project. It requires participation as well as allocation of adequate resources. In global organizations, it is necessary to involve all partners and find common agreements and methods.

It is highly recommended to use existing approaches, such as the above-mentioned model of ISO/IEC 19796-1, which is used as a "blue-print" for organizational processes. However, the focus is then to adapt this model to a certain context.

However, the presented approach has shown the first steps of the adaptation process – it is obvious that more adaptations have to be made by organizations in order to incorporate organization-specific, country-specific, and context-specific aspects. Furthermore, the approach is not static – the model should be continuously evaluated and improved in a quality development process. This will lead to an improvement process and to a continuously maturing model.

31.4.6 Step 6: Model Implementation and Adoption: Making the Concepts Work

Up to this step, a number of requirements and concepts have been developed which have to be brought into practice, i.e., they have to be integrated into the daily operations and work processes.

In the initial adaptation process, usually only small groups of actors are involved. Therefore, an *implementation strategy* should be developed. This strategy should describe actions and activities that the quality system is used for. Furthermore, it is of vital importance that all actors are aware of and involved in the process (see Thiagarajan and Zairi 1997). This does not mean that every staff member should know the full quality system, but they should be aware of quality objectives for core and related processes they are involved in. To establish participation, there should be opportunities for actors to influence, change, and improve quality objectives and methods. Usually, the first implementation is done in representative test groups. Therefore, further users need to be involved and become familiar with the quality concepts to systematically broaden the use of the quality system.

The outcome of this phase should be an implementation plan including activities to broadly adapt the model.

31.4.7 Step 7: Quality Development: Improving the Organization's Performance

A quality system cannot be implemented on a one-time basis – it must be continuously evaluated, updated, and improved to be aligned to new developments in an educational organization. Therefore, the following steps are necessary. The quality system should be evaluated at least on a bi-annual base. Specifically, it should be evaluated whether the quality system has led to overall improvements in the organization's performance. Furthermore, the adequacy of methods, instruments, and metrics needs to be evaluated. Based on this evaluation, improvement actions should be taken, such as the change and refinement of the system's components. Again, for this phase a broad commitment and participation is necessary to reflect the staff's opinions and attitudes toward the system. This should lead to a broad awareness and discussion on quality.

The outcome of this phase is an evaluation strategy, improvement concepts, and, most importantly, a broad discourse on quality. Specifically in the field of education, this will lead to a participatory process designing and developing learning scenarios.

31.5 Conclusion

In this chapter, we have shown important quality aspects for global organizations. These aspects have been integrated into a process-oriented quality approach, based on existing standards.

The step-by-step guide has shown the basic steps of how to plan and implement a process-oriented quality approach. This guide, however, should be continuously validated and extended on the basis of the experiences of user groups in different settings.

Chapter 32
Innovation and Quality for New Learning Cultures

Ulf-Daniel Ehlers

Abstract This chapter explores the potential of Web 2.0 technologies to leverage e-Learning to a new generation and assesses the consequences for quality assurance, management, and development in higher education. The chapter describes key characteristics of the e-Learning 2.0 phenomenon and how the related emerging learning scenarios can be used for the principles of quality development in learning communities. It explores a range of methods that can be deployed for quality development in community-oriented learning. Finally, it discusses if a new learning culture, which is based on the philosophy of Web 2.0 and exploits the potentials of social software for learning, automatically leads to a new quality culture.

32.1 Introduction

Download a lecture off the seminar web page as a podcast in the morning, take part in an online session of an international study group for the purpose of preparing for an exam in the afternoon, and log into the virtual world of *Second Life* to take part in a tutorial related to the morning's lecture – the daily routine of studying more often looks like this. In companies, online trainings are no longer visions of a distant future, but a reality for more and more employees. Teaching and learning are changing as well. The term "e-Learning" comprises the use of online tools such as blogs, wikis, or podcasts for learning and teaching. Learners can create their own contents and exchange information in networks like the video platform, YouTube (http://www.youtube.com).

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In many cases, reality looks still different, and e-Learning means merely putting seminar texts online on a learning platform. e-Learning platforms today are used as islands on the Internet, which could become gates through the use of e-Learning 2.0. These gates could help the whole world use the Internet as a world of learning where content can be found, changed, and shared with others. Viewed like this, the Internet itself would be the learning platform. Stephen Downes, who coined the term "e-Learning 2.0," describes it with words such as "learner centered," "immersive learning," "connected learning," "game-based learning," "workflow (informal) learning," and "mobile learning." Will this development have consequences for quality assurance, management, and development in e-Learning? If so, do we need new methods and concepts to improve and assure the quality of e-Learning 2.0? These questions are the beginning of many debates around the term "e-Learning 2.0." Even though the controversial question of quality was already discussed at the time of e-Learning 1.0, there is even more insecurity in the area of e-Learning 2.0.

This chapter will deal with these questions. In three steps, I will firstly describe e-Learning 2.0 and how it is different from e-Learning 1.0. In the second step, the consequences for quality development in e-Learning resulting from this will be shown by working out principles of quality development for learning communities in e-Learning 2.0 scenarios. Lastly, a range of methods will be listed as examples of quality development in community-oriented learning. To summarize, I will discuss whether a new learning culture also leads to a new quality culture.

32.2 New Learning Cultures

To let the cat out of the bag right away, e-Learning 2.0 is not a scientific term. It is not about further development, or is it a new paradigm or a replacement in the sense of a *new release*. Strictly speaking, it is not even about a new technology, a new model of learning, or a new, separate, innovative type of e-Learning. e-Learning 2.0 rather describes a number of developments, trends, and points of view, which require change from teaching to learning. The new point of view essentially connects e-Learning with five characteristics:

1. Learning takes places always and everywhere (ubiquitous) and therefore in many different contexts, not only in the classroom.
2. Learners take on the role of organizers.
3. Learning is a lifelong process, has many episodes, and is not (only) linked to educational institutions.
4. Learning takes place in communities of learning (so called *communities of practice*: Wenger 1998): Learners participate in formal as well as informal communities.
5. Learning is informal and nonformal, takes place at home, at the work place, and during leisure time and is no longer centered on teachers or institutions.

e-Learning 2.0 means using *social software* and learning services, which can be combined according to individual needs. The word "can" is significant here, as technology alone does not determine its use. Only by linking it to a learning model can the existing possibilities of learning be enhanced to go further than in former contexts. The metaphor of lifelong learning makes clear that learners cannot take classes for the rest of their lives. Rather, new forms of learning, which are designed to be self-directed, quick, flexible, and aimed at problem solving should to be devised. Informal learning "which is developed in oblique life and experience contexts outside of the formal educational institutions" (Dohmen 2001), is becoming the focus of the discussion once more. It comprises, as is known today, 70–80% of all learning activities. In his latest book, Jay Cross talks of only 10–20% of all learning being acquired in formal learning scenarios, while 80% happens through informal learning. He demands a *formalizing of informal learning* and an *informalizing of formal learning*. Nevertheless, formal education is still more focussed than informal (Cross 2003).

Empirical studies prove this issue. The result of a survey conducted in Spring 2003 in the 15 member states of the European Union by the European Center for the Development of Vocational Training (CEDEFOP) shows that most of the citizens are of the opinion that they learn predominantly in an informal way. The nonformalized acquisition of competences at the place of work, either by exercising one's profession (44%) or by talking to colleagues or reading of subject-related literature (41%), has the largest meaning next to acquisition of competences taking place outside of gainful employment in the private sector (69%). Other results of a current study also point at the meaning of informal learning contexts. According to it, formal advanced training is only the smallest part of advanced professional training. The majority of employees consider informal learning contexts in work and family life more often than not crucial, namely, the only main learning context in which they have learned most of what they know: 87% of the people who were asked stated that they had learned most of their knowledge in informal learning contexts, compared to only 13% who ascribed the largest meaning to formal learning contexts (Baethge and Baethge-Kinsky 2002).

32.3 Learning Communities and Networks

e-Learning 2.0 is about learners learning in a self-directed way in social networks and learning communities. Although used often in a synonymous way, there is a difference between communities and networks – especially with a view to learning. Building on Granovetter (1983), the difference between communities (as closer relationships) and networks (as more lose relationships) becomes apparent. Granovetter explores in his influential social network theory the strength of weak ties. Accordingly, interpersonal relationships in networks have two basic forms: strong ties, which are based on the immediate work and life contexts and build the core of *communities*, and weak ties, which stretch beyond our direct and close

contexts into other domains and are rather peripheral to the communities we are participating in – they, in turn, constitute networks.

While strong ties are characterized as regular and continuous, weak ties are rather sporadic and casual and serve as bridges between different social spheres and domain contexts. For learning, this differentiation can be utilized in powerful ways when peripheral influences can be brought to the center of interaction and learning. It is exactly this characteristic that allows linking peripheral influences into closer social network structures. The benefit is that networks (weak ties) help to transmit innovative ideas and new knowledge into communities and serve as a transversal bridge between people of different contexts and domains. Gronevetter emphasized that weak ties – i.e., relations in loose networks – are highly loaded with information, whereas strong ties are significantly less loaded with information (Schneckenberg 2010). This somewhat paradoxical situation seems to be of enormous importance for learning. While strong ties are reliable and steady, and give opportunities for deep exploration, irritation and innovation emerge from weak ties as they bring in the unexpected. Weak ties can function as opportunities for new information, can help to be exposed to unpopular opinions, and can bring in fresh food for thought into learning communities. Learning communities are characterized as social entities with a high degree of overlap in interests, close connections, and steady continuity. Networks are more distinct, of episodic and sporadic nature, and give access to unexpected and new ideas. e-Learning 2.0 and community infrastructures build on these concepts and allow learners to tie elements of informal, sporadic, innovative, and critical nature from their networks into their more formal and continuous learning communities. The interplay between the expected and steady on one hand, and the innovative and disrupted on the other, creates learning environments which allow tying in networks into communities. In order to tap these benefits, learners need to learn to configure their own personal learning landscape – not only in a technical way when it comes to building the personal learning environment but especially with a view to assembling weak and string contacts and connections into the portfolio of their own social learningscape. While Granovetter's "strength of weak ties" idea has been originally perceived as paradoxical and counterintuitive, it unfolds with the application of social software as a web-based extension, which shows the power of communities and networks for learning (Table 32.1).

This (constructivist) *learning-theoretical* perspective fundamentally questions the *possibility of instruction* in e-Learning 2.0 learningscapes. This is argued by saying that a self-directed system (learner) cannot be determined by its environment

Table 32.1 Different conditions and subjects of quality assessment in communities vs. networks

	Learning communities	Learning networks
Interests	Largely Overlapping	Distinct
Ties	Strong, high cohesion	Weak, low cohesion
Information load	Low	High
Characteristic	Expected information, deep exploration,	Innovative, Unexpected,

but only be perturbed and stimulated by it. This has consequences for the organizations of learning environments. While it has been argued that learning is an individual experience which needs *learner-oriented* (Holzkamp 1993, p. 184) planning and organization processes, in e-Learning 2.0, learning communities and networks are configured and activated as *learner-initiated*. The concept of self-directed learning becomes of enormous importance to e-Learning 2.0 – from an *educational-theoretical* point of view. Self-directed learning is often understood to be a *generic term* for all forms of learning in which the learners can determine and be responsible for their learning processes, namely, tasks, methods, and amount of time invested (and/or taken part in the decision) (Deitering 1996, p. 45).

George Siemens relates directly to this when unfolding his theory of connectivism (Siemens 2004). He states that his design of connectivism goes beyond the former learning-theoretical approaches of behaviorism, cognitivism, and constructivism and takes into consideration the growing tendency of learners to use informal, networked, and electronically supported learning. Learning is increasingly viewed as a continuous, lifelong process, which extends into the fields of work and leisure time activities and thus influences the individual and the organization as well as its connections among each other. Siemens goes on to explain that knowing the "who" and "where" of a subject is more important today than the "how" and "why." Even though Siemens's design is not clearly distinct from existing learning theories and describes more of a network-oriented learning philosophy, the approach is valuable as it clearly emphasizes the development of e-Learning 2.0 and social processes as the basis for learning and interaction processes that take place.

To conclude, it can be said that e-Learning 2.0 contains fundamental and profound changes. Not only does the form of learning itself becomes a topic in the process but the principle of how learning functions is partially redefined and cannot be grasped by using existing learning-theoretical approaches.

32.4 Quality Development for e-Learning 2.0

Quality development for education and e-Learning, which means evaluating learning contents and processes, certifying, and accrediting programs and institutions, is becoming more and more important. What, however, happens in learning scenarios in which e-Learning 2.0 is involved? In cases in which learning material is not fixed beforehand, are learning processes highly diverse and not unified and do learners find their own way of learning? And what about those education processes that happen outside of the programs and formal educational institutions? Who determines the quality of such learning scenarios, what can then be assessed at all, and which methods can be used to improve quality?

The earlier sections have shown that strong learner autonomy is a precondition as well as an objective for e-Learning 2.0. Learners are highly self-directed, as learning does not only take place in institutions, but everywhere, during the course

Table 32.2 Different conditions and subjects of quality assessment

e-Learning 1.0	e-Learning 2.0
Quality is assessed by experts	Quality is assessed by learners and peers
Learning platform	Personal Learning Environment
Content	User-created content
Curriculum	Learning diaries/e-portfolios
Structure of classes	Communication
Availability of tutors	Interaction
Multimedia (interactive)	Social networks and communities of practice
Appropriation processes	Participation processes

of one's whole life in a number of different episodes, in learning communities and social networks, using *social software* and individually compiled contents. Securing and developing quality in such learning scenarios thus has to focus mainly on the *individual learning processes* and the *shown achievements* (performance). The learner's perspective is more important than the organizational processes and/or the so-called input factors. Quality assessment does not take place by using classical methods of expert-based and standard-based quality management, quality assurance, or control, but by making use of more participative methods and responsive designs. The aim of the process is to reach an individualized assessment which relates to the learning process. Table 32.2 shows the different subjects to which quality assurance for e-Learning 2.0 relates.

Taking a look at the relevant literature on quality in the educational sector, it quickly becomes clear that quality can definitely be more than a "check by means of standards": Harvey and Green view not *one* but *five* basically different pedagogical ways of understanding quality at work in the educational sector. They conclude that quality is a philosophical term (Harvey and Green 2000, p. 36). Similarly, Posch and Altrichter point at quality being a relative term which has to be more closely defined with regard to the values of different pressure groups (Posch and Altrichter 1997, p. 28). It follows that they talk about quality as a relative term, which has to be organized as a negotiation process in the relation between stakeholders (Posch and Altrichter 1997; also Harvey and Green 2000, p. 17). Heid emphasizes that quality is not a characteristic of an educational process that can be observed generally; rather, it is the result of an assessment (Heid 2000, p. 41). Quality in education cannot, therefore, be understood as an overall classification of good schools, programs, or learning scenarios, but needs to be seen as a result of clear negotiating processes of value systems, requirements, and results (Ditton 2000, p. 73). Posch and Altrichter (1997, p. 130) conclude that "it is impossible to achieve more than clearly defining the criteria which every stakeholder uses in his quality assessments and take into consideration those competing points of view when making quality assessments."

For the quality of educational processes, this means that it needs to be asked *which* stakeholders having *which* interests take part in the educational scenario in *which* way. In this regard, an obvious difference between the broadcasting-oriented understanding inherent in e-Learning 1.0 and the rather participation-oriented

understanding predominant in e-Learning 2.0 can be perceived. e-Learning 2.0 not only centers the learners as receivers but also as active actors who take part in the definition and evaluation of the quality of the learning resources and processes. While in e-Learning 1.0 learning material is more often than not compiled or designed as well as assessed by experts, and learning platforms are quality-assured by institutions and experts, in e-Learning 2.0 learners compile their own personal learning environments (PLEs), create their own content, and learn together with and from others. Learning material is simultaneously assessed by peers.

One thing needs to be said beforehand: e-Learning 2.0 does not require a new mode of thinking or method of quality development, such as a new and completely altered philosophy of quality – no educational quality 2.0 is needed. However, changed basic conditions and contexts need to be taken into account. Doing justice to these different contexts, different questions need to be posed when dealing with quality development: the different objects evaluated, the different criteria of quality applied and the specific methods of quality assurance, and the enhancement and development used. In short, the role of quality development is changing. While in traditional learning scenarios it mostly means the checking and controlling of quality, in e-Learning 2.0 scenarios it is becoming more the role of an enabler of the learning progress. Learning methods and quality development are moving closer together. Methods such as feedback, reflection, and recommendation mechanisms are becoming more important. Typical basic conditions, which need to be taken into account in quality development for e-Learning 2.0 scenarios, are explained in the following lines:

- *From reception to participation*: The metaphor used for learning is changing. In e-Learning 2.0, quality cannot be tied to the evaluation of a predetermined learning environment or learning contents produced by an expert. Not the reception but the active participation is most important, which means the questions of how far a learning scenario stimulates the creation of individual PLEs, the compilation of individual learning contents, and sharing them with others.
- *From inspection to reflection*: Quality development for e-Learning 2.0 scenarios shifts the focus from conformity to a reflection of the learning process. Learners are supported in reflecting, recognizing, and putting into effect their own learning progress, educational strategies, needs, etc., and in the course of their actions critically reflect the contribution of educational media. The aim is to achieve a personally ideal configuration of educational media and strategies, which is continuously developed through autonomous reflection.
- *From product orientation through process orientation to performance and competence orientation*: The material that is used for learning and the processes of its supplier are not the focus of quality development. Quality development focuses on the learners' performance, their individually developed learning products, steps in the development, and similar aspects (for example in e-portfolios), which shape their way to decision making and responsibility.
- *From planning education for the leaner to planning education by the learner*: The quality of learning scenarios is often attempted to be achieved through

careful analysis of the need for education, a comprehensive conception phase, feedback as far as the design of learning material and development processes are concerned, and the evaluation of learning processes. In e-Learning 2.0 scenarios, many of these processes shift from the *supplier* of a program to the *leaner*. Quality concepts must therefore support the learners in their ability to develop quality through reflection, enable leaner-oriented forms of evaluation, and offer the necessary tools for quality development to the learners in their PLEs.

- *From receiver to developer of learning materials*: Quality assessment in e-Learning 2.0 scenarios does not follow the logic of a marketing effectiveness research to find out how the materials and characteristics of media optimally affect the learning process. It is not about learning process taking part in a unified learning scenario; rather, the focus lies on processes of development, flexible usage, and the validation of social communication processes with other learners.
- *From the "learning island" learning management systems (LMS) to the Internet as a learning environment*: Kerres (2006) points at LMS functioning as islands, which present a closed area in the enormous material ocean that is the World Wide Web. e-Learning 2.0 scenarios understand LMS as a mere starting point, as a signpost for their own search and use of material from the Internet, their development, and linking to other tools which can be flexibly arranged to become personal learning portals. Quality assessment then does not focus on materials from the LMS anymore but rather on the learning products and perhaps on the learning processes documented in an e-portfolio.
- *From tests to performance*: Learning progress and achievements become visible not only in tests but rather in the learning process documented in portfolios (for example in wikis or web logs), learning products, and social interactions.

32.5 Concepts and Methods of Quality Development for e-Learning 2.0

Quality assessment of e-Learning 2.0 focuses on the learning process. There is no use of external standards and inter-individual comparisons (such as tests or assessments). Rather, methods of self-evaluation and intra-individual development processes are employed for this purpose, which are not made via tests but via reflection and evaluation of learning products and e-portfolios. Even though e-Learning 2.0 is a new development as a trend, substantial experience has already been made with

Table 32.3 Methods of quality development for e-Learning 2.0

Methods of quality development	Quality assessment by
1 Self-evaluation	Learners with the help of/feedback by teachers
2 Assessment of e-portfolios	Teachers
3 Social recommendation	Peers, learning communities
4 Evaluations aimed at target group	Teachers

the learning models of *autonomous learning* and *learning in communities*, which are their basis, as well as with methods for quality assessment of learning processes.

Teacher can use these methods to evaluate the learning progress together with students and to enable individual planning. Teachers take on the role of mentor who gives feedback and helps with reflecting the learning experiences or evaluates e-portfolio postings.

In the following section, important aspects of methods for quality assessment, which are listed in Table 32.3, are presented.

32.5.1 Self-Evaluation

One important issue, which contains an enormous potential for quality assessment of learning processes in e-Learning 2.0 scenarios, is the concept of self-evaluation. The aim of it is not a complete (summative) assessment of learning achievement, but rather an improvement of learning abilities.

> Self-evaluation is defined as students judging the quality of their work, based on evidence and explicit criteria, for the purpose of doing better work in the future. When we teach students how to assess their own progress, and when they do so against known and challenging quality standards, we find that there is a lot to gain. Self-evaluation is a potentially powerful technique because of its impact on student performance through enhanced self-efficacy and increased intrinsic motivation. Evidence about the positive effect of self-evaluation on student performance is particularly convincing for difficult tasks (Maehr and Stallings 1972; Arter et al. 1994), especially in academically oriented schools (Hughes et al. 1985) and among pupils in high need (Henry 1994).

In scientific literature, the positive effects of the self-evaluating processes on the learning achievements can be found (Maehr and Stallings 1972; Arter et al. 1994; Hughes et al. 1985). When undertaking these processes, students can gain insights into the profile of their own strengths and weaknesses. Rolheiser and Ross (2001) state that, if students evaluate their own achievements positively, they aim for more challenging objectives, engage in their own learning process more, and mobilize more personal resources. A self-evaluating process follows the following four steps:

- *Step 1*: Learners are involved in the definition of the criteria that are used for assessment. This happens in the form of negotiations. It has been shown that neither predetermined criteria nor criteria solely developed by students are as effective as criteria that are developed together. Surveys show that criteria which are developed in cooperation with learners, enhance agreement and motivation of the learners. Learners are also simultaneously coached in developing of their own goals and make experiences when choosing the level of difficulty. Furthermore, an attitude of advice develops between the teacher and learner, which can be of great significance in e-Learning 2.0 learning processes.
- *Step 2*: In this step, learners apply the criteria they have chosen to their own learning processes. As they do so, it can be important to provide them with examples of what such assessments can look like.

- *Step 3*: In a third step, learners receive feedback on their self-evaluation. The aim of this step is to calibrate the students' own assessments together with the teachers by using this feedback process. A triangulation of their own assessment as well as that of the teachers and the peers is taken into account.
- *Step 4*: In the fourth step, the students are asked to develop plans for developing their own competences on the basis of their self-evaluation. They discuss strategies with the teachers in order to reach these goals.

32.5.2 Quality Assessment with e-portfolios

e-portfolios – web-based portfolios – integrate different media and services. Students collect those learning products in their e-portfolio, which are made in the course of a class or even during the whole course of their studies. Students can use electronic portfolio to show competences and reflect their learning processes. Learning results, connected with remarks by tutors, teachers and peers, feedbacks, and personal reflections are collected.

e-portfolios lend themselves to quality assessment ("Are e-portfolios an assessment *of* or *for* learning?" see Barrett and Carney 2005; Ainsworth and Viegut 2006). e-portfolios can used when making the final assessment (summative) or for continuous improvements (formative). As can be seen in Table 32.4, the

Table 32.4 Purposes of an e-portfolio for assessment (based on Hornung-Prähäuser et al. 2007)

Portfolio for summative assessment	Portfolio for formative assessment
Purpose of e-portfolio is prescribed	The purposes of the portfolio are negotiated with the learner
It is fixed which learning products have to be part of the e-portfolio so assessment if possible	Artifacts have been chosen by the learner to tell the history of his or her learning process
Portfolios are usually fabricated at the end of a school term, semester or program and there is a deadline for handing them in	The portfolios are constantly updated over the course of a school term, semester or program with flexible timing
The portfolios and/or artifacts are generally graded bases on a matrix and quantitative data for an external audience	The portfolios and artifacts are evaluated together with the learner and are used to give feedback, so that the learner can improve his or her learning process
The portfolio is normally structure by specified results, aims or standards	The organization of the portfolio has been determined by the learner or has been negotiated together with the mentor/ advisor/teacher.
Sometimes the portfolios are used to make important decisions	The portfolios are hardly ever used to make important decisions
Summative: what has been learned up to now) (past – present)	Formative: Which needs for learning will exist in future? (Present – future)
Extrinsic motivation is necessary	Intrinsic motivation mobilizes the learner
Audience: external, little possibility for choice	Audience: learners, family, friends

Table 32.5 Comparison between forms of e-assessment – "e-portfolio vs. online tests"

Characteristics	Online examinations	e-portfolio
Preparation	Excessive preparation for examiner	Excessive preparation for candidate
Forms	– Online multiple-choice test – Online tasks – Simulations (pilot examination)	– Project-related work with e-portfolio – e-portfolios for purposes of planning one's studies
Materials assessed	– Answers	– Studying/learning objectives, learning plans – Artifacts (materials, reports) – Reflections on learning – Feedback/comments by other evaluators
Criteria for assessment	– Correctness (Agreement with sample solution – Completeness – Oriented at criteria or norms	– Fulfilling criteria for evaluation (raster) – Perspective focused on competences – Focused on individuals
Evaluation of tests	– Fast – Objective	– Excessive – Subjective (less so with several evaluators)
Behavior of candidates	– Rather Passive testing of knowledge	– Active development of the portfolio's contents – Inclusion of self-evaluation

Source: Hornung-Prähauser et al. (2007)

purpose, design, and contents of portfolios are clearly different when used for summative assessment of the learning achievement or for formative assessment in order to support the learners.

Working with the portfolio has a double function. On one hand, it is an innovative instrument for teaching and learning; on the other, it serves as an alternative instrument for assessment. Learning scenarios supported by e-portfolios emphasize the learning process and enable a deeper understanding of learning processes in all participants.

Concerning quality assessment, the portfolio is understood as a way from achievement *diagnosis*, which is exclusively defined externally and test-oriented, to a more strongly self-directed achievement *presentation* by the learners. e-portfolios are aimed at competences. The idea is not to emphasize the *mistakes* the learner has made but what they are capable of doing. Advocates of portfolios often stress the natural function of a portfolio for bridging purposes, i.e., the link it creates between teaching, learning, and evaluating (Häcker 2005, p. 4). Thus, an e-portfolio is a method of evaluating achievements, which offers a combination of external and self-evaluation. Table 32.5 presents an overview of qualities for assessment oriented at e-portfolios in comparison to online examinations. In this process, e-portfolios can be used for evaluation/assessment of subject-related abilities as well as self-competence. If e-portfolios are used as an instrument for assessing learners, the following aspects have to be taken into consideration:

- The new way of learning, presenting, and refection requires mentoring and a "phase of socialization."

- e-portfolios are an instrument of development rather than for checking students' achievements.
- A qualitative assessment supports the learner-oriented, customized approach to prove achievements.
- The high level of subjectivity when it comes to the evaluation decreases when there are several evaluators (see also peer review).
- It needs to be clarified beforehand in which way data will be exchanged and published.

Examples of working with an e-portfolio

- An example for working with e-portfolios is the e-portfolio blog that students at the Pädagogische Hochschule des Kantons St. Gallen (CH) (Teacher Training College St. Gallen) use (http://phrblog.kaywa.ch/).
- The e-portfolio portal of St. Gallen's Teacher Training College is a web log that is hyperlinked with a number of e-portfolios. Portfolios made by teachers as well as students, which for instance served the purposed of documenting projects, are made available (http://www.eportfolio-phsg.ch/).

32.5.3 Social Recommendation and Community Participation

In e-Learning 2.0 learning scenarios, communication, feedback, and the exchange within learning communities are essential. With the help of social software tools, collaborations can be established and information exchanged, as well as evaluated mutually. Three methods are of special significance:

1. Social recommendation mechanisms
2. Peer-review method
3. Peer-assist method

32.5.3.1 Social Recommendation Mechanisms

Social recommendation mechanisms are defined as those methods that serve the purpose of assessing the "true quality" of learning material (Duval 2006), in contrast to methods focused on experts. According to this method, the members of a learning community evaluate materials available online. This happens, for instance, in databases for learning material that contain an assessment of saved learning materials on the basis of their usefulness and quality, or – in a less structured form – through learners creating link lists of materials, classes, and resources available online which they deem especially valuable and qualitative.

On one hand, this method can be understood as "quality evaluation" in the course of which each learning material is assessed by learners. On the other hand, it is also possible to give learners recommendations – á la Amazon – on which

learning material is thought to be especially useful, the so-called social recommendations. Eric Duval, a Belgian professor, suggests a concept he terms "LearnRank." It is about making a ranking of learning material based on learners' evaluations and using it together with their "contexts" and intentions as basic for learning recommendations (Duval 2006). Of course, this does not guarantee that one finds the right text, but it increases the probability to find useful contents.

32.5.3.2 Peer Review and Peer Reflection

Peer review is a concept that has been introduced a number of times, especially in the academic sector. It deals with assessing quality by peers – that is colleagues or other learners – giving each other feedback. In the scientific sector, the texts discussed are often scientific proposals or publications. In the area of learning, especially in e-Learning 2.0 scenarios, peer-review can be used to obtain feedback and quality assurance for results, learning progress, and aims, which is given by other learners or members of the learning community. A simple application of the peer-review method for the purpose of quality enhancement in e-Learning 2.0 scenarios is to invite different learning communities or members of different learning communities to present them with the learning intentions, progress and the problems as well as solutions worked on and to ask them to do a review.

Peer reflection is a process aimed at creating situations for reflecting, in which the peers are asked to encourage the reflection of learning processes by means of their own experiences. One community could, for instance, share with another how it structures its projects, why it used a particular material and so on.

32.5.3.3 Peer Assist (Peer Learning and Bench Learning)

One way to check on the quality of learning processes is by learning from other people's solution, by entering a peer learning process with others. One model that has recently been gaining importance is the peer-assist model.[1] It is a structured reflection in the context of a social network, which is carried out via social software. This method is clearly distinct from peer review (see Table 32.6). It primary aim is to simulate the learning processes. By employing the method for e-Learning 2.0 scenarios, social assets are used for further developing one's own solutions or for resolving learning difficulties that come up in the learning process. Structured reflection of a learning process is possible by broaching the issue of the learning processes, the results, and the documented outcomes in the peer-assist process.

[1]The models of peer assist, peer learning and bench learning are so to speak the logic continuation of peer review processes.

Table 32.6 Differences between peer-review and peer-assist processes (based on Common Knowledge 2007)

Peer review	Peer assist
Aim: evaluation	Aim: learning, improving knowledge
Evaluative	Collaborative
The task is to criticize a paper	The task is to learn with and through a team
Reviewers are chosen by others	The members themselves choose the assistants
Often, there is an attempt to reach constructive and in every case positive evaluation results "by all means"	Processes for solving problems
Some actors are always reviewers	That who assist today can call for a peer assist process tomorrow – changing one's role is supported
Report is mostly made available for the management	The process is aimed only at those who called for it

Table 32.7 Online peer assist processes

Phase	WEB (2.0) tools
Preparation	
"Peer assistee" send introductions to (six) peer assistants	e-mail
A peer assist moderator needs to be found and invited	e-mail
A peer assist wiki or blog needs to be made	WIKI, blog, protopage, etc.
Execution	
Round 1: presentation of problem (10 min)	Notes on peer assist wiki/blog/application sharing, collaboration platform *Examples:* A concept developed by learners for the purpose of problem solving is presented in form of notes, a concept for a (final) paper, etc., is briefly presented, a problem is presented
Round 2: peer assistants can ask topical questions (30 min)	Online chat, collaboration platform
Round 3: peer assistants make suggestions for solutions and give evaluations (45 min)	Suggestions are entered into a forum for discussion, everyone reads the other participants' suggestions
Round 4: moderator invites all participants to give a finishing suggestion (30 min)	Final round as a post in a forum for discussion
Round 5: peer assistee decides on how to continue and informs the group (10 min)	The peer assistee informs participants in an online chat which suggestion he o she has chosen

The peer-assist process is a structured process that can be employed in e-Learning 2.0 scenarios by using social software. It deals with linking and strengthening a learning community with the explicit aim of discussing one's own strategies for problem solving and learning approaches, reflecting, and improving. Table 32.7 shows how peer assist can be used in e-Learning 2.0 scenarios.

32.5.4 Evaluation Processes Aimed at a Target Group

Today, evaluation is often used for assessing learning processes and results. A large number of contributions in scientific and praxis-related literature with processes that have turned out to be successful can nowadays be drawn upon. In the educational sector, the current practice for evaluation envisages a group evaluating a learning/teaching situation with the help of an evaluating instrument (e.g., a questionnaire). This is problematic in e-Learning 2.0 scenarios, as the learning progressions and PLEs are potentially different – even in one and the same class. That is why, as regards evaluation, it makes sense to resort to a practice of evaluation strongly aimed at the target group.

This can happen by admitting a target-group-specific profile of evaluation instruments. One way of doing this is, for example, asking the learners to not only answer questions from an evaluation questionnaire but simultaneously inquiring into how *important* and *relevant* they deem this evaluation item for a learning process. If the item is irrelevant to a learning process, it is evaluated to be of small importance and is consequently also not taken into account as much as other items in the overall evaluation. "Artificial" estimation of dimensions that are unimportant to the learning progress is thus avoided. Another advantage results from learners conducting not only an assessment but at the same time a reflection on what was of significance to their personal learning progress. The questionnaire, which is used for such an evaluation, should cover all relevant areas in an adequate manner.

A method like this, which is aimed at a certain target group, is conceptually close to experiences that have been made in the area of responsive evaluation. According to this method, participants do not only assess given objects but are included in the definition of objects to be evaluated. In e-Learning 2.0 scenarios, this can potentially lead to all participants in the evaluation process, "constructing" a different questionnaire by assessing issues differently. The results of such an evaluation procedure cannot be processed and handled in the same way as results of a "normal" evaluation. A learning group is not understood to be a *homogenous* entity. In contrast, target-group-specific suggestions and solutions for the results of evaluation will have to be found. The first online tools for such evaluation procedures are currently being developed (for instance http://www.sevaq.com).

32.6 "Holes in the Wall": Quality for New Learningscapes

In a presentation at the "Innovations in Learning" conference by Brandon Hall, Stephen Downes (2007) used the metaphor of "walled gardens." He uses it to refer to Kerres' (2006) talk of island-like e-Learning when talking about "e-Learning 1.0." e-Learning 2.0 cuts holes into these garden walls, which leads to a new culture of learning. This new culture of learning is characterized by more autonomy for learners, leading away from a *model of knowledge transfer*, which is predominant in many educational contexts, to a model of mutual construction of knowledge and

development of competences. The emphasis lies on making learners *fit* for an uncertain future, to support them in their development to becoming "reflected practitioners" (Schön 1983), and to supply them with a portfolio of acting competences with the help of which they can create their respective working and living contexts and innovatively develop them.

Naturally, *learning* itself is not invented anew by this method. The basic concept of learning remains the same. Rather, we realize new pedagogical approaches and didactic forms of how learning/teaching scenarios can be designed. Thus, we reach a new culture of learning. It challenges educational institutions by not being restricted to "walled gardens" but going beyond –physical as well as conceptual – the limits of institutions. In the process, it challenges a large number of regulations and beliefs, such as curricula *written in stone*, traditional examinations, the "LMS to be used for all organizations," etc.

A new culture of teaching and learning, as has been described in the article, also questions the understanding of evaluating, developing, and assuring quality. The emphasis here is on the methods that are aimed at a participating learner and the learning process directly and not as much on processes centered on organizations. A quality culture for e-Learning, which wants to add something to methods and processes for e-Learning 2.0, aims at participation-oriented procedures, creates space and chances for reflection, and includes learners in feedback processes. Learning communities are involved in reviewing and evaluation processes for material, concepts, and problems. Quality assessments are aimed at a target group and not at external standards. Such a conception of what quality instruments, concepts, and methods ought to look like challenges educational institutions at all levels. Institutionally, new basic conditions need to be fixed, which, for example, enable the acceptance of e-portfolio-supported evaluation processes as examination achievements. On the level of the program, it is important to construct learning methods and curricula in a manner that leaves room for the influence of learners' feedbacks. On the level of learner activities, learners need to be familiarized more with reflection and peer-review processes, which make it possible for them to give feedback on the quality of their learning processes.

In this process, learners require entirely new competences, which enable them to use *social software* tools for the described processes of quality development in courses.

Chapter 33
Can Web 2.0 and Social Software Help Transform How We Measure Quality in Teaching, Learning, and Research?

Graham Attwell

Abstract This paper focuses on the issue of quality in teaching, learning, and research. In the second section, the paper looks at the different ways technology is being used to learn and at the changing expectations of learners leading to pressures for transformations in both pedagogy and institutional structures. The third section proposes a new rhizomatic model of learning. The following section "Quality Frameworks: Perception and Reality" suggests that traditional measures of the quality of teaching, learning, and research have been hijacked by the commodification of education. This is explored further in Section "The Commodification of Education and Its Impact on How We Measure Quality". Section "How will Web 2.0 and Social Software Change our Understandings and Measurement of Quality?" looks at how Web 2.0 and social software can provide opportunities of new ways of measuring the quality of learning through embedding quality measures within the processes of teaching and learning and knowledge development. Sections "What is the Purpose of Traditional Assessment Measures?" and "Critiques of Assessment Processes" provide a critique of traditional assessment processes and suggest the need to move from the assessment of learning to assessment for learning. Section "Personal Learning Environments and Assessment for Learning Through Authentic Learning Tasks" looks at how personal learning environment can be used to support authentic learning and assessment for learning. The conclusion suggests that the development of new quality processes will require fundamental rethinking of the purpose and role of universities.

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33.1 Introduction

That universities face profound challenges following the economic recession and global banking collapse of 2008 goes without saying. Yet those challenges have deeper roots. Changes in the global economy have led to intense competition for the best students, for scarce resources, and for international recognition, although such competition is rooted in the commodification of education, which is analyzed in more depth below.

Yet, in the long term, the greater challenges may be from the impact of the use of new technologies for teaching and learning and for knowledge development. The impact of the present technological revolution, based on digital technologies, is changing many facets of society including industries, production, the places we live, and forms of communication. Education, including that in universities, is not immune from such change. Arguably, the greatest impact may be in the ways in which we are using technologies for learning, and hence the changing expectations of students, and the emergence of new forms and processes of knowledge development. Such change challenges the core purpose and activity of universities and the dominant paradigms that have shaped university development over the past 50 years. This includes the way universities and the wider education systems have approached the issue of defining and measuring quality.

In this paper, I look at the impact of Web 2.0 and social software on teaching and learning as well as knowledge development and research. I go on to look at how e-Learning technologies have been shaped by the commodification of education. Approaches to quality have, I argue, been focused on measuring outcomes as commodities. Assessment, rather than focusing on providing quality in the form of feedback for improvement in teaching, learning, and research, has rather been used for comparing institutions and as a mechanism for selecting students for future employment. The adoption of Web 2.0 and social software and the development of personal learning environments facilitate new pedagogic approaches to teaching and learning and, through formative assessment based on authentic learning tasks, the embedding of assessment within the teaching, learning, and research process. This, in turn, provides a new approach to quality for universities.

I realize that this is a radical and controversial approach but hope it may add to the debate over the future role of universities.

33.2 Changing Forms of Learning

Universities are being challenged not by technology per se but by learners with the expectation and ability to influence what and how they learn. Young people are increasingly using technology for creating and sharing multimedia objects and for social networking (see also the chapter from Wim Veen). A Pew Research study

(Lenhart and Madden 2005) found that 56% of young people in America were using computers for "creative activities, writing and posting of the internet, mixing and constructing multimedia, and developing their own content." Twelve to 17-year-olds look to web tools to share what they think and do online. One in five who use the Net said they used other people's images, audio, or text to help make their own creations. According to Raine (BBC 2005),

> These teens were born into a digital world where they expect to be able to create, consume, remix, and share material with each other and lots of strangers.

Web 2.0 applications and social software are increasingly being used for knowledge development and sharing and for cultural interchange and networking. Siemens (2005) says that learners are actively attempting to create meaning through engagement in networks.

Learners are using social software to explore and create, according to their own interests and directions, interacting as they choose, with their friends and learning community (Downes 2007). In this process, "learning becomes as much social as cognitive, as much concrete as abstract, and becomes intertwined with judgement and exploration" (Seely Brown 1999).

There has been much talk of the "Digital Generation" and of Digital Natives (Prensky 2001). I would be wary of such media-friendly catch phrases. A study undertaken for a European project looking at the use of "Information and Communication Technology in Small and Medium Enterprises in Europe" found little practice of formal e-Learning but extensive use of technology for informal learning through social networks (Attwell 2007). Age was not a significant determinant of the likelihood of using technology for learning, but rather access and opportunity and the ability to employ learning in work practices were. The major motivation for learning appeared to be personal interest, rather than necessity for employment.

These new forms of learning demand transformation in both pedagogy and institutional structures towards approaches which are no longer just student-centered but, as learners assert both choice and control, are student-led, and in which the shifting focus is towards information as shared rather than owned within connected, collaborative communities in the physical and virtual space. It also requires change in the way in which we judge student attainment and hence the quality of the teaching and learning environment. Yet, the traditional schooling model of education (Attwell 2009) remains rigidly tied to the idea of developing and assessing individual academic course-based outcomes as a measure of attainment.

33.3 The Social Construction of Knowledge

In a paper entitled "Rhizomatic Education: Community as Curriculum," Dave Cormier (2008) locates traditional forms of curriculum development within societal forms of knowledge production.

> Information is the foundation of knowledge. The information in any given field consists of facts and figures, such as may be found in the technical reference manuals of learning; in a nonrhizomatic model, individual experts translate information into knowledge through the application of checks and balances involving peer review and rigorous assessment against a preexisting body of knowledge. The peers and experts are themselves vetted through a similar sanctioning process that is the purview, largely, of degree-granting institutions. This process carries the prestige of a 1,000 year history, and the canon of what has traditionally been considered knowledge is grounded in this historicity as a self-referential set of comparative valuations that ensure the growth of knowledge by incremental, verified, and institutionally authorized steps (Cormier 2008).

In this model, the experts are the arbiters of the canon. The expert translation of data into verified knowledge is the central process guiding traditional curriculum development.

Cormier (2008) states that the present speed of information based on new technologies has undermined such processes. The explosion of freely available sources of information has helped drive rapid expansion in the accessibility of the canon and in the range of knowledge available to learners. We are being forced to reexamine what constitutes knowledge and are moving from expert developed and sanctioned knowledge to collaborative forms of knowledge construction. Social networking tools, blogs, and wikis are facilitating such processes. Social learning practices are leading to new forms of knowledge discovery. "Social learning is the practice of working in groups, not only to explore an established canon but also to negotiate what qualifies as knowledge"(Cormier 2008). Cormier cites Brown and Adler (2008) who say "The most profound impact of the Internet, an impact that has yet to be fully realized, is its ability to support and expand the various aspects of social learning."

Cormier proposes a "rhizomatic model" of learning in which "a community can construct a model of education flexible enough for the way knowledge develops and changes today by producing a map of contextual knowledge." In this model "curriculum is not driven by predefined inputs from experts; it is constructed and negotiated in real time by the contributions of those engaged in the learning process. This community acts as the curriculum, spontaneously shaping, constructing, and reconstructing itself and the subject of its learning [. . . . .]" (Cormier 2008)

This changing model of social learning and knowledge development requires different tools from traditional approaches to learning. By tools, we mean not only learning technologies but all those processes that support learning including institutions, teaching curriculum, and materials. In the case of learning through work, it also includes the organization of work processes.

Yet the idea of rhizomatic learning is not solely based on the impact of new technology. In the "Pedagogy of the Oppressed," Friere (1972) talks about how rather than arriving in a community with a set, standard curriculum, researchers should study the community and develop "themes" from their interactions with the people. These themes are then presented back to the community in the "culture circles" as problems to discuss and build upon.

Such changing ideas of knowledge development challenge traditional measures of the quality of academic research as well as of learning. The traditional academic

measure of quality has been by reference to the expert, be it a professor or publication in scholarly journals, subject to expert review.

33.4 Quality Frameworks: Perception and Reality

In the previous section I have looked at changing processes of learning and of knowledge development and at how these challenge overt measures of quality though assessment of individual attainment and of expert review of research outputs. However, I would argue that the challenges to how we view and measure quality go deeper than this. Essentially, traditional measures designed to measure academic quality have become hijacked by the growing commodification of university education.

Thus, assessment is not used just to measure student attainment but to construct league tables of university degree results, by grade and by subject. Such results are used to compete for the best students and for resources, both internally and externally.

Research results, in terms of the quantity of article published in the highest rated journals, are also compiled and used as a means of distributing resources. Reviews of research and "league table" ratings can lead to the allocation of further resources or the closure of research units and departments. Indeed, it could be argued that increasingly the arbiter of quality of research is seen by managers as how much external funding a department is able to generate.

Thus quality is measured through the commodities that universities deliver. It might have been thought that through opening access to education, new technologies and e-Learning would counter such trends. In fact, the opposite has happened. The reason for this is the wider discourses in which technologies have been deployed in universities. These discourses and the way that commodifcation has shaped the e-Learning landscape are explored in the next section of this paper.

33.5 The Commodification of Education and Its Impact on How We Measure Quality

As universities have become increasingly privatized, education has been subject to a process of commodification as seen in "social relations conducted as and in the form of relations between commodities and things" (Bottomore et al. 1983).

This process can be seen as taking a number of different forms in education. One is the replacement of exchange value for use value in academic labor (Wilmott 1995). More fundamental, possibly, is the repositioning of learners or students as customers or consumers of education. Education becomes a service to be consumed, based on standardized curriculum products which can be exchanged through a market mechanism and delivered by private sector providers. In order

to provide a transparent market, quality has to be measured and quantified through comparable indices (piloted in schools in the United Kingdom through Standard Assessment Tests and taken to its ultimate limit in the international Pisa study). Knowledge must be available as objects and consumption acknowledged through exchangeable credit based on outcomes.

The development and implementation of e-Learning from the 1970s onwards corresponded with the emergence of lifelong learning as a major theme on educational policy discourse. The shortening of the product life-cycle, the growing rate of technological change and implementation, and increasing global competition required the extension of learning throughout the working life (Attwell and Heidegger 2002). Computer-based learning offered the promise of the cheap provision of mass continuing training. Furthermore, distance learning could be extended to allow the expansion of university education without commensurate investment in faculty and infrastructure.

Underpinning education policy was an attempt to respond to changing economies and society. e-Learning represented the opportunity for the expansion of capitalism into new markets. The commodification and privatization of learning and the emergence of lifelong learning represented a potentially huge market. At the same time, e-Learning was not subject to the same localized constraints of traditional education and training delivery (or at least was not seen to be), thus providing the promise of considerable economies of scale. Thus educational technologies could be co-opted to the globalization of economies and social exchange and production. Lifelong learning could be utilized in the liberalization of labor markets, with just-in-time computer-based learning allowing the development of a flexible and skilled labor force to meet short-term employment needs. Of course, there are multiple discourses in education and contradictory developments and trends in the introduction of e-Learning. But as Basil Bernstein (2006), referring to public general education policy, has pointed out, "market relevance is becoming the key orienting criterion for the selection of discourse, their relation to each other, their forms and their research."

e-Learning systems have been shaped by managerialism, standardization, and commercialization, in turn driven by the move towards privatization and commodification and by the drive to transform the social process of teaching and learning into a set of standardized and measured products.

Managerialism represents the changing role of the education system, and of workers within the system, not to imbue and distil learning but to manage the education process. Success, and thus quality, is based on efficiency and numbers in achievement of measured and reported outcomes. Educational technology could be co-opted to improve the efficiency of the education process. Instead of focusing on technology for learning, major investment has been in the development of learning management systems (LMS), designed to handle the registration of students, the delivery of learning materials, testing, and reporting. LMS (or virtual learning environments) are designed as a walled area outside the wider environment of the Web, an institutionally controlled space into which students must enter if they are to be allowed to learn. Despite the recent spread of open source LMS, the development and maintenance of these monolithic systems is largely controlled by the

private sector e-Learning technology industry with control in the hands of a limited number of major multinational companies.

This process has particular implications for quality measures. Assessment takes place through interaction with a bank of machine-readable questions and answers. The major driving forces behind the adoption of the IMS Question and Test Interoperability specification (QTI) standard for computer-based assessment were to create a market in question banks, and to allow for standardized assessment and thus the comparison of the quality of institutions.

Even the development of individual learning portfolios has been inhibited by the desire to control and commodify learning. Rather than learners being encouraged to develop an account of all their learning experiences, many systems constrain the recording and reflection on learning to the learning outcomes prescribed by the curriculum (Attwell 2005) and by the desire to present the results of the portfolio in a standard way.

There are many different quality instruments and measures deployed within universities. As well as student assessment, they include curriculum reviews and inspection, quality committees, and quality guidelines. However, these instruments and measures are oriented towards measuring the quality of education as a commodity, rather than looking at the processes of teaching, learning, and research.

33.6 How will Web 2.0 and Social Software Change our Understandings and Measurement of Quality?

The biggest impact of Web 2.0 and social software has been on how software is being used for learning, as documented in the first section of this paper, and thus providing an alternative to the managerial expropriation of the Web for learning. But Web 2.0 and social software also have had radical impacts on how quality is measured. Social software and Web 2.0 represents a move from the consumption of web-based materials to creating the so-called read–write web. As such, it represents a democratization of media through the social creation of artifacts and discourse. Newspapers are challenged by citizen journalism, radio by podcasting, and television producers by online user-generated video content.

Quality is no longer the prerogative of experts but is provided by "the wisdom of the crowds" (Surowiecki 2004) in the form of user ratings. Various attempts (the latest by Google) to develop expert-generated and moderated content for an alternative web-based encyclopedia to challenge the user-generated wikipedia[1] (an online wiki-based encyclopedia) appear to have failed.

Of course, such alternative measures of quality have impacted on education. Despite intense opposition from teachers' unions, web sites have been established inviting users to "rate their teachers." In the United Kingdom, the web-based

[1] http://www.wikipedia.org

student satisfaction survey is increasingly seen as important in attracting students. The government has recently announced their intention to establish web sites to allow users to comment on the quality of public services, including education.

Such moves break the hold of experts as the sole arbiters of content and could be viewed as a move toward greater transparency and democracy. But, without in any way endorsing Andrew Keen's (2007) thesis of the dumbing down of society, they may both reflect and reinforce the commodification of education. We are invited to comment on or rate the outcomes of education as commodities – or in the case of the student satisfaction service – the entertainments a particular university city has to offer.

Web 2.0 and social software offer opportunities for new ways of viewing and measuring the quality of learning, but to realize such potential means moving beyond commodification and seeking to embed quality measures within the processes of teaching and learning and knowledge development. Instead of seeking the use of Web 2.0 for rating and commenting on the results as expressed in the commodities or outputs of learning, such technologies could be embedded in the process of teaching and learning. We have existing measures for the quality of learning in assessment. But assessment has become tied to attainment, as a measure of outcomes and (as I will argue in the next section) of generating comparisons of institutional quality or value. A change to view quality as part of the learning process would require a movement from the assessment *of* learning to assessment *for* learning or learning through assessment. This forms the subject of the next section of this paper.

33.7 What is the Purpose of Traditional Assessment Measures?

33.7.1 Assessment as a Measure of Effectiveness of the Institutions

One of the major purposes of assessment has been as a measure of the effectiveness of the institution. Indeed, with moves towards mass university education and increasing pressures and competition for funding, this aspect of assessment has been reinforced in recent years. Assessment, as reported through student attainment, both serves as a measure of accountability in terms of whether funding is being effectively utilized and as a measure of comparison between institutions and between different departments within an institution. Put quite simply, higher levels of student attainment, measured in terms of a mechanism for student retention and levels of degrees awarded, are seen as a quality measure for that institution.

This, in turn, has led to pressure for more standardized assessment to guarantee the reliability of interinstitutional comparison and has contributed to the introduction of more outcomes-oriented and criteria-referenced assessment which are viewed, rightly or wrongly, as more reliable measures of student attainment.

33.7.2 Assessment as a Means of Screening or Selection

The second main purpose of assessment has been as a mechanism for comparing individual learners as a screening or selection process.

Accreditation, based on assessment, has provided access for individuals to continued education and progression to higher degrees, to entry into the civil services, and to progression for jobs and careers. As such, it is predicated on measuring the differences between individual students. This, in turn, has led to pressure for objectivity through standardized tests and to a normally distributed spread based on item analysis. Put simply again, tests are set that the "bright" or "hard working" students get right and the "dull" or "lazy" get wrong. In this respect, it is interesting to see that the use of technologies in assessment processes has been focused on the development of simple multiple-choice question and answers designed both for easy marking and for standardized test provision.

It is also instructive to look at trends in what is being assessed. Traditionally, university assessment was focused on a mastery of a body of scholarly knowledge defined by "experts" – primarily researchers and professors in a subject and the ability to research about that body of knowledge. This was in turn based on the role of universities in selection for progression to research and teaching as reflected in the Humboldtian ideal of the university. More recently, especially in those countries such as the United Kingdom, which have embraced the idea of mass university education, other values such as employability, have come to the fore. Thus assessment has been more focused on professional standards as defined by external bodies Quality Assurance Agencies (QAA) and on so-called core or key competences focused on those competences seen as important for employment in a range of occupations.

33.8 Critiques of Assessment Processes

Regardless of the focus of assessment, the prime aim has been to compare institutions and to provide a comparison of the attainment of individual learners, rather than as a measurement of quality in terms of learning processes. Yet, it is this process which is central if quality is seen to be congruent with the move from teaching to learning and to new processes of knowledge development outlined in the first section of this paper.

There have been critiques of traditional assessment practice, based both on the effect on student motivation and coming from those seeking to develop assessment based on reflection on learning, particularly through the introduction of e-portfolios. Furthermore there have been many projects aiming at developing more holistic learner-centered approaches to assessment, some of which will be explored further in this paper.

Smith and Tillema (2003) see the lack of a match between assessment criteria and the goals of the program of study, or what competencies students are expected

to develop. They also see a tension between the measurement of standards and capturing development and reflection. The danger is that learning and reflection will get lost in the drive to measure competency. Ben Werdmuller and Dave Tosh (2004) have said:

> Already within some sectors it seems the term e-portfolio has become synonymous with another learning hurdle for students and staff to overcome. Many institutions view the e- portfolio as a replacement for traditional high stake assessment, the object of the exercise being coverage of all standards and criteria. Looking at a Penn State University study we can see forty-four percent of students say they will not use the e-portfolio once they have finished the course to which the e-portfolio related and the rest say they "were likely to do so." This is a problem: if the e-portfolio is a course requirement and the motivation for use is because it is mandatory, how do you maintain learner motivation once the course has expired?

That concern is echoed by Helen Barret and Joanne Carney (2005):

> When portfolios are used for accountability purposes, to document pre-service teachers' achievement of standards-based competencies, teacher candidates viewed their portfolios as a hoop they needed to jump through to graduate, and not the lifelong reflective tool that had been envisioned.

They go on to ask: "In the name of assessment (i.e., accountability) are we losing a powerful tool to support deep learning? Are we losing the "stories" in e-portfolios in favorfavour of a skills checklist?" Rick Stiggins (2002) has said: "With respect to the use of assessment to motivate, we all grew up in classrooms in which our teachers believed that the way to maximize learning was to maximize anxiety, and assessment has always been the great intimidator."

In 1998 Black and Wiliam were commissioned by the UK-based Assessment Reform Group to undertake a major review of research on school-based classroom assessment, which resulted in the publication of a pamphlet "Inside the Black Box: Raising Standards Through Classroom Assessment."

The starting point for their argument was that despite an enormous investment of resources and many high-profile initiatives, governments "world-wide" have failed to raise significantly attainment levels in schools. Their assertion was that "learning is driven by what teachers do in classroom" and that "and a focus on standards and accountability that ignores the process of teaching and learning in classrooms will not provide the direction that teachers need in their quest to improve." They go on to argue that

> certain inputs (pupils, teachers, resources, rules, requirements, parental anxieties, standards, tests) are fed into the box. Some outputs are supposed to follow: pupils who are more knowledgeable and competent, better test results, teachers who are reasonably satisfied, and so on. But what is happening inside the box? How can anyone be sure that a particular set of new inputs will produce better outputs if we don't at least study what happens inside?

They single out formative assessment as one of the most critical activities that goes on in the "black box." By this they mean the ongoing assessment of students that teachers need to make in order to adapt their teaching to better meet their needs.

After a comprehensive review of the available literature, Black and Wiliam (1998) make the following assertions and provide convincing evidence to support their position.

1. Firstly, improving formative assessment raises standards. Moreover, it helps low achievers more than other students and so reduces the range of achievement while raising achievement overall.
2. Secondly, there is room for improvement. Whilst most teachers are conscientious about marking work, they do not provide sufficient feedback on how work can be improved.
3. Their third assertion is that there is a clear body of evidence about how to improve formative assessment.

Black and Wiliam identified what they saw as major flaws in existing practice. They argued that it does not promote effective learning, as there is often an inconsistency between what is being learned and what is being assessed. Assessment practices may, in fact, have negative impact.

> The giving of marks and the grading function are overemphasized, while the giving of useful advice and the learning function are underemphasized. Approaches are used in which pupils are compared with one another, the prime purpose of which seems to them to be competition rather than personal improvement; in consequence, assessment feedback teaches low-achieving pupils that they lack "ability," causing them to come to believe that they are not able to learn.

They also claim that there is still an overconcentration on the managerial role of assessments – "the collection of marks to fill in records is given higher priority than the analysis of pupils' work to discern learning needs."

Black and Wiliam went on to suggest ways of overcoming these shortcomings both at a policy level and in practice. One of the central ideas for improving practice was based on their assertion that student self-assessment was an essential component of formative assessment and that for this to be effective students must be trained so that there is "recognition of the desired goal, evidence about present position, and some understanding of a way to close the gap between the two. All three must be understood to some degree by anyone before he or she can take action to improve learning." They also emphasized the primacy of meaningful communication between pupil and teacher including use of better questioning techniques, allowing more time for reflection and providing feedback which is focused on the particular qualities of a pupil's work, "with advice on what he or she can do to improve, and should avoid comparisons with other pupils."

In the next section of this paper, I will look at how Web 2.0 and social software can facilitate the development of authentic learning and the embedding of assessment within teaching and learning processes.

33.9 Personal Learning Environments and Assessment for Learning Through Authentic Learning Tasks

Although falling some way short of overcoming the commodification of education described above, the use of social software and Web 2.0 for learning has produced pressures for a radical change in both pedagogy and institutional structures and opened a debate over the role and purpose of universities.

Social software such as blogs, wikis, webquests and annotation, and bookmarking tools are increasingly being used in universities. There is also increased interest in game and simulations and in multiuser, virtual environments. The use of social networking applications and sites is becoming commonplace. However, it is not the use of the tools per se which is of importance but the impact and interaction with pedagogic approaches and practices, as epitomized in the creation of shared, collaborative information spaces.

Such a change can be seen in the move away from the "walled garden" of the institutionally owned virtual learning environment towards the adoption of personal learning environments (PLEs). PLEs are tools or systems that "help learners take control of and manage their own learning. This includes providing support for learners to set their own learning goals, manage their learning; managing both content and process and communicate with others in the process of learning" (Van Harmelen 2006). Stephen Downes (2006) says

> The heart of the concept of the PLE is that it is a tool that allows a learner (or anyone) to engage in a distributed environment consisting of a network of people, services and resources. It is not just Web 2.0, but it is certainly Web 2.0 in the sense that it is (in the broadest sense possible) a read-write application.

Important concepts in PLEs include the integration of both formal and informal learning episodes into a single experience, the use of social networks that can cross institutional boundaries, and the use of networking protocols (peer to peer, web services, syndication) to connect a range of resources and systems within a personally managed space.

The PLEs support different levels of interaction within the learning process. This includes a progression from individual learning to communities and organizations, with personal networks and professional communities ensuring that interaction goes beyond the boundaries of a particular course, subject, or work organization (Attwell et al. 2008). A PLE should also support different types of knowledge assets that are vital for the learning, working, and development in any kind of network or organization. These assets relate to content, processes, and semantics. Content such as documents, images, videos etc. can clearly play an important role in e-Learning. Process development can include reflection and formative assessment in ways that enable recording and sharing of individual learning and work practices. Finally, for the linkage of assets it is necessary to take the semantics into account as to how the different assets can support individual and collective learning processes by

providing the basis for mutual understanding. This is especially important in facilitating bottom-up development of ideas about effective practice-based learners, with learners themselves contributing their individual views, experiences, and insights.

Such an approach has processes of critical reflection and formative assessment embedded within it, corresponding to the ideas of the UK-based Assessment Reform Group (ARG) who make the crucial distinction between assessment for learning (AFL) and assessment of learning (AOL).

The ARG (2002) identified the essential characteristics of AFL as follows:

- Is embedded in a view of teaching and learning of which it is essential part – i.e., a part of a holistic philosophy of learning and teaching – a view of learning which acknowledges learners 'responsibility for their own learning and their ability to direct it – a pre-requisite if lifelong learning is to be a reality.
- Involves sharing learning goals with pupils
- Helps pupils know/recognize standards they are aiming for
- Involves pupils in self assessment
- Gives feedback which helps pupils recognize next steps and how to take them
- Is based on belief that every child can improve
- Involves teacher and pupil in reviewing assessment data.

The ARG identified effective AFL in practice in the classroom as including the following:

- Observing and listening to how pupils describe their work and their reasoning
- Well-phrased open questions to explore ideas and reasoning
- Setting tasks which require certain skills or application of ideas
- Asking pupils to communicate thinking through, e.g., drawings, artifacts, actions, role play, concept mapping as well as writing
- Discussing words and how they are used.

The use of social software extends such formative assessment practices beyond the classroom. It not only facilitates observing, listening, reflection, communication through different media, and the development of shared meanings, but opens up the ongoing process of assessment for learning beyond the teacher to include peers and social networks in the process of learning.The adoption of PLEs allow a move towards authentic learning tasks where students are involved in activities that are focused on or solve real-life problems and allow students to share the product of their learning with an audience that goes beyond the teacher (Conway 1998). Authentic learning activities in conjunction with the use of new technologies have the power to stimulate the development of intellectual skills such as reasoning and problem-solving ability, learning ability, and creativity (Grégoire et al. 1996). Authentic tasks provide the opportunity to collaborate. Collaboration is integral to the task, both within the course and the real world, rather than achievable by an individual learner (University of Wollongong 2005). The assessment of tasks is seamlessly integrated with the major task in a manner that reflects real-world assessment, rather than separate artificial assessment removed from the nature of

the task. Authentic tasks provide the opportunity to reflect. Tasks need to enable learners to make choices and reflect on their learning both individually and socially. Such a pedagogic process reflects the move from teaching to learning and to learning through social networks as a result of the way learners are using social software.

The focus on authentic learning overcomes the division between teaching and learning and research. Research is an activity embedded in the learning process. Instead of quality being expropriated by the commodification of education, quality is based on assessment for learning embedded in the teaching and learning and research process itself.

33.10 Conclusion: An act in Progress: Moving Toward Quality Embedded in Learning Processes

This paper has been written in a period of considerable instability for universities: instability born of both a worldwide economic recession and of the impact of new technologies on the core roles of universities in terms of teaching and learning and research. In the paper I have argued that earlier phases of technology implementation through e-Learning systems were both shaped by and rendered ineffective by commodification and the accompanying managerialism. Quality systems were designed to measure the outcomes of education as a commodity.

The widespread adoption of Web 2.0 and social software poses a challenge to universities with changing expectations of learners and changing forms of knowledge development. Although the early uses of such software in terms of quality has been mainly to allow wider public participation in the process of rating education as a commodity, there are new opportunities in terms of embedding quality, as expressed through new forms of assessment in the learning process. Essentially, quality would become a core part of the pedagogic approaches of universities to teaching and learning.

There are signs that such changes are taking place. But they remain isolated in projects and pilot activities and are more aspirational than real at an institutional level. For such changes to take place requires fundamental rethinking about the purpose and role of higher education and requires profound transformation of the learning process. That will require universities ceding institutional power and recognizing that knowledge can be and is being developed in wider social networks and information spaces.

Chapter 34
The Development of a Theoretically Sound Concept of Quality Criteria: As in the Case of the Accreditation for Technology-Enhanced Learning EFMD-CEL

Taiga Brahm, Dieter Euler, and Sabine Seufert

Abstract This chapter aims at providing insight into the methodological derivation of the quality criteria used in the teChnology-Enhanced Learning accreditation (CEL) of the European Foundation for Management Development (EFMD), which was designed to assess and improve technology-enhanced programs. The main question posed in this chapter is how to develop quality criteria in a methodologically sound manner. After briefly outlining how the quality dimensions and the quality perspectives form the basis of an integrated quality model, the derivation of a number of quality criteria is explained in detail. The main outcomes of the chapter are to base the development of the quality criteria on theory and support it by empirical or theoretical evidence and/or argumentative reasoning. By taking these aspects into account, the quality accreditation scheme will be useful, consistent, and comprehensible and, thus, will be a valuable instrument for institutions in an accreditation process.

34.1 Introduction

This paper aims at providing insight into the methodological derivation of the quality criteria used in the quality management approach EFMD-CEL, which was designed to assess and improve technology-enhanced learning programs. After briefly outlining how the quality dimensions and the quality perspectives form the basis of an integrated quality model, the derivation of a number of quality criteria is explained.

The CEL quality accreditation program is based on its own quality on criteria, which are theoretically sound and supported by empirical or theoretical evidence

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and/or argumentative reasoning. This research on the quality criteria will be the major focus of this chapter.

After a period of testing and exploring the potential of e-Learning in different contexts, there is a broad consensus that much more effort should be put into the question of quality improvement. The quality of both the products and programs in the field of technology-enhanced learning varies widely, and although there are some proposals around, we still lack a concept of quality improvement which is theoretically sound and at the same time meets the expectations of practice.

The quality management approach EFMD-CEL is designed as a quality accreditation scheme that focuses on technology-enhanced programs.

34.2 Theoretical Foundation of the Quality Model

34.2.1 Quality Dimensions

One of the main tasks when looking at quality improvement is to define in which areas quality should be evaluated. In order to get an overview on the existing quality management approaches, a literature analysis concerning quality and technology-enhanced learning was conducted. A number of existing quality (management) approaches, e.g., the EFQM Excellence Model, the quality management system ISO 9000, accreditation and certification of business schools, e-Learning, and distance learning were analyzed (Wirth 2005) with regard to the underlying understanding of quality, the primary target groups, and the basic conditions (Wirth 2005). The plausibility, i.e., the consistency and transparency of the quality aims and criteria, is very important for the credibility of a quality management approach.

The literature analysis showed that different categorizations are possible. However, most quality approaches are oriented toward generic educational processes or are of phenomenological nature. They do not document how they deduct their quality dimensions and criteria. It is mostly unclear what kind of quality perspectives and understandings build the basis for the quality management approaches (Wirth 2005). The quality dimensions according to Seufert and Euler (2003, 2004) are based on interviews with 25 experts in the field of e-Learning from various disciplines (Seufert and Euler 2003) and on a Delphi study with 38 experts to further validate the theoretical framework (Seufert and Euler 2004). They include the pedagogical, economic, technological, administrative, and sociocultural dimensions, which provide a consistent and evidence-based framework for the conceptualization of a quality management approach. To complete the framework, a so-called program dimension integrating the specific conditions of a program was created (Wirth 2005).

- *Program strategy* focuses on the transparency of the main characteristics of the program and on the (added) value the program provides especially by integrating technological components.

- *Pedagogy* covers all aspects of the learning and teaching process, including the type of learning environments the program consists of and the (added) value of the learning processes supported by technology.
- *Economics* involves all facets related to efficiency in the use of resources. The main question is: Are the resources in terms of funds and competencies efficiently used?
- *Organization* deals with the question whether the organizational measures for running the program are adequate to meet the program's underlying objectives.
- *Technology* addresses the question of the functionality of the technology.
- *Culture* looks into the question if the cultural factors of change and innovation are considered adequately.

34.2.2 Quality Perspectives

The quality of a program can be evaluated with regard to the different quality dimensions. Quality is understood as a construct that expresses the characteristics of processes, products, or services, evaluated against the specific demands of relevant stakeholders. The understanding of quality can be characterized by analyzing different perspectives, which are summarized in Fig. 34.1 (Wirth 2005).

The question arises whether all "subqualities" and facets of a program are based on the same quality perspectives and understandings (Harvey and Green 2000). It has to be discussed whether the understandings differ when evaluating and assessing, e.g., the technological dimension or organizational issues. The abovementioned quality management approaches do not offer a sufficient explanation concerning this question, which is vital for the improvement of the comprehensibility of the quality criteria. Therefore, the relevant perspectives and understandings

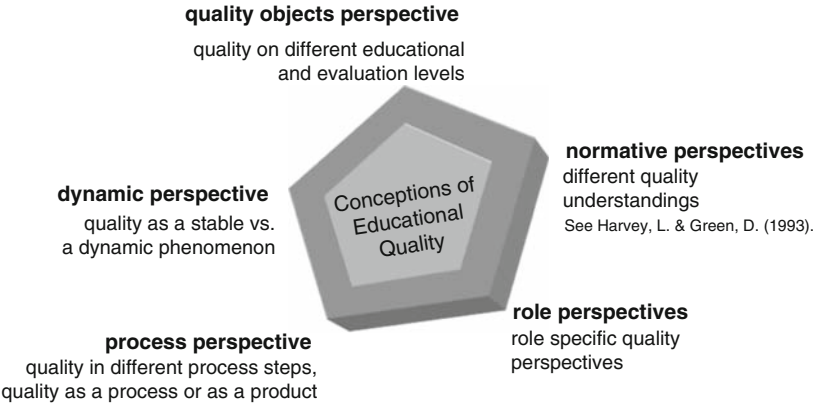

Fig. 34.1 Conceptions of educational quality

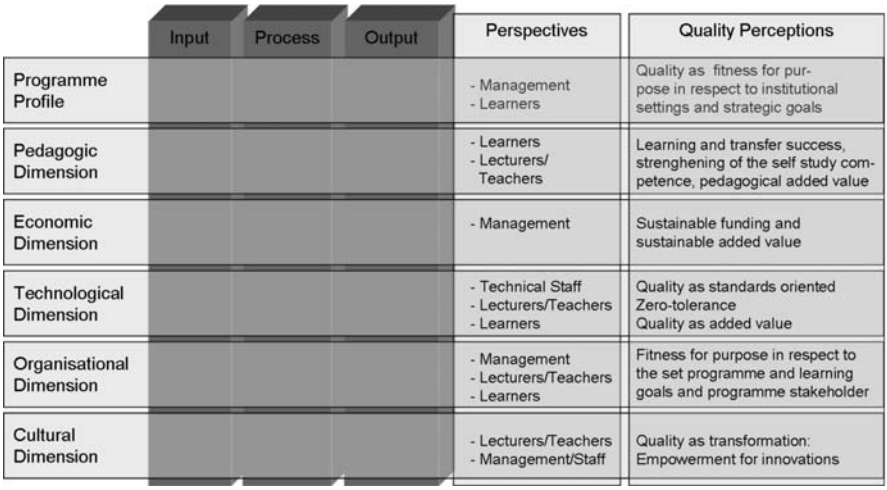

Fig. 34.2 The quality model (Wirth, 2005)

were identified for each quality dimension so that the user can decide whether or not he can accept the criteria as valid concepts.

For instance, the program dimension mainly addresses strategic issues like program aims, strategic anchorage within the institution, as well as a sufficient market and target group analysis. In consequence, program management will provide the relevant perspectives for this dimension. In terms of the quality understanding, the normative understanding of quality as fitness for purpose regarding institutional settings and strategic goals seems to be the most appropriate (Harvey and Green 2000). In comparison, the pedagogical dimension can be mainly evaluated from the learners' and teachers' perspectives (Ehlers 2003). The corresponding quality understanding would be transformative in the sense of learning and transfer success as well as an enhancement of the self-organized learning competences and the self-responsibility of the learner (Wirth 2005, also Rogers 2001). For the other four dimensions, the quality perspectives and understandings can be found in Fig. 34.2.

34.2.2.1 Quality Model

The literature analysis above shows that numerous approaches exist in this field. This indicates that the different terms and concepts have to be used in a careful manner. The views of the relevant stakeholders should be included into an integrated quality management model. Thus, the criteria that stakeholders consider meaningful for the quality of a program should be integrated along with the corresponding quality understandings. In addition to this focus on quality perspectives and understandings within the six identified dimensions, the quality model is

completed by the inclusion of the process-oriented perspective including input, process, and output. This adds a dynamic component to the model. This leads to the quality model shown in Figs. 34.1 and 34.2.

On the basis of this quality model, the quality criteria have to be developed for each dimension.

34.3 Derivation of Quality Criteria, Indicators, and Standards

34.3.1 Different Possibilities for the Derivation of Quality Criteria

Not the truth makes good quality criteria, but a sound and comprehensible substantiation of them. There are different ways and different weights of reasoning (Wirth 2005):

- *Comprehensibility*: This consists of evidence and self-explicability of criteria that obviously support the quality of e-Learning-supported programs (e.g., it is obvious that the used technology should be stable).
- *Theoretical reasoning*: This comprises arguments and reasoning that can be deduced from widely accepted (scientific) theories (e.g., psychological theories suggesting that the learning environment must correspond to the learning predispositions of the learners).
- *Best or good practice benchmarks*: Well prepared case studies may (often although only context specific) highlight success factors and pitfalls. Returning success factors may be used as crucial elements of a quality e-Learning program (e.g., self-paced learning often works only in combination of an adequate learner support).
- *Empirical evidence*: Results from qualitative or quantitative empirical research often provide specific answers to certain questions. In contrast to single-case-based best practice literature, empirical results can often be considered to be more objective and externally valid (e.g., faculty support as such was identified to be very crucial for high quality e-Learning by several studies such as from the Institute for Higher Education Policy (IHEP)).

Putting CEL quality criteria in operational terms is regarded to be a crucial element and very much differentiates this approach from others (see Fig. 34.3).

34.3.1.1 Exemplary Derivation of the Quality Criteria in the Cultural Dimension

The process of the derivation of the quality criteria will be exemplarily shown regarding the cultural dimension since the elaboration of all criteria would go beyond the scope of this paper. The cultural dimension deals with the integration

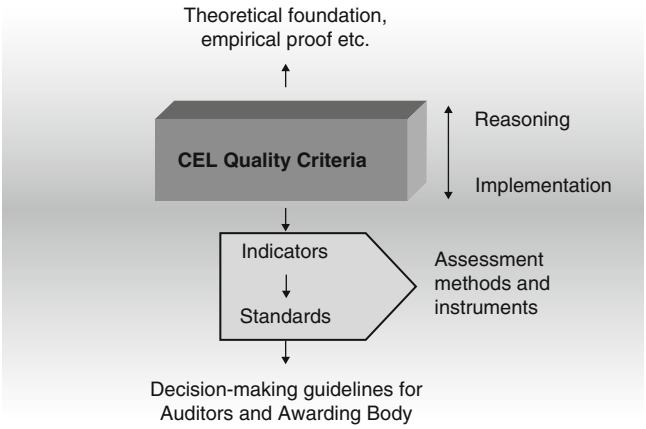

Fig. 34.3 The methodical derivation of the CEL quality criteria

of technology-enhanced learning into traditional education and with the underlying change of habits and attitudes (Euler 2003). The analysis of the different quality (management) approaches showed two different quality areas within the cultural dimension, one consisting of the implementation and continuation of the innovation process and the other including the commitment of the teachers and other staff as well as adequate incentives (Wirth 2005).

It is difficult to forecast the success of innovation processes; however, research has shown that the learning culture seems to be a significant factor in educational contexts (Barnett et al. 2000), as it leads to an improvement of the teachers' attitude toward work, higher motivation, and more cooperation among teachers. Thus, the first quality criterion (C1) in this dimension is formulated as "The understanding of the learning and teaching culture the program strives for" (Wirth 2005). The corresponding indicator would be a documentation showing that understanding, which includes a reflection on the kind of teachers and learners the program seeks (e.g., self-regulated learners). In consequence, the standard would be a convincing and comprehensive documentation.

In order to overcome the resistance toward innovation among teachers and learners, the teachers have to develop the necessary competences for what are seen as the bottleneck of educational innovation (Management 2004). Therefore, it is not only necessary to install a systematic human resources development culture but also to implement a cooperative culture (Seufert and Euler 2004). This includes frequent exchange among teachers. The second (C2) and third quality criteria (C3) are formulated respectively as "The philosophy of change, innovation and co-operation within the institution (especially with regard to e-Learning)" and "There is a plan for the implementation of the program, outlining the analysis of support and resistance within the institutions and the main stakeholders and measures to be taken for enhancing the acceptance of the program and promoting a motivating and demanding environment for achieving the program objectives"

Quality areas	#	Quality criteria (metatext)	Indicator	Standards	Method of data collection
Implementation and continuation of the innovation process	C1	Understanding of learning and teaching culture	Document including understanding and reflection on teachers and learners	Comprehensive and convincing documentation	Self-assessment, audit team review
	C2	Statement of the philosophy of change and innovation	Document addressing issues of change, innovation, and cooperation	Strong commitment and examples of faculty learning from each other	Self-assessment, audit team review
	C3	Implementation plan including an analysis of support and resistance	Documented plan on promotion of acceptance and dealing with resistance	Comprehensive and convincing description	Self-assessment, audit team review
	C6	Commitment of the management	Leading management's commitment	Strong and convincing commitment	audit team review
Commitment of staff and teachers; incentives	C4	Impact of workload, compensation and intellectual ownership on the commitment of staff	Facultay satisfaction with the teaching circumstances	High level of faculty satisfaction	audit team review
	C5	Incentives for the advancement of the program	Documentation of incentive structures and impacts of incentives	Comprehensible demonstration of impact on practices, commitment and advancements	Self-assessment, audit team review

Fig. 34.4 Overview of the cultural dimension (Wirth, 2005)

(Wirth 2005). The corresponding indicators and standards for these and the following criteria can be found in Fig. 34.4.

Another factor influencing the success of innovation processes in educational institutions is the commitment of the management. Even though the literature on leadership quality is not quite consistent (Marcus 2004), some characteristics of good leadership can be identified: it should establish common goals, initiate and implement change, support teachers, and prioritize teaching and learning. With regard to technology-enhanced learning, the aspect of steering technological innovations as well as the belief in technology as enhancement of learning can be added (Marcus 2004). The criterion (C6) thus covers the "commitment of the institution's leading management to support the objectives and implementation of the program, especially concerning the e-Learning components within it" (Wirth 2005).

The last two criteria within the cultural dimension focus on the commitment of the teachers and staff as well as on the incentives. Since the satisfaction level, the motivation, and the enthusiasm of teachers are a prerequisite for the learning success, it is not sufficient to consider the educational background of the teachers when assessing educational quality (Wirth 2005). Additionally, the attitude of teachers toward new media is of utmost importance for the success of the usage of technology (May and Short 2003). Other factors influencing the quality of teachers include the compensation and workload of teachers, as well as the issue of intellectual ownership. Thus, the quality criterion C4 puts its focus on the question of whether issues of "workload, compensation, ownership of intellectual property resulting from the program and their impact on the commitment and participation of the staff have been considered" (Wirth 2005). The last criterion

deals with the incentives in the form of attractive salaries but also with regard to intrinsic factors, e.g., the implementation of common goals concerning the usage of technology in learning ("Incentives for the staff involved in the design and running of the courses are linked to innovative practices, commitment and performance in advancing the program" (Wirth 2005)). The criteria, performance indicators, and standards as well as the corresponding methods of data collection are summed up in Fig. 34.4.

34.3.2 Validation of the Quality Criteria

For the purpose of validation, the quality criteria were applied in two pilot accreditations (case studies). In addition, experts and practitioners were interviewed with questionnaires, and a workshop was conducted at an international conference.

The case studies showed some redundancies, e.g., with regard to the criteria C2 and C3 as well as concerning the criterion C1 and one of the pedagogical criteria (PE3) dealing with learning and teaching culture as well. The differentiation between quality criteria and performance indicators also posed some difficulties, especially within the other quality dimensions (Wirth 2005). The feedback of the experts and practitioners included a number of hints at possible misunderstandings of the quality criteria. It is also suggested that the transparency of the criteria could be improved with more operationalized wording as well as with examples. The workshop participants of the international conference found the programmatic and cultural dimensions extremely valuable and suggested more precise quality criteria for the cultural dimension.

In sum, 17 quality criteria across the different dimensions were discarded. According to the focus on the cultural dimension given in the paragraph above, the process of aggregation of criteria will be elaborated concerning this dimension as well. Due to the closeness of the contents of C1 and PE3 (see above), the criterion C1 will be complemented by PE3, thus eliminating C1. The criterion C3 will be discarded since the differentiation between strategic and operative questions did not prove to be of added value. As parts of the criterion C5 are already integrated in C4, the remaining intrinsic incentives will be added to C4 so that C5 can be eliminated. Concerning C6 (commitment of the leading management), the performance indicators will be worded more precisely as to include concrete behavior, signals, and participation in the program (Wirth 2005).

34.3.2.1 Resulting CEL Quality Dimensions, Criteria, and Standards

Bringing together the results of the literature analysis, the derivation of the quality dimension, criteria, and standards, as well as the validation through case studies and experts, 30 quality criteria were identified (see Fig. 34.5):

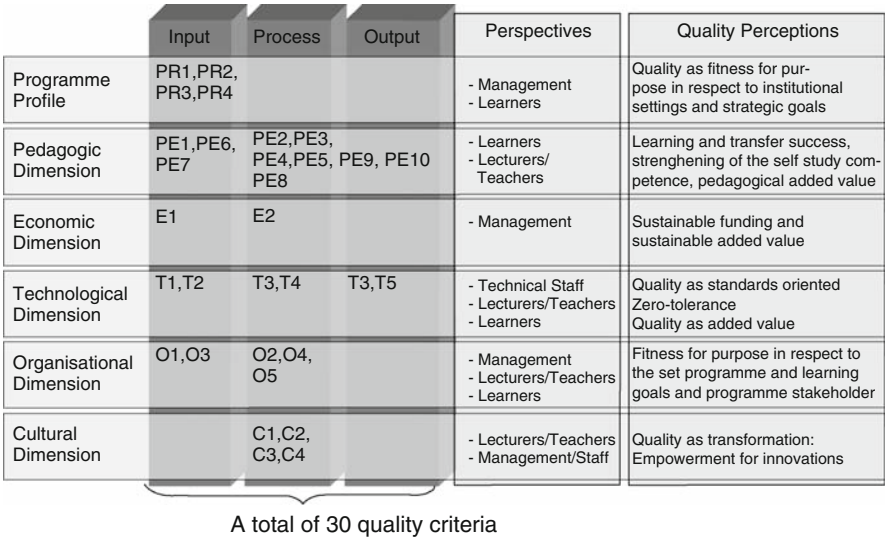

Fig. 34.5 Overview of the CEL quality dimensions and criteria (Wirth, 2005)

In order to make the criteria evaluation more transparent to the relevant stakeholders, the standards for each criterion are defined and elaborated in the CEL manual (the manual and guidelines for executing the quality evaluation are published on www.efmd.org). Where criteria allow or imply that different levels of achievement are being evaluated (mainly where objective standards may be set), the standards are broadened by a more detailed set of indicators that allow the peers and auditors to evaluate the criteria more adequately and homogeneously. As opposed to many other criteria lists that are currently available, the CEL criteria explicitly reflect the major interdependencies between them.

By providing the substantiating background of the CEL quality criteria, the developed scheme raises a scientific dialog on the quality criteria and standards used, and thereby establishes and improves the comprehensiveness and acceptance of the CEL quality criteria.

34.4 Concluding Remarks

The CEL scheme provides an empirical and theoretical substantiation of the quality criteria, which allows the end users to better understand the meaning and relevance of the specific quality criteria. Furthermore, it operationalizes the quality criteria as indicators and CEL standards. Through this operationalization, the gap is closed between the theoretical quality framework and the guidance notes used by those executing the quality evaluation.

Furthermore, it has become clear that every quality management approach is subject to economic conditions and limitations. Albeit it would be desirable to interview alumni, employers, and also students in order to evaluate a program, the costs would be prohibitive. Therefore, efficiency and quality goals in certification are conflicting to some extent. In the context of given organizational and economic conditions, a pragmatic solution in terms of evaluation instruments, information sources, and scale of quality criteria has to be achieved. This is to say that the quality management approach has to accept an economically justifiable compromise without neglecting quality standards of high priority. In consequence, a quality management scheme such as CEL cannot be expected to provide a comprehensive representation or evaluation of training processes and outcomes (e.g., by examining the learner behavior with comprehensive tracking data, by participating in the courses, or by a detailed inspection of the technological infrastructure).

Chapter 35
The MedidaPrix Award: An Agent for Changing Higher Education e-Learning Practice

Peter Baumgartner and Reinhard Bauer

Abstract With the possibilities of virtual or blended learning environments, remarkable opportunities for new forms of learning have emerged. Responding effectively to this transformation process, we need to capture, honor, and disseminate high quality e-Learning materials and initiate a new sharing mentality.

The MedidaPrix ("Mediendidaktischer Hochschulpreis") is an initiative that intends to function as a change agent exactly for this complex transformation process. Beginning in the year 2000, the Society for Media in Science (GMW) announces annually a highly endowed contest with an award sum of Euro 100,000. Participation is limited to Germany, Austria, and Switzerland. The award sum is funded by ministries of the countries mentioned and is earmarked for continuing project development.

On the basis of the pattern movement ,the authors discuss in this paper the different strategic measures set by the MedidaPrix Award to change the lock-up culture of learning materials currently found in higher education organizations and to promote high-quality material as open educational resources (OERs).

35.1 Introduction

"And the Oscar goes to ..." are popular well-known words spoken annually during the Academy Awards ceremony in Los Angeles to recognize excellence of professionals in the film industry. Within the higher education sector in German speaking countries, the MedidaPrix ("Mediendidaktischer Hochschulpreis") is an award which shows – compared to the Academy Award – the same popularity even

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when its perception is limited to the e-Learning community in Germany, Austria, and Switzerland.

Generally awards are given to somebody to recognize excellence in his/her work. In this context, the MedidaPrix is a certificate of excellence as well; however, with the rapidly changing needs of learners within higher education – the traditional face-to-face learning is increasingly being replaced by new forms using virtual or blended learning environments – the contest has become a trail marker for e-Learning . The academic staff and departments of universities who have won this prestigious award were and still are improving extraordinarily the embedding of digital media in academic teaching. In a sense, the MedidaPrix Award was designed to capture, honor, and disseminate best practice as a kind of metapattern[1] for developing new patterns that are composed of new initiatives and projects focused on sustainable development of e-Learning in academic institutions. Ever since its inception in the year 2000, the contest has strived to function as a change agent (Baumgartner 2007b; Baumgartner and Zauchner 2008; Baumgartner and Bauer 2009), both to push on e-Learning initiatives and to provide evidence of attainment of specified e-Learning quality standards.

We know that while mentioning quality standards, the first difficulty that comes to mind is that it is problematic to talk about quality. At this point, we should ask ourselves, what exactly does *quality* mean? We think that quality is an emergent property that cannot be attributed to a single feature of any e-Learning project. Always one is forced to contemplate the whole entity. So analyzing an emergent phenomenon like the quality of the MedidaPrix Award and its role as an agent for changing higher education e-Learning practice requires a special framework. We think that the pattern approach is an appropriate method to do this. With our remarks, we want to highlight the MedidaPrix Award's potential as a kind of pattern for designing open educational resources (OERs).

35.2 The MedidaPrix Award and the Pattern Approach

In the following, we will discuss the MedidaPrix Award within the framework of the current pattern movement, focusing on the quality–(e)learning relationship.

35.2.1 Pattern Basics

The architect and philosopher Christopher Alexander constructed a pattern language, a language for building and planning houses and cities, which was distilled from his and his colleagues' building and planning efforts. This pattern approach

[1]The term metapattern was coined by the British anthropologist Gregory Bateson and a concept described by the American environmental scientist Tyler Volk in *Metapatterns: Across Space, Time, and Mind*. Metapatterns are patterns of patterns.

emerged in the late 1970s and, later on, researchers in the field of software engineering adopted it, initiating at the same time a kind of pattern hype. Today, there exists a well-established worldwide pattern community that transfers the pattern approach to many other disciplines. So what is the peculiarity of this language and where is its connection to pedagogy, especially in the field of higher education e-Learning practice?

We think that it's possible to adopt Alexander's pattern approach in a pedagogical sense for describing the function of the MedidaPrix Award within the quality–(e)learning relationship. The first important question in this context is: What is a pattern?

Alexander explains his notion of a pattern in the following way: "Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use it the same way twice" (Alexander et al. 1977, p. X).

Reading this description it becomes clear that any pattern serves to solve problems in different contexts. The solution is both abstract enough to be applied to any problem and concrete enough to be applied especially to specific problems. In his book "The Timeless Way of Building" Alexander argues that patterns are a kind of independent entities within our minds, so that it's not necessary "to recognize them as separate atomic units, nor to know them by name, nor to be able to speak about them" (Alexander 1979, p.246). Using our mother tongue we don't need to describe its rules of grammar. However, when one wants to exchange patterns, "it becomes necessary to make patterns explicit, precisely and scientifically, so that they can be shared in a new way – explicitly, instead of implicitly – and discussed in public" (ibid.). How can we do this?

According to Alexander, "each pattern is a relationship between a certain context, a certain system of forces which occurs repeatedly in that context, and a certain spatial configuration which allows these forces to resolve themselves" (ibid., p. 247). Thus, the three key elements of a pattern (cf. Fig. 35.1) are "context," "problem," and "solution." At the same time, Alexander's description shows that a pattern is not only the solution of a problem, but also an instruction of how and when to apply it.

Nevertheless, this perception of patterns is not directly applicable to educational problems. It may be relatively simple to find a didactic correlation for this socio-areal-edificial context. On the one hand, each behavioral pattern is part of a superior social situation, on the other, it becomes effective in that context. This applies also for didactic behavior in educational contexts (Baumgartner 2006). From the pedagogical point of view, the following scenario may be seen as an appropriate example for an educational pattern.

Using the so-called ball bearing method ("Kugellager-Methode") in course means that the learning group forms an inner and an outer circle, with two course participants confronting each other and exchanging information, views, etc. After a predetermined period of time, the circles rotate in opposite directions so that different communication partners face one another (Fig. 35.2).

In many respects, this example is illustrative:

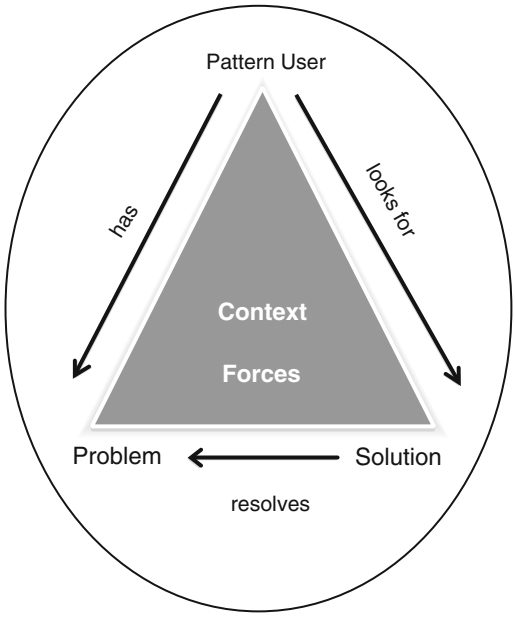


Fig. 35.1 Key elements in Alexander's pattern description

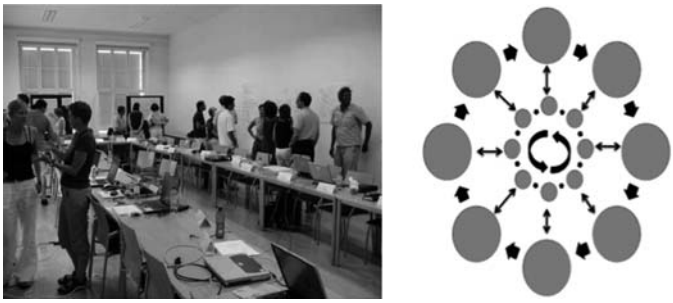


Fig. 35.2 Ball bearing method realized by students at Danube University Krems

1. It illustrates the need to describe the social, areal, and temporal configuration of the teaching scenario and educational interaction pattern, including a detailed description of essential requirements such as the clock, a signaling device to indicate rotation.
2. The pattern itself is content-neutral. The method can be used for all kinds of topics and subjects.
3. Especially for low cognitive processes like memorization and comprehension, this method is very useful.
4. There are specific situations in which the application of the method can be recommended: for instance, realizing a lot of presentations in a very short time (Baumgartner 2007a).

In our opinion the ball bearing method described here becomes a simple example of a pattern in terms of Alexander:

Context: Introductory phase of new topic, particular know-how
Problem: Initializing a general getting-to-know process, promotion and initiation of communication
Solution: Encouragement to theme-centered discussion according to rules, exchanging opinions and vantage points on subjects by applying the ball bearing method

However, while developing such educational patterns we have to consider that there is still a severe knowledge barrier to overcome. The majority of university teachers and lecturers are educated with traditional pedagogical models. At first hand, differences and/or common features of face-to-face and e-Learning scenarios are unknown. What they need is a kind of patterns that helps them to elaborate and develop their knowledge under e-Learning circumstances. Starting from this point of view, the question to be answered is, given an educational scenario and pattern, respectively, for instance the ball bearing method, how can one use this technique in an online situation? What is in common? What is different? What kinds of tool are to be used? etc. (Baumgartner and Bergner 2003).

Adopting the pattern concept for pedagogical purposes, the Pedagogical Pattern Project (cf. http://www.pedagogicalpatterns.org/) primarily emphasizes on the quality of patterns:

> Patterns are designed to capture best practice in a specific domain. Pedagogical patterns try to capture expert knowledge of the practice of teaching and learning. The intent is to capture the essence of the practice in a compact form that can be easily communicated to those who need the knowledge. Presenting this information in a coherent and accessible form can mean the difference between every new instructor needing to relearn what is known by senior faculty and easy transference of knowledge of teaching within the community.

We think that this point of view is too narrow. Reducing a pattern to a simple kind of static template for designing or capturing the good and best practices, respectively, ignores Alexander's concept of pattern. In his conception, patterns are generic rules for the gradual unfolding of centers: "[...] every new pattern defined under the theory of pattern languages is a rule for creating a certain type of (new) living center, needed and appropriate in a given range of contexts" (Alexander 2002b, p. 345). On comparing this description with that of the Pedagogical Pattern Project, it is quite obvious that these are two completely different points of view.

Characterizing the MedidaPrix as a type of pedagogical pattern means that it was launched to capture best practice in e-Learning. The award captures, honors, and disseminates expert knowledge of embedding digital media in academic teaching. By involving the pertinent e-Learning community and elaborating a highly complex award procedure, which includes a double-blind review, expert and jury workshops, and public hearings (Fig. 35.3), the evolution in practice has been fostered.

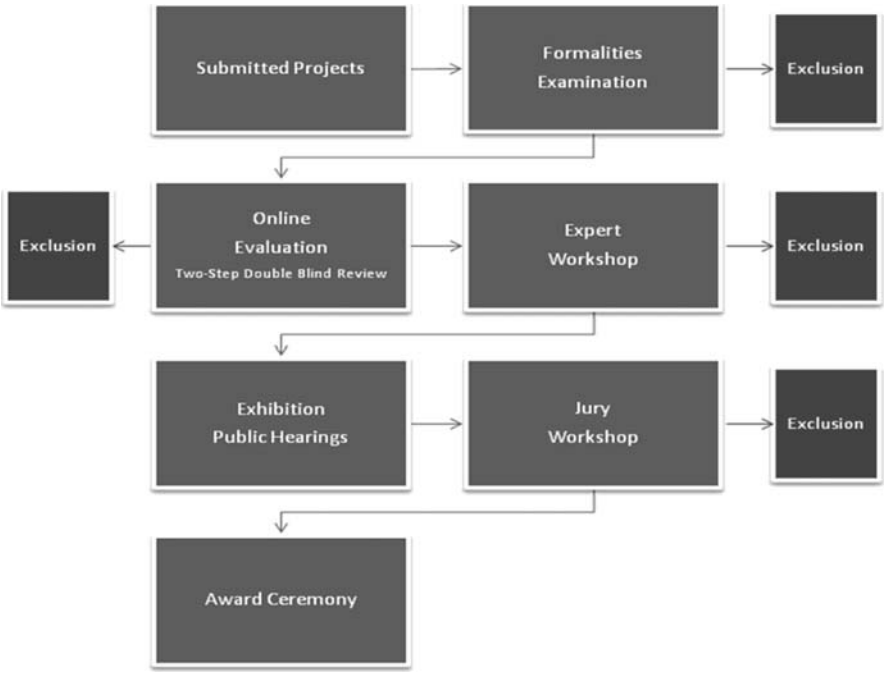


Fig. 35.3 Award procedure

Bearing in mind the cited goal of pedagogical patterns and the complex evaluation procedure, the MedidaPrix Award may be able to change the lock-up culture of learning materials currently found in higher education organizations and to promote high-quality material such as OERs. With its evaluation procedure, the award not only creates a model for quality assurance but also acts as a facilitator for quality.

Each project has to pass four types of examinations: formalities examination, double-blind review, expert workshop, and public hearing. The goal of these different phases is a reduction of the total number of submissions to 10 finalist projects, which are then invited to an exhibition and public hearings. In these hearings, the members of the expert jury have the opportunity to clarify open questions in a face-to-face presentation.

Based on the method of "qualitative weight and sum" (QWS, Scriven 1980, 1991; Baumgartner and Payr 1996; Baumgartner and Frank 2001), e-Learning experts evaluate the submitted projects in a double-blind review using a set of 27 single criteria (Table 35.1). In the year 2008, these evaluation criteria of former submissions were revised, and adapted particularly with regard to awarding OER projects.

It is a set of $3 \times 3 \times 3$ criteria to be evaluated. Applicants are explicitly advised to describe their initiative or submitted project according to key issues with respect to criteria which detail the following:

Table 35.1 Evaluation criteria for the MedidaPrix (Baumgartner and Zauchner, 2008)

1. Goal criteria		
	1.1 Mission	• Goal conceptions
		• Target groups
		• Target dimension
	1.2 Vision	• Anticipated effects
		• Added value
		• Planned future development
	1.3 Strategy	• Project management
		• Participation of the target groups
		• Degree of structuring
2. Structural criteria		
	2.1 Integration	• Organizational integration
		• Didactic integration
		• Technical integration
	2.2 Transferability	• Organizational transferability
		• Didactical transferability
		• Technical transferability
	2.3 IPR and copyright	• Licensing model
		• Motivational inducements
		• Information
3. Process criteria		
	3.1 Business model	• Financing model
		• Incentives
		• Financial security of business operation
	3.2 Quality management	• QM as control instrument
		• Didactical standards
		• Evaluation process
	3.3 Sustainability	• Critical mass
		• Continuity
		• Further development

1. The intended goals (goal criteria)
2. Structural (structural criteria)
3. Process-oriented aspects (process criteria) of the initiative or project.

These main criteria are sub-divided in two lower levels. Generally, the goal is that the criteria and their operationalization can work as a kind of model, which is debated in the community and thereby contributes to the development of high quality e-Learning materials.

Comparing two main methods commonly used for weighting of criteria – numerical vs. qualitative weight and sum (NWS vs. QWS) – demonstrates a crucial difference: QWS is not based on the assumption of an interval or ratio scale like the NWS method. For preventing the possible confusion with numeric operations used for linear scales, Scriven recommends to use symbols for the weights:

- E = Essential
- * = Very valuable
- # = Valuable

- + = Marginally valuable
- 0 = Zero.

The weighting of a criterion determines the range of values that can be used to measure a submitted project's quality. Weighting a criterion with #, e.g., means that the project can only be judged with #, +, or 0, but not with *. Such a weighting of criteria implicate different types of configurations and patterns. Considering the MedidaPrix's set of $3 \times 3 \times 3$ single evaluation criteria, the award becomes a metapattern.

35.2.2 Pattern Quality

Alexander started the philosophical discussion about patterns and their quality (Alexander 1979). Still, the patterns themselves are not the most interesting part of Alexander's concept,[2] but their concentrated composition, including cross-references to other patterns, either similar or alternative, or used under different conditions. Less than the network of relations, like the so-called pattern language, the arising intuitive and emergent mental picture is the aspect that convinced us. Alexander describes this phenomenon as *quality without a name* (QWAN):

> The fact is that the difference between a good building and a bad building, between a good town and a bad town, is an objective matter. It is the difference between health and sickness, wholeness and dividedness, self-maintenance and self-destruction. In a world which is healthy, whole, and alive, and self-maintaining, people themselves can be alive and self-creating. In a world which is unwhole and self-destroying, people cannot be alive: they will inevitably themselves be self-destroying, and miserable.
>
> But it is easy to understand why people believe so firmly that there is no single, solid basis for the difference between good building and bad. It happens because the single central quality which makes the difference cannot be named (Alexander 1979, p. 25).

With this concept of quality, he tries to express a oneness which, due to the limited nature of our language, cannot be expressed: "This oneness, or lack of it, is the fundamental quality for anything. Whether it is in a poem, or a man, or in a building full of people, or in a forest, or a city, everything that matters stems from it. It embodies everything. Yet still this quality cannot be named" (Alexander 1979, p. 28).

QWAN is a property of the whole system on a metalevel, an intuitive practice or "Way of Teaching," which is based on tacit knowledge (Ponayi 1985), and which cannot be tapped and communicated in words.

[2]However, we feel it necessary to mention the fact that patterns are primarily concerned with Alexander's early writings in the 1970s which discuss the recognition of patterns and the developing of a pattern language. In his four-volume work *The Nature of Order* published in 2002–2004 he demonstrates that patterns themselves are not enough for understanding his concept of the built environment. He identifies 15 structural features which appear again and again in things which have life. In our opinion, these structural properties may be transferred to didactical scenarios.

In this context quality is something incommunicable, something intangible. It is an emergent property of a complex system, but with the addition that it cannot be a singular property of any component of that system. We have to regard it always as a feature of the whole system. In order to explain this phenomenon of emergence, we may revert to the domain of science, such as the liquidity of water.

In a certain mixing ratio, the elements hydrogen (H) and oxygen (O) form water: one molecule of water has two hydrogen atoms bonded to a single oxygen atom (H_2O). Given that oxygen has a higher electronegativity than hydrogen, water is a polar molecule. The oxygen has a negative charge, while the hydrogens have a positive charge. The interactions between the different dipoles of each molecule cause repellence (same charges) and attraction (different charges). Therefore, the molecules form certain patterns. These tridimensional constitutions are called clusters. The special H-bond pattern is responsible for the water's high amount of surface tension and its liquid state at standard temperature and pressure. Neither the hydrogen (element) nor the oxygen has the property "liquid" (cf. http://www.wasser.de/). Thus, we cannot remove a single H_2O molecule and describe its property with the term "liquid".

So what may we deduce from this example? The measurability of quality is difficult because of its emergent nature. The higher level (in our case, the MedidaPrix Award as a tool to capture high quality e-Learning projects) guides or structures the lower level (submitted e-Learning projects), but has to take into account the laws of all the elements of the lower level (different types and strategies of e-Learning projects). In our mind, this can be achieved by applying an appropriate set of evaluation criteria. So the award as the higher level directs and regulates the submitted projects, which represent the lower level using its evaluation criteria. In this context, the MedidaPrix Award with its special evaluation criteria becomes a kind of standardizing pattern or metapattern, and, on the other hand, the e-Learning

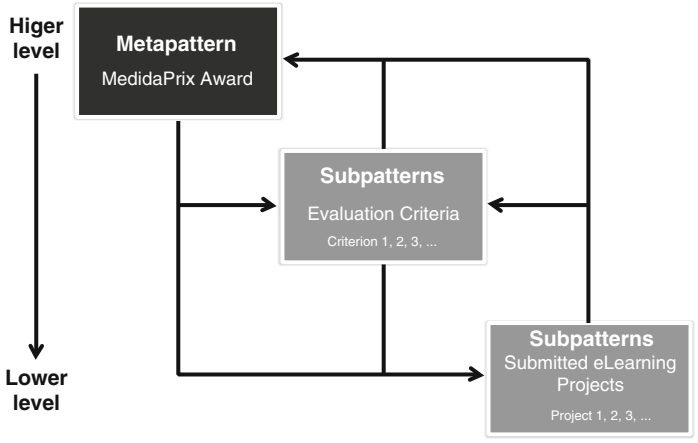


Fig. 35.4 MedidaPrix award and pattern quality

projects, accommodating themselves to the metapattern for being honored with the award, are further patterns (Fig. 35.4).

In simple terms, one might think that the relation between emergence and pattern means that the elements forming the lower level are developing a pattern on the higher level. The new configuration at the higher level is responsible for the emergence of new features and functions. According to Alexander, this presents the typical mechanistic picture of the world:

> It is commonplace that a system as a whole has properties which are caused by cooperation of elements. It is also commonplace that the behavior of the system as a whole may therefore be new or unexpected. [...] In the mechanistic view of things, the cooperation of different elements can produce new measures in the whole. However, the individual measures of the individual elements are always defined locally, not globally, and remain unchanged as the elements enter into combinations (Alexander 2000a, p. 459).

In the eyes of Alexander, emergence is a top-down phenomenon, thought from the "wholeness," and not as configuration of single elements from the lower level.

Transferring this idea to the discussion about quality, we might argue that quality is a property belonging to the higher level. Generally, the quality of something depends on the criteria being applied to it. So the MedidaPrix Award as metapattern with its set of criteria as subpatterns provides rules for creating a certain type of high-quality e-Learning projects, which are subpatterns themselves.

35.3 Qualities of a Change Agent

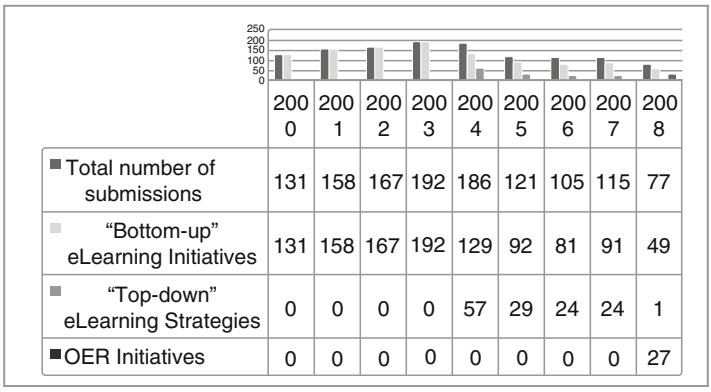
An effective change agent is often called upon to do what others have failed at, could not be done, or proved to be fatal. An effective change agent must also be able to share knowledge and ideas to transmit a sense of urgency and enthusiasm to others. An effective change agent has to demonstrate what the really important issues to solve are. From 2000 to 2008, the MedidaPrix Award was an initiative that intended to function as such an effective change agent.

In the last 9 years, 1,252 projects participated in the contest for the MedidaPrix Award (Fig. 35.5) subdivided into three assessment categories:

- Digital media within higher education ("bottom-up" e-Learning initiatives)
- Development of higher education by digital media ("top-down" e-Learning strategies)
- Since the year 2008, initiatives that focus on the promotion of OER.

In terms of the mentioned assessment categories, the project comprises three different phases:

1. The first call for bids (2000–2003) focused on the various scattered "bottom-up" initiatives requiring a sustainable integration of departments and university administration.



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total number of submissions	131	158	167	192	186	121	105	115	77
"Bottom-up" eLearning Initiatives	131	158	167	192	129	92	81	91	49
"Top-down" eLearning Strategies	0	0	0	0	57	29	24	24	1
OER Initiatives	0	0	0	0	0	0	0	0	27

Fig. 35.5 Submitted projects between 2000 and 2008

2. The second call for bids (2004–2007) was directed at university administration focusing on the development of "top-down" e-Learning strategies. Therefore a new assessment category was introduced (Brake et al. 2004).
3. The latest call for bids in 2008 promoted the international trend of OER initiatives. The goal of this award redesign was to sensitize the e-Learning community in German speaking countries to the idea of the OER movement.

The increasing number of submissions between 2000 and 2003 can be explained by the growing recognition of the award within the e-Learning community. The reason for this enormous participation cannot be attributed only to the award sum of Euro 100,000, but rather to the increasing interest in the elaborate evaluation procedure as mentioned above (Wedekind 2004; Baumgartner and Preussler 2004).

Observing the decline of submissions as from 2004, it is far more difficult to find an answer. What could have happened? Why didn't they remain constant?

To our mind, the MedidaPrix Award cannot be seen separated from the national funding programs in Germany, Austria, and Switzerland. One needs to consider the award's reciprocal effect: It affected the strategic focus of the funding programs performing its function as trigger and at the same time promoter for quality development. The MedidaPrix Award's quality is based on its complex evaluation procedure. By means of its evaluation criteria, the award is able to generate quality.

The coincidence of submission decline and the expiration of the first wave of national funding programs for e-Learning seemed to suggest that the contest is closely linked to these programs. Our assumption gets reconfirmed regarding the stopping of the second wave of funding programs in the year 2007; in 2008, the number of submitted projects dropped 33% over the previous year.

Redesigning the award and focusing on an intensified promotion of OER initiatives require identifying some reasons why this might be considered important.

Well, we believe the reasons are twofold:

- Firstly – as can be seen from Fig. 35.4 – the MedidaPrix Award is experiencing a crisis, caused by the decline of submissions. But crisis represents a productive state of being as well, if one manages to eliminate its overtones of disaster. More than a simple award like any other one, the MedidaPrix Award tends to be a change agent, not primarily focusing on technology or design, but instead being – metaphorically speaking – a trail marker like a red dot on trees or stones along the OER trail: a kind of guide book, offering information and good practice about production models, business models, models for quality assurance, or handling of copyright issues (Baumgartner and Zauchner 2008).
- Secondly, the MedidaPrix Award could contribute to the dissemination the OER idea in German speaking countries and, at the same time, to develop a culture of content sharing among lecturers at universities. Living a complex transformation process in the field of learning, caused by the shift to the digital, we have to unlock our high-quality learning materials, our "crown jewels," for educational institutions so that they can be accessed for free.

35.4 Change Agent for a New Transformation Process

Like we argued, it is a simplified view of the MedidaPrix Award as a kind of metapattern, which is not a sufficient description. Any award depends on the context and the status of the awarder. The MedidaPrix Award is a very prestigious award within the e-Learning community in Germany, Austria, and Switzerland. The award is regarded as the quality seal for innovation incorporating pedagogical change in the field of higher education. In a time of discontinuation of national funding programs, to keep its function as change agent within a sustainable development of e-Learning in higher education the MedidaPrix Award is forced to shift its emphasis: Focusing on an intensified promotion of OER initiatives, the award will continue to play its role. If the goal of the MedidaPrix Award as metapattern is to facilitate broad dissemination, accumulation, and scrutiny of OER initiatives and projects, then its ultimate quality test is when this knowledge – embedded in the evaluation criteria of the Medida-Prix Award – feeds back into practice. In this context, it is important to point out that the emphasis on OER not only implies focus on open resources or contents but also requires a broader view in considering the educational contexts. The key essentials in making use of OER are adaptability and reuse, but generally they are neglected (Zauchner and Baumgartner 2007). "e-Learning will come pervasive only when faculty change how they teach – not before" (OLCOS 2007, p. 55) is a statement that may be transferred to OER projects. Expecting changes in teaching methods and improvement of education focusing only on e-Learning cannot fully meet the quality goal. The most important thing is to concentrate on adaptability and reuse in a didactical way. The focus is not so much on the *What* but on the *How* of using e-Learning materials.

The emerging new forms of learning require a new culture of sharing and contribution. Normally, (university) teachers in German speaking countries think that they have to develop their own learning materials according to the own theoretical approach. They may be seen as a kind of lone fighters who don't want to share anything. So from our point of view, we have to build awareness of the OER movement and its ideas and goals by supporting any initiatives[3] that may change this mental attitude. We have to create a global culture of learning, built upon an educational system of content sharing. Within this context, the MedidaPrix Award enables to change the lock-up culture of learning materials and to achieve a deeper understanding of the collective advantage of developing and exchanging high-quality material such as OERs. That is the reason why we think that the award will recapture its former role of change agent.

35.5 Conclusion

Since 2008, all the projects submitted for the MedidaPrix Award are evaluated by 27 single criteria relating to OER. Concerning this matter, the award can be regarded as a model or even metapattern which provides, captures, honors, and disseminates high-quality learning materials. Its main goals are to motivate to share content regarding especially didactical contexts and at the same time to build a community that realizes the importance of communications and collaboration.

[3]The non-profit organization Creative Commons (CC) is, for instance, has released several copyright licenses known as Creative Commons licenses. These licenses let authors, scientists, artists, and educators easily mark their creative work with the freedoms they want it to carry. CC can be used to change the copyright terms from "All Rights Reserved" to "Some Rights Reserved."

Chapter 36
The UNIQUe Label: Supporting a Culture of Innovation and Quality in Higher Education

Annemie Boonen and Helena Bijnens

Abstract European higher education institutions will need significant reforms, in order to guarantee their leading role in a globalized knowledge economy. These reforms can be enhanced by improving the way in which traditional universities integrate new technologies both in their educational activities and throughout their strategic and operational processes. The UNIQUe institutional accreditation scheme, analyzed and described in this chapter, intends to support this process of integrating the use of new technologies in higher education. With its specific open approach to quality in e-Learning, UNIQUe emphasizes innovation and creativity in a process that includes self-assessment and constructive dialog with peers and stakeholders involved. UNIQUe intends to use the institutional quality label as a catalyst for continuous improvement and change while setting up collaborative bench learning processes among universities for the adoption and integration of e-Learning.

36.1 Background

The UNIQUe[1] project was launched several years ago in the context of the broad Bologna process,[2] which aims at creating a European Higher Education Area (EHEA) that is more compatible and comparable, more competitive, and more attractive for European students/citizens and for students/citizens from other continents. One of the specific objectives of the action program set out in the Bologna

[1]UNIQUe – eUropean uNIversity QUality in e-Learning project, supported by the Socrates Program of the European Commission, October 2006–August 2008.

[2]The Bologna process: http://ec.europa.eu/education/higher-education/doc1290_en.htm

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Declaration is to establish a European dimension in quality assurance, with comparable criteria and methods, and that is precisely what the UNIQUe project wants to contribute to.

It is obvious that the European higher education institutions need significant reforms in order to guarantee their leading role in a globalized knowledge economy. These reforms can be enhanced and facilitated by improving the way in which traditional European universities integrate new technologies in their activities, not only at the level of the pedagogy of e-Learning for educational purposes, but also throughout their general operational processes and strategies.

The European Commission's e-Learning Action Plan[3] stresses the importance of information and communications technology (ICT) in higher education when it defines e-Learning as "the use of new multimedia technologies and the Internet to improve the quality of learning, by facilitating access to resources and services as well as remote exchanges and collaboration."

Even though we can say that today most European traditional universities are using/integrating technology in their daily activities, it is equally true that e-Learning is still a rather new phenomenon within the traditional university setting. This situation is reflected, among others, in the fact that different definitions and "visions" of e-Learning continue to be used in parallel. Unclear definitions, confusing terminology (e-Learning, technology-enhanced learning, ICT-based learning, new learning), and different degrees of integration have led to a situation in which the culture of quality in e-Learning of European universities is frequently weak. When an e-Learning quality system is present, it is often focusing on the didactics of e-Learning and not so much on the more general impact that ICT/new technologies have at different levels (management, funding, international academic collaboration) of the university organization.

In other words, despite the broad consensus that more effort should be put into the question of quality awareness, improvement, and management at university level, the quality of the products, programs, and processes in the field of ICT-based learning varies widely between higher education institutions, and a common concept of quality improvement, which is theoretically sound and at the same time meeting the expectations of practice, is still lacking.

36.2 The UNIQUe Approach

Against this background, the UNIQUe initiative has been set up. UNIQUe was built on previous experiences from projects such as SEEQUEL,[4] which investigated different visions and approaches to quality, and MASSIVE,[5] which tested out the

[3]EC eLearning Action Plan.

[4]SEEQUEL – Sustainable Environment of the Evaluation of Quality in eLearning, http://www.education-observatories.net/seequel/index.

[5]MASSIVE – Modeling Advice and Support Services to Integrate the Virtual component in higher Education, http://cevug.ugr.es/massive/.

peer-review approach for six areas and functions within the university in which ICT plays an important role.

UNIQUe started as a European project supported by the Socrates Program of the European Commission from October 2006 until August 2008. From the beginning, its overall purpose has been to enhance the reform process of European higher education institutions by creating and testing a label for universities that certifies quality of e-Learning-related activities and processes. At the same time, UNIQUe intends to facilitate, through a self-assessment and peer review process, the improvement of the use and the integration of ICT/e-Learning in traditional European universities. During the project, UNIQUe designed its label and tested it with 12 pilot universities. Since the end of the first project period, UNIQUe has searched for ways to further elaborate its activities. An initial business plan was developed to mainstream the activities and to allow UNIQUe to be established as an independent quality label for e-Learning run by EFQUEL,[6] with the support of the original project partners EuroPACE,[7] SCIENTER,[8] and EFMD.[9]

36.3 The Uniqueness of UNIQUe

The approach of UNIQUe to quality labeling is innovative in different ways. First of all, the UNIQUe accreditation process is not just about assessment but includes a strong support and quality improvement approach. The UNIQUe approach to quality also emphasizes change and innovation rather then standards.

UNIQUe looks at the use and integration of ICT and e-Learning in a holistic way. It does not stop at the isolated e-Learning experience, but builds on a broad stakeholder involvement and takes into consideration the opinions of the different participants in the process. UNIQUe also stimulates dialog between all actors involved, including the higher management, the different support centers (libraries, ICT), technical and teaching staff, and the students.

Further, the UNIQUe approach is based on the idea that the adoption of e-Learning strategies by universities does not only require a technological or a pedagogic approach. In order to allow e-Learning to become fully integrated, the university needs to define all related processes and to provide a set of support services to facilitate this integration.

The UNIQUe approach is also innovative in the sense that it does not intend to set up a static quality label and to simply certify institutions that comply with it. It rather wants to use the label as a catalyst for improvement and intends to set up a collaborative bench learning process among universities for the adoption and integration of ICT/e-Learning. Bench learning means that university staff/managers

[6]European Foundation for Quality in eLearning www.

[7]EuroPACE www.europace.org.

[8]Scienter.

[9]EFMD.

will be invited to learn from each others' experiences and from best practices in other universities in order to improve their performance.

Through participation in the UNIQUe self-assessment and peer-review processes, institutions can measure how successful they are with technology-enhanced learning. The UNIQUe process can also help them to diagnose their weaknesses and to adapt their strategies for the future. The tools used within UNIQUe therefore not only lead to an accreditation or a label, but more importantly, they support a process that results in awareness, internal discussion, reflection, and self-assessment, thereby encouraging improvement and innovation.

36.4 Areas and Criteria

The UNIQUe quality label looks at the entire educational institution and focuses on three areas that have been identified as critical with respect to the implementation and integration of e-Learning: institutional context, resources, and processes.

The first area or the "institutional context," contains criteria related to the overall "strategy" of the institution with respect to e-Learning, and to the "commitment to innovation" and "openness to the community." This area provides important information on the openness of the institution and the willingness to innovate, and shows whether this innovation is supported at the highest management level.

The second area or the "learning resources" looks at the availability of necessary "resources for learning" and "equipment." It also investigates whether student needs are sufficiently taken into consideration and studies the availability of "university (support) staff." The third area focuses on "learning processes" and criteria for quality of the "offer," "IPR management," and "personal and HR development."

36.5 Pilot Experiences and Phases

In order to come to conclusions on how the institution meets the criteria for the different areas described above, the UNIQUe process is structured in distinct phases and offers a formalized approach for each of these steps. The stages are based on the approach taken by the CEL[10] accreditation system for business schools.

- Inquiry
- Application
- Eligibility
- Self-assessment

[10]EFMD CEL, Program accreditation for teChnology-Enhanced Learning, organized by EFMD, http://www.efmd.org/index.php/component/efmd/?cmsid=040929dygl.

- Peer review
- Peer-review report
- Awarding body decision
- Continuous quality improvements

The core phases consist of a self-assessment exercise by the university followed by a peer-review visit by external experts. The UNIQUe pilot activities, which took place in 12 traditional Universities, are modeled on these two main processes. This approach has different purposes:

- To provide feedback, for all involved in the process, on the current "state of the art" in the participating universities.
- To encourage self-reflection and to help the universities improve their performance in developing, implementing, supporting, monitoring, assessing, and promoting the quality of their e-Learning or ICT-based teaching and learning processes.
- To stimulate collaboration and dialog between the university and external experts.
- To provide the Advisory Board with the Peer Review Report, which represents the basis for the university to receive the UNIQUe Quality Accreditation Label.

The following sections describe the practical organization of these stages as they were carried out during the UNIQUe pilot experiences. The new universities entering the quality improvement and accreditation process today follow a similar schedule.

36.5.1 Inquiry

The inquiry phase is a rather informal phase in which universities are contacted in order to inform them about the concept, the objectives, and the process of the UNIQUe quality improvement and accreditation scheme. To this purpose, invitation letters and information booklets with a description of the UNIQUe accreditation scheme are prepared. Promotion and general awareness raising can be done through all relevant channels (such as conferences, workshops, newsletters), but should be followed by a personal contact. During the pilot phase, project team members contact the interested institutions for a first dialog about mutual expectations with respect to the UNIQUe process and outcomes.

36.5.2 Application

Universities interested to participate are asked to submit an "Application Data Form." This is a short questionnaire that provides basic factual information about the university and allows a preliminary formal assessment of the university's

e-Learning activities in comparison with the UNIQUe eligibility criteria (cf. eligibility). It includes questions about number of students, faculty, courses on offer, the role of ICT and e-Learning within the institution, e-Learning strategy, networking, and partnerships.

On the basis of this application form, the UNIQUe Supervisory Body can declare an institution eligible or not to start the full quality improvement and accreditation process. During the project pilot phase, this task was taken up by the project team members.

36.5.3 Eligibility

The UNIQUe Supervisory Body ("project team members" during the pilot phase) screens the universities on the basis of their Application Data Form to decide whether the institution is eligible or not to start the full quality improvement and accreditation process.

This screening process is designed to ensure that a university

- Falls within the scope of the UNIQUe scheme
- Organizes technology-enhanced learning initiatives
- Has a reasonable prospect of satisfying the UNIQUe criteria within 3 years

In order to be eligible for participation, the university should meet at least two out of the three eligibility criteria:

- Deliver courses by means of ICT
- Provide e-Learning and ICT services at university level
- Have included e-Learning or ICT in at least one of the strategic documents of the university

It is important to make clear to the universities that the declaration of eligibility to enter the process does not constitute any guarantee or formal prediction of the university's ultimate success in achieving the accreditation.

During the pilot phase, 12 universities from eight different countries were found to be eligible and entered the quality improvement and accreditation process after a contract had been prepared between each of these "pilot" universities and the UNIQUe consortium.

36.5.4 Self-Assessment Phase and Self-Assessment Report

The 12 pilot universities – as well as the new universities that entered the process later – carried out an extensive auto-evaluation of their technology-enhanced teaching and learning activities on the basis of the tools provided by the UNIQUe

project. These tools consist of a set of questions related to the university context. Through these questions, the institution is invited to reflect upon its vision about education and learning, the e-Learning strategy, actors involved, impact, etc. Further, the university is invited to rate itself against the UNIQUe criteria and sub-criteria. Students and teachers are invited to take part in the self-assessment process through online questionnaires where they can give feedback on how they experience the way in which e-Learning is adopted by the university.

The self-assessment process intends to help the university to better understand its position with respect to e-Learning. At the same time, the process results in a self-assessment report (SAR) that provides basic information for the peer-review team in preparation of the visit. The SAR is intended to be self-critical rather than promotional, and analytical as well as descriptive. A university takes 6–12 weeks to submit the report to the UNIQUe Executive Office. As soon as the UNIQUe Executive Office receives the self-assessment report from the university, the organization of the peer-review phase can start.

The self-assessment phase constitutes one of the key elements on which the entire UNIQUe improvement and assessment process is based: it provides fundamental information and it stimulates reflection and dialog within the institution and between the institution and the external reviewers.

During the project, the 12 pilot universities did not all participate in the self-assessment phase in the same way. Two different pilot formats were tested:

- The standard format as described above, which starts with a self-assessment exercise, followed by the peer-review visit and interviews with external experts. Most universities followed this scheme and completed the SAR according to the specific template with guidelines and criteria.
- With some universities, a modified format was tested in order to avoid overlap with earlier quality assessment schemes and to maximize the use of previously gathered information. The modified format consisted of a 2-day workshop between representatives of the university that had been involved in earlier evaluation and assessment processes and external peer reviewers. In preparation of the workshop, the university staff collected general background information on e-Learning within the institution, recent audit reports, and outcomes of earlier evaluation processes. On the basis of this information (findings and outcomes from previous assessment processes), several topics for discussion on improvement schemes were identified beforehand and in cooperation with the external reviewers. The workshop started with an overview of outcomes of recent audit activities and specification of the areas for improvement, followed by interviews and discussions based on the UNIQUe interview tools. The second part of the workshop consisted of a self-assessment exercise by the university staff accompanied by the external reviewers. During the last part of the workshop, the discussions focused on the problem areas and improvement schemes. This format compresses the process into a close combination of the self-assessment and the review phase.

36.5.5 Peer-Review Phase

In both formats, external experts join the process after the initial self-assessment exercise by reviewing the written self-assessment report or the outcomes of previous evaluation exercises and by joining the university staff for a visit or workshop.

In order to identify expert reviewers, a "Call for Experts" in the domains of e-Learning, higher education, quality in education, and innovation in education was published. The UNIQUe project created a pool of experts out of which expert reviewers could (can) be selected. The process foresees a visit by at least two peer reviewers. In special cases, the peer review team can be accompanied by an observer, who is a member of the central UNIQUe office. One of the team members is identified as the chairperson/rapporteur. In view of the overall quality of the outcomes of the peer review process, it is important to carefully select the teams of reviewers and to try and define complementary teams with regard to their experience in e-Learning, experience as reviewer, language skills, cultural background, and acquaintance with the higher education domain.

The planning and practical organization of the visit turned out to be a challenge and required considerable effort and time. Since the success of the peer-review visit depends to a great extent on the input of all actors involved, it is important to ensure not only a good team of reviewers but also the presence of university stakeholders involved in different aspects of the e-Learning activities within the university.

The two-day visit foresees interviews with high university management (rector, vice-rector, e-Learning unit director), staff involved in technical and pedagogical support, staff involved in central support services (library, ICT department), professors, teachers/tutors, and students. Further the visit has to include testing of tools, websites, courses, and visits to local learning spaces, libraries, and/or e-Learning centers.

Different ways to schedule the visit were tested, but the most successful way turned out to start from the availability of the senior university staff and to agree on the dates for the visit before looking for a complementary team among the available peer reviewers.

The program for the visit also requires careful planning and has to include sufficient time for alternation between interviews as well as reflection and feedback sessions with the reviewers.

All selected peer reviewers received a general briefing about the background and the objectives of the UNIQUe assessment and improvement scheme, the procedures, tools, and practical consequences. A "Guide for Peer Review Team" was developed to support the team during the entire peer-review process and to ensure that they could handle the process in a smooth, effective, and correct way. This guide includes a detailed description of the different steps along the entire process including the required actions and a toolkit including instruments for briefing and debriefing meetings, a description of the (sub-) criteria, interview grids for each of the stakeholders, and observation guidelines. On the basis of the first pilot experience, additional instruments such as a shortened version of the guide, checklists, and Q/A lists were created.

36.5.6 Peer-Review Report

After the peer-review visit, the reviewers prepare the peer-review report under the coordination of the "rapporteur" (one of the reviewers).

The report consists of five different tools:

1. The checklist with emergent findings for each of the three areas, which collects information gathered from the different interviews with stakeholders.
2. The debriefing report that compares for each of the three areas the findings from the peer-review team with the views of the hosting institution.
3. The improvement plan which describes key actions for improvement for certain criteria in the three different areas.
4. Those three tools are completed by the peer reviewers on the last day of the visit and serve as a basis for discussion with the hosting institution during the debriefing meeting. Before leaving the institution, the reviewers agree with the hosting institution on the improvement plan.
5. The next two tools are to be completed by the reviewers at the end of (or after) the visit, under the coordination of the "rapporteur."
6. The UNIQUe criteria checklist, which incorporates the judgments of each individual reviewer on each of the (sub-)criteria. The reviewers rate and comment each of the (sub-)criteria and will compare their findings with the ratings from the self-assessment report.
7. The keynotes and recommendations by the peer-review team. Following the visit and based on the data collected and their professional experience, the peer reviewers prepare an overall report and make a final recommendation as regards the suitability of the candidate university to be accredited. The recommendations form a single, consolidated document that incorporates the judgments and considerations of both peer reviewers.

The chairperson of the peer-review team has the task of finalizing the report, and both reviewers have to agree on the final version of the report. Before sending the peer-review report to the UNIQUe Awarding Body, the chairperson sends it (without the recommendations) to the university in order to allow the host university to check for factual correctness and to agree on further steps for improvement (the improvement plan) that the university is committed to undertake.

The full report has then to be submitted to the UNIQUe Awarding Body directly or via the UNIQUe Executive Office.

36.5.7 Awarding Body Decision

The full peer-review report includes the debriefing report, the improvement plan, the ratings and comments for the (sub-)criteria in the three main domains, the findings, and the recommendations from the peer review team. On the basis of this report, the Awarding Body takes a final decision on accreditation. The

Awarding Body does not study the background information provided by the university or the self-assessment report, so the peer review team has to make sure that all relevant information is given through the peer-review report.

The results of the UNIQUe process can be that the institution is:

- Accredited (1)
- Not accredited (2)
- Candidate for accreditation (pending) – on condition of some improvements (3).

The awarding body takes its decisions in line with the guidelines from the UNIQUe Executive Office described in the "Guide for Awarding Body" and on the basis of the peer-review reports for each of the universities. The awarding body can organize virtual and/or real meetings to discuss the results. A closed electronic environment with restricted access was created to support the work of the awarding body. Decisions from the Awarding Body are communicated to the Unique Executive Office, which informs the universities about the final decision.

36.5.8 Continuous Quality Improvements

Each of the above-mentioned results (accredited (1), not accredited (2), candidate for accreditation (3)), comes with recommendations since each institution that takes part in the UNIQUe process receives an improvement plan at the end of the first phase. This improvement plan includes recommendations on aspects that can and should be dealt with in the coming years.

The accreditation (1) is given for a period of maximum of 3 years. The institutions will, in order to keep the label, be revisited approximately 1 year after the initial peer-review visit and they will be asked to demonstrate their progress and improvements. In case the institution is not accredited initially (2), a new review can only take place 3 years after the first review, and in the meantime the institution can focus on the recommendations for improvement given. In case the institution is candidate for accreditation (3), the improvement plan will serve as a basis for a short review 1 year after the initial peer review activity in order to determine whether the institution was able to respond to the improvement plan and reached the level for full accreditation.

The awarding body continued to meet after the end of the project to ensure follow-up of the universities and their committed steps for improvement.

36.6 Evaluation Results and Recommendations for Future Deployment

Reactions from different stakeholders were collected throughout the pilot project. These stakeholders included:

- Advisory Board members consisting of rectors, representatives of student organization, higher education management staff and e-Learning experts
- Members from the peer review teams involved in the pilots, i.e., experts on quality, innovation and/or e-Learning, active in the field of higher education
- Staff members from the initial pilot universities
- External audience that took part in workshops and networking events, including representatives of higher education institutes, educational policy-makers, and international associations active in the field of e-Learning

A summary of those recommendations that further clarify the position of UNIQUe or the decisions taken by the UNIQUe team, are listed below.

- It is important to avoid confusion between program accreditation and institutional accreditation. UNIQUe is an institutional assessment and improvement scheme and any reference to programs must be avoided.
- In the pilot phase, UNIQUe also included peer-review visits organized by a unit (e-Learning unit) or department of the university. Since the UNIQUe accreditation is intended as an institutional accreditation, in future the relationship between the unit and the university should be clarified beforehand.
- e-Learning should no longer be seen as a completely separate activity of the institution but needs to become an integral part of it. In view of institutional quality assessment of e-Learning, it is therefore important that e-Learning is mentioned in the mission statement of the university or, alternatively, in one of the strategic documents of the institution in order to guarantee a certain degree of commitment to e-Learning. This was included as a requirement in the list of criteria.
- For the same reason, it is important to schedule an interview with the highest management of the institution, i.e., the Rector, during the peer-review process. This interview will often help the peer reviewers to understand whether or not there is a real institutional commitment to e-Learning.
- The (lack of a single) definition of e-Learning sometimes caused problems and misunderstandings. UNIQUe used the word e-Learning in a rather broad and flexible way. The UNIQUe process looks at how the traditional higher education institutions are integrating technology-enhanced teaching and learning activities in their daily activities, but this can be implemented in different ways for each institution. Information on the landscapes for e-Learning can be found on http://www.education-observatories.net/helios. Mention of the existing landscapes can be included in the UNIQUe scheme.
- Accreditation must not be technology-centered, as what is new today will be obsolete tomorrow. Technologies (like other aspects of the e-Learning activities) must be "fit for purpose," and it is therefore important that the UNIQUe criteria remain focused on the appropriateness of the technologies used, rather than on which technologies have been used.
- Language remains crucial to the success of the visits. Most teams have mixed language skills including knowledge of the language of the hosting university. Often, interesting background documents or learning environments are available only in the local language. Even during the interviews, knowledge of the local

language is often a help, especially for interviewees involved in central e-Learning processes at the hosting institution but not used to work in an international context.

- According to most of the universities that participated in the pilot phase, the UNIQUe accreditation process had a serious impact at the institutional level. UNIQUe seemed to act as an accelerator of change within the institution.
- Most universities felt that the self-assessment exercise, followed by open peer-review visit, had been useful and beneficial for their organization. It encouraged the institution to reflect on its own strategy and to collect feedback from external experts through a critical dialog and in view of future improvements.
- The possible benchmarking aspect of the accreditation process was valued as very positive. The fact that peer reviewers come from different European countries enables the institutions to raise institutional standing and it encourages them to keep up with trends in other parts of Europe. In accreditation systems, it is vital to focus on learning from each other, by comparison of cases and good practice. This benchmarking aspect should be further elaborated in future UNIQUe activities as one of the strong points.

36.7 Can UNIQUe Drive Innovation?

As explained in the introduction to this article, UNIQUe intends to combine an assessment process with the dynamics of continuous improvement and innovation. Each institution must strive for improvement and innovation by being a learning organization.

Whether accreditation systems in themselves drive innovation is controversial. There is a general fear that accreditation may stop innovation: why innovate something that has been accredited? How to accredit something that is innovative and not yet fully streamlined? How to deal with the problematic relation between standards and innovation?

An accreditation system such as UNIQUe intends to focus on continuous improvement. It provides guidelines and integrates follow-up mechanisms in the core process. Openness, innovation, and creativity of the institution are encouraged by the UNIQUe process, and the UNIQUe team tries to integrate the tension between innovation (uncertainty) and quality (control) in its approach.

Further, the UNIQUe team is convinced that accreditation systems must be driven by respect for (cultural) diversity and divergences among and within the educational institutions. These are related, among others, to the local situation, the target groups addressed, the objectives aimed at, and continuous (r-)evolutions.

Therefore, the UNIQUe team will make sure that it updates and innovates its own UNIQUe accreditation process, in order to stay in line with (or ahead of) new developments within the higher education area. At this moment, a specific quality assessment framework for e-Learning in higher education is still necessary. We hope that in future e-Learning will gradually become more fully integrated in the

higher education system, and that UNIQUe will be able to contribute to this process and to the integration of an e-Learning quality improvement and assessment process in a wider higher education quality framework.

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- MENON Network EIG (Coordinator): MENON is a European innovation and research network providing information and advice to policy makers and authorities, education communities, and the ICT and media industry on issues related to innovation and changes in Education and Training, Lifelong Learning, and Knowledge Society developments in Europe and worldwide.
- EuroPACE ivzw: EuroPACE is a European network fostering collaboration in e-Learning. Its members and partners are higher education institutions, nonprofit organizations, and other educational networks and companies.
- European Foundation for Quality in e-Learning (EFQUEL): EFQUEL is a new initiative from three successful European e-Learning projects (EQO, Seel, and Seequel). They approach quality in e-Learning from different and complementary perspectives and develop full-scale services for all educational fields, regional contexts, and target groups.
- European Foundation for Management Development (EFMD): EFMD is an international membership organization, with more than 600 member organizations from academia, business, public service and consultancy in 65 countries

UNIQUe is now run by the European Foundation for Quality in e-Learning in cooperation with the initial project partners.

Projects on which the findings of this article are partially based are as follows:

- UNIQUe. The UNIQUe project – European University Quality in e-Learning (2006–2008) – was carried out with the support of the European Commission Directorate General Education and Culture, Socrates, Higher Education Reform. Project partners were EuroPACE ivzw; EFQUEL – European Foundation for Quality in e-Learning; EFMD – European Foundation for Management Development a.i.s.b.l.
- MASSIVE. The MASSIVE project (Modeling Advice and Support Services to Integrate the Virtual Component in Higher Education) was carried out with the support of the European Commission, Directorate-General for Education and Culture, under the e-Learning Program. Project partners were the University of Granada, Fim New Learning, Tavistock Institute, EuroPACE ivzw, Scienter España, Scienter, University of Barcelona, Budapest University of Technology and Economics, University of Edinburgh, University of Bergen, ESIB, and Grupo SGAE. More information on the project is available at http://cevug.ugr.es/massive
- SEEQUEL (Sustainable Environment for the Evaluation of Quality in e-Learning) is a project carried out with the support of the European Commission in the framework of the e-Learning Action Plan. Project partners were MENON Network, ELIG, CEDEFOP, EDEN, EIfEL, EuroPACE ivzw, ESIB, University of Reading, and University of Edinburgh.

Chapter 37
The Organizational Impact of Open Educational Resources

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Abstract The open educational resource (OER) movement has been growing rapidly since 2001, stimulated by funding from benefactors such as the Hewlett Foundation and UNESCO, and providing educational content freely to institutions and learners across the world. Individuals and organizations are motivated by a variety of drivers to produce OERs, both altruistic and self-interested. There are parallels with the open source movement, where authors and others combine their efforts to provide a product which they and others can use freely and adapt to their own purposes. There are many different ways in which OER initiatives are organized and an infinite range of possibilities for how the OERs themselves are constituted. If institutions are to develop sustainable OER initiatives, they need to build successful change management initiatives, developing models for the production and quality assurance of OERs, licensing them through appropriate mechanisms such as the Creative Commons, and considering how the resources will be discovered and used by learners.

37.1 Introduction

Educational content is increasingly available for free on the Internet. Many organizations perceive benefits both for themselves and for learners elsewhere in distributing their learning resources in this way. The Massachusetts Institute of Technology's (MIT) OpenCourseWare initiative (OCW), set up in 2001, makes content available freely from most of MIT's courses and has provided the inspiration for many similar institutional projects. These initiatives form what is now known as the open educational resource (OER) movement, which promotes "the

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open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for noncommercial purposes" (UNESCO 2002).

It has been suggested that OERs can include (UNESCO 2004) the following:

- Learning resources
- Courseware, content modules, learning objects, learner support and assessment tools, and online learning communities
- Resources to support teachers
- Tools for teachers and support materials to enable them to create, adapt, and use OER; training materials for teachers; and other teaching tools
- Resources to assure the quality of education and educational practices.

Other definitions abound, and there are widely differing perceptions of what constitutes an OER. What is clear though is that the very concept of providing an organization's learning resources for anyone to use freely presents major challenges to conventional models of education. If an OER initiative is to be successful, it should have significant impacts on the institution, requiring an accompanying change management program, starting with defining and selling the vision of the project and ensuring that it is put on a sound financial basis for its long-term sustainability. Models need to be developed for the production and quality assurance of OERs, and intellectual property rights (IPR) need to be considered, both in the content which may be incorporated within an OER and in the copyright model under which the OER itself is provided. It is also important to think about how the OERs will be discovered, how they are intended to be used, and what technologies will be required by the end user; these issues can have a major impact on take-up of the OERs.

MIT's OCW project was inspired by the free and open source software movement (Caswell et al. 2008). Open source projects make software freely available to users and the source code behind the product available to other developers who are free to enhance the code and distribute it on the basis of a particular licensing model. Well-known open source products include Apache, the software used for most web servers; the widely adopted operating system Linux; and the learning management system, Moodle. In a successful open source project, a community of developers, users, and others with skills such as graphic design typically forms around a charismatic individual who may be partially altruistically motivated in sharing his or her products freely with others. A more calculated interest in building personal reputation, which may lead to business opportunities or enhanced employment prospects, may also be present. When the project reaches a critical mass, large commercial interests may become involved, pumping funding into the project in order to achieve enhanced robustness and functionality of the software. The external funders have greater aims such as the creation of competition in markets where an existing commercial product dominates. Sun's funding of the OpenOffice suite as a competitor to Microsoft is an example of this approach.

There are interesting parallels between open source software and the OER movement, where projects are often initiated by one or two enthusiasts who believe in the benefits of making educational content freely available to learners and to other institutions under licensing conditions which allow the modification and reuse

of that content. The enthusiasts are able to put a proposal to their organizations and to funding bodies making the case for an initiative to develop and promote OERs at their institution. The initiators may be driven by career-enhancement motivations as well as the desire to improve the lives of others by making educational resources freely available. Funding may be obtained for the initiative from an external agency with wider objectives such as the enhancement of higher educational provision in developing countries. A community is then formed within the institution of people such as project managers, authors, designers, and testers. The intention is that this community ultimately encompasses other institutions who wish to use and enhance the OERs, and of course the ultimate consumers of OERs: the learners themselves.

37.2 Selling the Vision of OERs

There may be many different reasons for an institution to launch an OER initiative. They can be categorized as *altruistic*, where there are benefits to individual learners (who are not paying fees to the institution), to other educational institutions (often in developing nations), and to the wider society; *commercial*, where the university increases its visibility through an OER initiative leading to increased student recruitment or other funding possibilities; and *transformational*, where there are positive impacts on the structure, processes, and content of the institution carrying out the OER project.

37.2.1 Altruistic Motivations

Many OER enthusiasts are motivated by the possibilities of providing educational content freely to people who would not otherwise have the opportunity to access it. There is a convincing moral argument that learning should be available to all, and it is widely accepted that individuals' life chances can be enhanced through education. This belief is behind the involvement of the nongovernmental institutions that are funding and promoting the OER movement such as The William and Flora Hewlett Foundation and UNESCO. OERs are considered to be particularly valuable in developing nations where university places are limited and the costs of journal subscriptions and books prohibitive. In many countries, rural communities have little access to higher education but increasing access to the Internet. Women in some communities have limited educational opportunities but may have new possibilities to learn at home online.

There are claims that OERs have beneficial impacts on institutions in developing countries as well as on individuals. These include the demonstration of new forms of course structure and pedagogy (Stacey 2007) and could have impacts for example on the development of national public health initiatives where medical OERs are being provided (Smith and Casserly 2006).

Institutions in the developed world do, however, need to be mindful of allegations of cultural imperialism by potential consumers of their OERs in less

developed parts of the world, which are for the most part postcolonial states. OERs generally originate from a particular culture and use a specific language, pedagogy, and institutional philosophy, which may be resented elsewhere.

It has also been suggested that learners will benefit from OERs, not only by not having to purchase books and having a much greater number of resources available to them, but in encouraging habits of independent, self-regulated learning, autonomy, and self-reliance (Stacey 2007). Learners also may be able to benefit by connecting to others in networks organized around the resources.

37.2.2 Commercial Motivations

Universities may heavily promote the benefits to learners of free content; however, their OER initiatives are more likely to be sustainable if there is evidence of financial benefits to the organization. Drivers include the ability to raise the visibility of the institution, give its teaching materials higher exposure (Johnstone 2005), and enhance its branding. This can lead to possibilities for partnerships and further funding, and can directly impact on student recruitment. The Open University UK's OpenLearn project, for example, found that 7,000 students registered on fee-paying courses immediately after viewing OER content (McAndrew and Santos 2008).

A further commercial motivation, one which may have particular resonance with governmental funding bodies, is that OERs can potentially make better use of taxpayers' money (Geser 2007), allowing institutions to share the production costs of learning content. The problems of institutions collaborating in the development of curricula and using each others' content where a "not invented here syndrome" culture predominates cannot, however, be underestimated.

37.2.3 Transformational Motivations

The OER movement has generated its own momentum which many institutions wish to be part of and experience a "feel-good factor" which can extend right across the organization (McAndrew 2006). One of the main claimed benefits of projects such as MIT OCW is that higher quality products are likely to result when authors know that their colleagues can potentially view their content (Smith and Casserly 2006). There is then the possibility of noticing overlaps in topics which they teach and to consider potential collaborations between departments (Johnstone 2005). At Tufts University, faculty use locally produced OERs to help plan their curricula, prepare for their teaching, and learn themselves (Lee et al. 2008), and in MIT the OCW site is used for advising students (Caswell et al. 2008).

Another claimed benefit of OERs is that producers may receive them back enhanced by others and that the input of other experts from around the world could transform the way content is produced. Projects such as OpenLearn, which encourages remixing of content, have, however, demonstrated that users are often reluctant or unable to adapt OER content and normally unwilling to deposit their altered versions back in the central repository. It may also be logistically difficult and expensive to quality-assure the revised versions and convince the original authors to use them in their teaching instead of their own versions.

Initiating a successful OER project at an institution involves high levels of commitment from senior management and is likely to require significant start-up funding. A vision will be required for why the institution should be making its educational resources freely available. It will help to define all the altruistic, commercial, and transformational benefits expected from the initiative. Funding from an external organization can give added impetus to the venture, and pilot projects to develop OERs can then be used to demonstrate the production processes required and the potential uses.

Systems such as eduCommons, funded by the Hewlett Foundation, assist with the processes of placing materials into a repository, tagging them with appropriate metadata, copyright clearance, quality assurance, and publication. Technical staff who can convert materials into appropriate OER formats will be required to assist faculty, who, as was noted earlier, will inevitably be concerned about time commitments (Caswell et al. 2008). Addressing such concerns should be a priority for institutional OER ventures. It has been found necessary to emphasize the altruistic nature of the venture, reinforcing this and the project's links with the worldwide OER movement continually through a variety of communications. Showing statistics that demonstrate global uptake and provide examples of positive user feedback can be particularly effective (Lee et al. 2008).

37.3 Determining the OER Model

There is now a wide range of OER projects, each with its own distinctive model. MIT's OCW initiative was the first major such initiative, jointly funded in 2001 by the William and Flora Hewlett and the Andrew W. Mellon foundations. OCW not only aims to give content from virtually its entire curriculum away freely as widely as possible, but also to spread the vision of OCW (Brown and Adler 2008), (Caswell et al. 2008) Thus in the OCW concept, the two primary institutional motivations are encapsulated: maximizing publicity for the institution with spin-offs in the areas of improved branding, student recruitment, and research opportunities; and, more altruistically, spreading the vision of OERs to other institutions so that the impact of the movement is maximized for individual learners.

OCW is a repository of resources based around courses, whereas MERLOT is a repository of learning objects. Both MERLOT and Connexions require users to

develop and submit content themselves rather than have a central institutional body hand-holding them through the process (Stacey 2007).

Resources in Connexions at Rice University tend to correspond to a page or so in a textbook and deal with a few concepts. Users can then combine the various resources into larger modules and publish these also in Connexions, allowing for maximum reusability. Activities such as assignments and exercises, as found in OCW materials, are less common. Connexions also incorporates tools for authoring resources and combining them into larger modules (Stacey 2007).

At Carnegie Mellon University, the focus is very different to that in MIT or Connexions. In their Open Learning Initiative (OLI), entire courses are developed as collaborations between faculty and experts in human–computer interaction and cognitive science. The project is also attempting to build communities of users who are prepared to enhance the content and feed it back to the initiative (Johnstone 2005). Courses comprise a syllabus, texts, videos, and virtual lab activities, and researchers examine the effectiveness and usability of the courses as they are being delivered with a view to enhancing the content and its underlying learning theory in its next iteration.

OLI courses are used in both instructor-led situations and by learners who wish to access them freely without registration on a formal course. The free versions of the courses do not include exams, access to the instructor, or interaction with other students, therefore potentially drastically limiting their value. While OCI's courses are praised for their use of multimedia and interaction, the materials are designed to be accessed from the Carnegie Mellon website, requiring high bandwidth, thereby potentially restricting the usefulness of the initiative in developing nations and increasing concerns about costs and sustainability (Stacey 2007).

Many OERs are produced by campus-based universities for classroom use and, while they may be of interest for educators elsewhere, they are less useful for individual learners. OpenLearn at the UK Open University overcomes some of these issues by making available content designed for distance education in the first place and, while it may be diminished in value by not being combined with assessments, accreditation, and a cohort of fellow students, the OERs may make more sense in their own right than some of the OCW materials. OpenLearn is split into two websites. In LearningSpace the University has placed 5,400 h of content for free use by students and educators, converted from its own distance learning materials. It also provides facilities such as forums, video conferencing, and knowledge mapping tools for learners to manage their learning and form learning communities. The sister site, LabSpace, provides additional course materials from the University's archives and is designed for educators to download content, adapt it, and upload enhanced versions, while also attempting to encourage communities of practice.

With a growing proliferation of OER projects, it will be increasingly important for institutions to differentiate their initiatives from the rest. Institutions such as MIT and Carnegie Mellon attract visitors to their OER sites through their world-wide academic reputations. Less well-known institutions may have to do something more novel.

37.4 Production Issues

Many issues need to be addressed by institutions if OERs are to be produced on a large scale on a sustainable basis with maximum benefit to users. Andy Lane (2006) reports that OpenLearn had a particular challenge in taking material designed to be part of larger distance courses, which assumed tuition, support, and assessment and repurposing it for learners who would not necessarily be experiencing the wider context of formal learning. There was also a tension between making large amounts of existing, primarily text-based, materials available on the Web while knowing that this was not the optimum medium for such content.

Lane identifies five different characteristics of the content which may need to be tackled in the transfer from standard distance learning to OERs: type, medium, structure, language, and pedagogy. The type of content will include activities, text, and video. The medium is how it is rendered; video content might, for example, move from CD-ROM to streaming video. Structural changes such as breaking the content up into smaller chunks will be necessary. There is also the language of instruction, which is not changed by the OpenLearn team, though translations have been made by users abroad. Finally, there is the pedagogical model. Attempts to keep this as close to the orginal as possible were made, but the other changes frequently impact on the pedagogical approach.

One of OpenLearn's biggest challenges has been attempting to retain the essential nature of the learning content while transforming it into OERs appropriate for online delivery with smaller chunks of text, more interactivity, and greater use of multimedia. The approach of placing mainly text-based materials on OpenLearn as the starting point drew some criticism, but meant that large amounts of content could be uploaded quickly, maintaining consistency with the original content, but able to be transformed into more engaging OERs later.

OERs will achieve much greater penetration, particularly in less affluent regions where they may have the most benefits, if they depend only on free or open source software for their usage. Providing materials in simple web pages will guarantee the greatest visibility. The incorporation of flash animations or video may enhance the content and be visible using a freely downloadable plug-in for the web browser. However, OER authors may not realize that such content is bandwidth-heavy and therefore difficult or costly for some users to download (Smith and Casserly 2006). It is also, of course, likely to be more expensive to produce and much more difficult to edit by other teachers than text. Moreover, it may be less accessible for users with some disabilities; there can be a trade-off between the engagement achieved with the use of multimedia in educational software and the accessibility of the materials.

The issues may be more acute with OERs than with educational software designed for distribution in affluent countries where more aspects of the supporting infrastructure such as bandwidth and the underlying software and hardware can be assured. A further issue with providing content such as video or flash files is that teachers may not have the skills to adapt more complex materials or access to the

proprietary software required to do so. Alternative low-bandwidth versions of content for areas with limited infrastructure may therefore be required.

The use of mobile phones is, however, growing massively in developing countries. Handheld devices can be charged from intermittent power supplies or solar power, and the supporting infrastructure is easier to maintain than a network of cables to individual houses. The implication for OERs is that in order to prove of maximum benefit (in the developed world too) they will need to be accessible on devices with small screens and a variety of operating systems. This has major design implications and renders much of the content produced to date inaccessible without considerable reengineering.

37.5 Dealing with Intellectual Property Rights (IPR) Issues

Copyright and other IPR present some of the biggest barriers to the expansion of the OER movement. It can prove extremely difficult to obtain permission from publishers to make content available as OERs, as this presents a challenge to their business models. Institutions and individuals are also rightfully concerned that their valuable IPR will be reused without acknowledgement or for commercial purposes. Complicating the situation, the policies in many institutions as to who owns copyright, i.e., the author or the institution, are unclear.

At Tufts University, faculty are advised to use resources in the public domain if possible to avoid expensive copyright clearance. Where this is necessary, administrative staff are responsible for contacting copyright holders or helping to locate alternative open content (Lee et al. 2008).

For producers of content, the primary way this is being addressed is through the Creative Commons initiative (Creative Commons 2009), which provides easily understood licenses that can be attached to OERs, making explicit the uses to which the OERs can be put and how authors should be attributed. These licenses override the much more restrictive copyright legislation that is enacted by default in many countries. Creative Commons licenses were first issued in 2002 and are now available for 50 national jurisdictions with a further 9 currently under development. They were inspired in part by the long-established free software movement's General Public License (GPL).

Six different licenses can be attached to OERs. The basic license allows users to "copy, distribute, display and perform the work and make derivative works." Other licenses allow authors to forbid commercial exploitation or derivative works. The concept of "share alike" can also be incorporated requiring users to attach the same license if they alter, transform, or build upon the work and distribute the results. The key aspect of all six licenses is that you must give the author original credit for the work.

Creative Commons licenses are becoming increasingly easy to use. Creators of OERs can register the materials on the Creative Commons website and can then easily incorporate an icon on their website which links back to the Creative

Commons license they have chosen. Commercial websites have seen the value of the licenses, with Flickr for example allowing users to search for materials licensed under Creative Commons. YouTube is also investigating the possibility of allowing users to attach the licenses to materials they upload to the site (Steuer 2009) with various partner institutions providing lecture videos which can be downloaded to the learner's computer for viewing offline rather than depending on an internet connection for streamed video (Campus 2009). Some institutions such as Utah State University actively target sites such as Flickr for images to incorporate in the OERs (Caswell et al. 2008).

The differences in the terms of the various Creative Commons licenses can have significant implications for how OERs are used. It is not entirely clear, for example, what "disallowing commercial exploitation" actually means in an educational context. A commercial organization could take the materials and simply build courses around them, which it sells for the ultimate benefit of its shareholders. There is also, of course, no guarantee that users will understand or comply with the terms of the licenses (Caswell et al. 2008). Connexions deliberately permits commercial exploitation of its content in the hope that cheap paper books and CD-ROMs may be produced for use in the developing world where internet access is limited (Stacey et al. 2007). However, as much as two-thirds of Creative Commons content is licensed for noncommercial purposes only, and the Commonwealth of Learning recommends the use of "share alike" licenses to avoid negatively impacting on the update of OERs (Geser et al. 2007).

One limitation of Creative Commons that has been pointed out is that unlike open source software conventions it does not require all those who have subsequently made changes to be attributed. Nor does it require reference to the original repository in which it was published (Stacey et al. 2007). In Australia, however, the AEShareNet has a "share and return" license, which requires anyone making a change to the content to return a copy to the original copyright holder. This aims to ensure that the materials are continually enhanced but also allows primary creators to integrate any improvements and obtain valuable feedback on the way in which their OERs are being adapted.

37.6 Strategies for the Discovery and Use of OERs

Locating OERs is of course essential before educators or learners can think about how best to use them. A growing number of institutional, collaborative, and commercial repositories such as Flickr allow the searching for resources with attached Creative Commons licenses. There has been much discussion about the necessity for high-quality metadata associated with educational resources being necessary for their retrieval. However, the creation of metadata is a skilled task, ideally a joint effort between experts in the subject and in classification, and is therefore difficult and expensive to organize. There are metadata schemas such as IMS Learning Object Metadata, but there are wide variations in how the metadata

fields are completed. The Open Archive Initiative allows institutions to expose the metadata of their open content for harvesting by indexes. However, there are huge variations in the implementation of the metadata between and even within institutions with many of the fields left incomplete (Geser 2007).

An easier approach than the development and population of complex metadata schema is to encourage the tagging of items by creators or users themselves with terms that they understand and to facilitate the building up of folksonomies. Sites can also allow users to review or rate the modules with star ratings, and list the most popular downloads.

A more radical solution is proposed by the TENCompetence project, which has experimented with latent semantic analysis techniques to analyze the content of student work in order to assess their prior knowledge of the subject. Users are then recommended personalized learning paths through the OERs (Kalz et al. 2008). However, this approach is limited to textual materials, relies on access to a portfolio of the learner's prior work, and is unlikely to function well except in highly controlled environments where not only is the knowledge of the learner in an analysable format but the metadata attached to the OERs is accurate and standardized.

More straightforwardly, the Open University's OpenLearn materials are discovered by many learners though simple Google searches which match the users' search terms with the learning content.

A UNESCO meeting in Paris in 2002 ambitiously proposed that a global index for OERs be developed, giving access to the resources and providing a full history of the provenance and use of the resources, incorporating comments from users (UNESCO 2002). The list was indeed developed, and OERs were categorized as portals and gateways, publishing initiatives, repositories, tools, and papers about OERs. Such an index requires ongoing maintenance, and to reduce the costs and increase currency a wiki-based version was created (Stacey 2007).

Being able to mix OERs in different combinations so that they can be matched to the curriculum of the local institution is essential but extremely difficult to achieve. OERs are often therefore most useful to help teachers learn and plan out their own courses, and as supplementary materials for students (Johnstone 2005).

OERs can either be brought into and embedded within locally produced content or linked to from the local site. If they are incorporated locally and the original OERs are updated, the new content will not be present. Providing links instead to the original materials, however, runs the risk that the OERs may change markedly, with the local materials no longer providing an appropriate context. Alternatively, the OERs may not be updated often enough to keep up with advances in the local materials. Even more concerning, of course, is that the OERs might vanish completely. Keeping copies of the OERs locally would mitigate that risk, and this could be combined by regular automatic checking that links are still active (Yue et al. 2004).

37.7 Conclusions

One of the main conclusions from commentators such as Smith and Casserly (2006) is that if OER initiatives are to be sustainable they must be fully integrated into the processes of the institution and not be seen as an additional responsibility for faculty. If the production of OERs is recognized in promotion and tenure processes, then the initiative is also more likely to be successful in the long term (Stacey 2007).

Apart from maintaining ongoing high levels of commitment and motivation among faculty and staff, there needs to be a viable financial model to sustain OER projects in the long term. Many OERs become outdated quickly and need to be updated from time to time. It is also important to add new content on a regular basis in order to add dynamism, attract new users, and to bring learners back to the site. Funding can come from a range of sources, though many of these are under threat during the world economic crisis.

Downes (2007) has listed nine potential funding models for OER projects. However, the primary funders continue to be agencies such as the Hewlett and Mellon Foundations. They recognize the importance of the OER movement they have helped to bring about by offering further project funding for the creation and dissemination of OERs and the fostering of communities and research networks around free educational content. There is arguably an overdependence on these funding bodies, Hewlett in particular, and it is not clear that the movement has yet got to the point where it can be self-sustaining. Funding may also be increasingly obtainable from government agencies, with the rationale that returns from the investment of taxpayers' monies are being maximized. However, while funds are often available as part of particular initiatives, there is sometimes less thought given to how the content will be made available, maintained, and updated indefinitely.

Public donations are a minor source of income for most OER initiatives but these are likely to dry up during the economic downturn. There is some potential for OER initiatives to raise funding from sponsorship, the use of logos, and advertisements on their websites but this is likely to bring in limited income, irritate some users, and be ignored by anyone reusing the content and making it available locally. An alternative model is where several organizations join together to share resources and expertise or increase visibility of their OERs and hence their institutions in higher profile websites such as the Open Courseware Consortium.

The reality is that none of these funding models on their own will be able to maintain the majority of OER initiatives. Sustainable ventures will draw on a range of internal and external funding sources while embedding the production and maintenance of open content into institutional processes.

One major concern for educational institutions is that content which is delivered in an environment isolated from some of the key attributes of formal learning including a cohort of fellow learners, tutorial support, assessment, and accreditation is likely to be less engaging and effective. Assessment is of particular importance in

driving learning, and while OERs may encapsulate quizzes and formative assessment, there is no penalty for nonparticipation or failure in such exercises attached to OERs freely accessed by learners outside of formal courses. Some initiatives are therefore looking to build these attributes of formal learning around OERs and to charge students for tutorial support or examinations.

Individual motivation is a key factor in the uptake of OERs; those with a strong interest in a subject or requirement to learn about a topic, together with well-developed study skills, may find that OERs delivered in isolation are perfectly adequate for their immediate requirements. However, that is if they can access them in the first place. The digital divide remains a major obstacle to the adoption of open content. In many parts of the world, particularly in Sub-Saharan Africa and South Asia, the infrastructure for electricity supplies and internet connectivity is unavailable, intermittent, or simply too expensive for individuals or institutions to afford. Ironically, these are precisely the areas that could benefit the most from free and open educational resources and therefore fulfill the humanitarian aims at the heart of the OER movement.

Another issue for the OER movement is the move away from high-cost broadcast materials and textual content to user-generated content and social software. There is a decline in television viewing, particularly among younger people, and a corresponding increase in the time spent in Web 2.0 environments. Content itself has been devalued with the invention of the digital camera and websites such as FlickR and YouTube, where millions of images and videos can be viewed freely. Meanwhile, music, software, and other digital resources are copied at no cost (though often illegally) through peer-sharing networks (Sclater 2006). Open educational content has arrived at the same time as this broader devaluation of content, in general, which may have adverse impacts on its perceived value by potential users.

Efforts have been made by various initiatives such as OpenLearn to build communities around the learning content in an attempt to offer peer support. Where learning activities involve web-based forums, wikis, blogging, and commenting on blogs, there are likely to be greater opportunities for reflection and the deepening of understanding than when OERs are provided in isolation. So far, most of these efforts have met with limited success; many of the visitors discover the resources through Google, visit briefly to obtain a few facts, and then disappear. Others make their way systematically through a course, but because of the lack of an obvious peer group studying the course at the same time see little point in contributing to the forums situated alongside each unit of study. Finding ways to create such learning communities remains one of the major challenges for the OER movement.

The outstanding success of Wikipedia in harnessing the efforts of thousands of contributors to produce millions of articles accessed at some stage by most frequent Internet users has not gone unnoticed in the OER community. For the time being, it appears to be a sustainable venture, funded entirely by donations and employing a handful of staff. Wikiversity takes the Wikipedia model one step further to provide course materials in wiki format, editable by all. This model could be further developed to incorporate some of the elements such as tuition, which are missing

from most current OER projects. Staley (2009) proposes that teachers who wish to share their knowledge with others could form their own school or department around a particular subject area when a critical mass of participants has emerged. The schools would form and unform as fields of interest emerge and coalesce. This could happen much more quickly than the laborious course approval and production processes at existing universities, and professors' longevity would be determined by the community rather than by tenure. It would be managed by administrators who would emerge from the community in the way that they do in Wikipedia. Protocols and community values would prevail rather than administrative rules and top-down direction. Authors might be like the amateur scholar of the eighteenth century who makes money elsewhere but teaches and researches for their own satisfaction.

One major problem with this approach is that it would be hard to assess and accredit learning in a credible way, so any qualification awarded by such a body would have limited value. That could be potentially overcome by the provision of low-cost examination centers by an accrediting organization. Most OER initiatives remain firmly under the control of higher education institutions which can assess on an ongoing basis whether making their content available freely threatens their business models. The emergence of a new institution, however, where content is built entirely by volunteers on the scale of Wikipedia, where teachers come together with students as appropriate, where critical mass ensures that there are always others at the same level to communicate with, and where learning pathways are under the control of the learner, could present a direct challenge to the traditional university model.

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