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International Perspectives

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Gender Equality Programmes in Higher Education – Introduction

Gender equality has been on the agenda of national policies of higher education within and outside the European Union (EU) for the last twenty years. In some European countries, this process was initiated early on and has brought about remarkable results, while in others progress has been slower. Different countries and institutions have focussed on different strategies for raising awareness about the discrimination of women and for increasing the number of women in academia, particularly in leadership positions.

Previous research on gender equality in higher education has produced many case studies about programmes at institutions of higher education in Europe and elsewhere. Different actors like the European Commission and national organisations have also furnished reports about national policies. Building on this material, it is now time to analyse under what conditions equality programmes are successful. For a deeper understanding of the mechanisms of and barriers to gender equality in higher education, we also need studies that focus on the development of gender equality policies in different countries, as well as on conditions of implementation, change of strategy, and the evaluation of results. Comparative studies would be another useful tool for understanding the development and success of gender equality programmes.

Since 1998, the European Conference on Gender Equality in Higher Education, held every two years, has been an important occasion for researchers, experts, and practitioners to discuss these issues. Despite being referred to as the "European" conference, there have always been participants from outside Europe, especially from the US and Australia. And so it was at the 5th European Conference on Gender Equality in Higher Education that took place in 2007 in Berlin. The conference included papers on the Bologna process in relation to gender equality as well as on the role of gender in different disciplinary cultures. This book brings together the most important papers about gender equality programmes and on topics such as the role of national funding agencies, the evaluation of gender equality programmes, gender equality in the context of organisational change, gender mainstreaming in higher education, mentoring programmes, women's preparation for leadership positions, and work-life-balance in academia.

In her opening address to this conference, *Susanne Baer*, professor for Public Law and Gender Studies and head of the Gender Competence Centre at Humboldt Universität zu Berlin, spoke about the conditions for gender equality in academia, stressing the importance of Gender Studies in this context. Without analysing the gendered aspects in the history of knowledge and its production, the role of sexism in academia can neither be fully understood, nor can it be successfully defeated. She argues that there has been "more progress in rhetoric than in numbers" in gender equality and that there is still a bias against women and other "others". She discusses the relationship between quality and equality and the challenge to develop new quality standards that see equality as an intrinsic factor in quality.

The Role of National Funding Agencies

Wanda Ward, from the National Science Foundation (NSF) in the United States (US), describes the gender equality policies of this organization and introduces the Foundation's ADVANCE programme for the improvement of the status of women in the sciences, with a particular focus on the natural sciences and engineering. While the NSF also funds women as individuals, the ADVANCE programme subsidizes new programmes aimed at the institutional transformation of universities as a whole. Ward conveys the NSF's interest in an international exchange with institutions in other countries.

Maya Widmer (Swiss National Science Foundation, SNSF), Regula Julia Leemann (Zurich University of Teacher Education), Heidi Stutz (Centre for Labour and Social Policy Studies BASS in Berne) and Kathrin Schönfisch (Swiss Federal Statistical Office, FSO), present a study about the portion of women among applicants for research grants at their organization, their rate of success, and the reasons for gender-specific loss rates in the whole process. One important finding of their study is that when women submit applications they are no less successful than their male counterparts; the reason for their underrepresentation among awarded grants is rather that they are already underrepresented among the applicants. Contrary to studies in other countries that have shown female researchers with children to be no less productive than those without children (referred to by *Lind* in this volume), they found that in Switzerland, women and men, with children were in the long run less likely to be awarded research grants

Evaluation

In order for universities to be sufficiently informed about the results and the impact of gender equality programmes, evaluation studies are needed. Such studies, however, have thus far been rare, at least in Europe.

Andrea Löther from the Centre of Excellence Women and Science (CEWS) in Bonn (Germany) and *Elisabeth Maurer* from the University of Zurich (Switzerland) made use of their experiences as evaluator and evaluatee, respectively, to develop specific standards for the evaluation of gender equality programmes and institutions aimed at the advancement of women. This is all the more important in that, in the German-speaking countries, only few gender equality programmes or institutions for the advancement of women have been evaluated independently. Evaluations have often been conducted by the same institutions that were responsible for carrying out the programmes in question.

Angel Kwolek-Folland, Terry Morehead Dworkin, Virginia Maurer, and Cindy A. Schipani from different universities in the US present a report on the conditions of implementation of successful programmes for the increase of the percentage of women in the natural and technical sciences in the United States at their universities: the University of Florida, the University of Michigan, and Indiana University. Some of these projects were financed by the ADVANCE programmes of the National Science Foundation (NSF) described in Ward's article. The authors also present the general recommendations made by the NSF for advancing women in STEM disciplines (science, technology, engineering, and mathematics).

Preparing Women for Leadership

Increasing the number of women in leadership positions has always been an important goal of gender equality programmes. Different countries use different instruments and strategies to achieve this goal.

Lynnette Browning, from the University of South Australia, presents the results of the evaluation of such programmes at Australian universities. One of the goals of these programmes is to promote the career advancement of women in the respective country's personnel structure. The programmes are thus comparable to German programmes aimed at helping women to successfully apply for professorships. Yet another goal (with no German counterpart) is to increase women's motivation for participating in important committees and to prepare women for taking on leadership functions, from chairing a department to presiding over a university.

Gender Equality in the Context of Organisational Change

Real commitment to gender equality will have a high impact on universities as a whole and will lead to organisational change. Organisational change in higher education, however, also poses a challenge to gender equality while simultaneously creating possibilities for its integration.

Mary Ann Danowitz, currently Visiting Professor at Vienna University for Economics and Business Admnistration, presents a summary of her comparative study on gender equality programmes in the US and the EU, which has also been published as a book.[1] Half of the twelve case studies of her study address national policies while the other six refer to individual universities. Danowitz finds significant differences between the US and EU countries. In recent years the latter have been focusing on gender mainstreaming, while in the US, gender equality programmes are rather integrated into an overarching approach to diversity.

Jane Wilkinson, Charles Sturt University (Australia), conducted a qualitative case study at four Australian "enterprise universities", whose structures are dictated largely by economic considerations. Wilkinson interviewed women in leadership positions at each university, and analyses how the different socio-economic and ethnic backgrounds of these women (middle versus working class, European versus Aboriginal descent) enable them to use their positions at these institutions for their own purposes.

Gender Mainstreaming

Since the nineteen-nineties, the EU and many European countries have adapted their gender equality policies to a focus on gender mainstreaming. Two articles in this volume investigate how gender equality programmes have been influenced by this policy shift.

Susanne Gruber and *Quirin Bauer,* from the University of Augsburg (Germany) present a comparative study on the implementation of gender mainstreaming in higher education at fifteen German universities, which was conducted in 2007 and funded by the Federal Ministry for Education and Research. They analyse the resources made available for this process and the relationship to previous gender equality programmes at German universities.

1 Women, Universities, and Change. Gender Equality in the European Union and the Unites States, ed. by Mary Ann Danowitz Sagaria, Palgrave MacMillan, New York 2007.

Angelika Paseka, from the University College of Teacher Education, Vienna, reports on a gender-mainstreaming project implemented at all Austrian teacher-training institutes. Her study makes explicit that gender mainstreaming can only be successful within appropriate implementation conditions. The project in question failed because those in leadership positions did not give it serious support. There were neither clearly defined, common goals, nor were the necessary structures and resources made available.

Mentoring

During the last decade, mentoring has become a strong instrument for gender equality in higher education. On a European level, the EU-project "eument-net" is building a European network of mentoring programmes for women in academia and research. *Dagmar Höppel* (Germany), *Helene Füger* and *Sabine Lask* (Switzerland), *Evi Genetti* (Austria), and *Nikolina Sretenova* (Bulgaria), all long-time participants of this project, present the results. They found different conditions for the implementation of mentoring programmes in each of the participating countries. According to their study, the acceptance and success of these programmes depend on several factors. First, the programmes need to be integrated into the institution as a whole. Second, a support culture sympathetic to the significance of such forms of assistance is crucial. Third, a sufficient infrastructure, and of course sufficient funding, must be provided. The German programmes were aimed exclusively at women, while some of the Swiss programmes targeted both sexes under the guise of "human development" – even here, however, it was women in particular who profited.

Carmen Leicht-Scholten, from the RWTH Aachen University, Germany, analyses mentoring programmes at different universities and in different disciplines in the German state of North-Rhine Westphalia, all of which were funded by a federal equal opportunity programme. An interesting finding of her study is that women from different disciplinary fields responded positively to different kinds of programmes: women in the humanities prefer the most common kind of face-to-face mentoring, while engineers also benefit from group-mentoring situations. Women in the medical field were particularly enthusiastic about seminars, while the networking aspect was very important to social scientists.

Work-Life-Balance

Inken Lind, from the Centre of Excellence Women and Science (CEWS) in Bonn (Germany) presents an overview of quantitative and qualitative studies on parenting and academia, making it clear that there is still a lack of reliable statistical data as well as, in particular, comparative data and studies on this issue. Initial results show that there are vast differences in childlessness and number of children among academics in various European countries. The studies give important indications of the different conditions and models of the reconciliation of family and academic career, which is significant for the integration of women in teaching and research.

Recommendations for future gender equality programmes have been published based on the findings of the presentations and discussions on gender equality programmes at the 5th European Conference on Gender Equality in Higher Education in Berlin 2007. These recommendations are documented in the appendix of this book.

The contributions collected here give an overview of the international perspective on Gender Equality Programmes in Higher Education.[2]

We would like to thank everyone who contributed to the successful completion of this book. We are particularly grateful to the authors. We would also like to thank Sandra Jasper for doing the layout and copyediting the manuscript and Rett Rossi and Millay Hyatt for their valuable support in correcting the English.

We hope that the projects presented here and the discussions of gender equality programmes will both provide new stimulus to practices in higher education and academia as well as encourage networking between gender equality experts on the national and international level.

Sabine Grenz, Beate Kortendiek, Marianne Kriszio, Andrea Löther

Göteborg, Dortmund, Berlin, Bonn 2008

2 The reader will notice that the contributions vary in their spelling. This is because the articles of authors from German speaking countries were written in British English, while the English-language submissions were left in their original form (American or Australian English).

Options of Knowledge – Opportunities in Science

Susanne Baer

At Humboldt-University in Berlin, the situation is, bluntly, as bad as at other universities if we look at the numbers, that is: at quantitative gender relations among professors, or, even worse, if we look at the lack of presence of women and the overwhelming presence of men in leadership positions in science. Nevertheless, Humboldt-University also hosts the largest German speaking gender studies programme to date with more than 15 disciplines collaborating in research, in a B.A. and an M.A. programme, and in supervising transdisciplinary PhDs in gender studies.[1] These academic programmes have also been accredited recently, thus formally acknowledged to contribute to the future of societies, in giving young people the competencies needed today. We also host a junior research group, sponsored by the German Research Foundation (DFG), which focuses on gender as a category of knowledge[2], and we run the GenderKompetenzZentrum, or GenderCompetenceCentre[3], funded by the German Federal Government, for transferring knowledge from gender studies into the administration and mainstream politics.

Thus, this university, as one site of higher education among many, is bad in numbers but good in quality. However, there are people who question this very statement. In particular, there is rather widespread scepticism as to whether gender studies are truly part of real science, as to whether gender is more than a fashionable term, as to whether a field can be really good if there are predominantly women working in it, or whether anything that challenges the seemingly neutral yet heavily gendered notions of and in science can be accepted in the halls of wisdom at all. Among these sceptics or sometimes outright enemies of gender studies as an academic enterprise have been and still are to be found leaders of higher education and research institutions.[4] This does not strike me as surprising if one takes the relationship between elite, exclusion and boundary-work in science and hegemonic masculinities seriously.

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1 http://www.gender.hu-berlin.de/
2 http://www2.hu-berlin.de/gkgeschlecht/
3 http://www.genderkompetenz.info
4 Compare the findings from interviews with such leaders in Metz-Göckel/Kamphans (2002).

When it comes to a sober assessment of quality, we do well, as transdisciplinary gender studies, in cooperation with other universities and a variety of academic and non-academic institutions. But we rarely find ourselves in a mainstream discussion of facts, and much more often are trapped in an exchange of assumptions. Here, it makes things a bit more difficult if such scepticism or outright opposition is cast in friendly rhetoric, for example, in attributing quality and potential to gender studies elsewhere, but never in the area one is responsible for or works in. Such rhetoric is also widespread. In Europe as well as in other parts of the world, it has become a regular occurrence to emphasize the importance of women in science[5] and sometimes even to mention women as a subject of study. More recently there has also been talk of gender relations and daringly, gender as a category in the context of other markers like class, ethnicity, age, sexuality, dis/ability and belief. However, this occurrence of rhetoric does not necessarily translate into any kind of practice.

The difference between rhetoric and practice, or, reality is, as Germans would say, an "old hat" for gender studies and gender equality in science. Professor Wintermantel, the elected head of the German Rectors' Conference[6], emphasized this point in her opening remarks to the Berlin conference[7] in 2007: "We have been on this road for about 25 years." This turns many people into experts in the field. The Berlin conference aptly demonstrates that there is much to know, and much already known about gender equality in higher education. It also seems as if all of us already agree, yet I believe there is still some controversy. Therefore, I will rather briefly sketch the situation as I see it today, to again emphasize the link between gender studies and equality in science. Then, I will use the opportunity to focus on an issue not yet as present in our discussions as I think it should be – the issue of quality. In my opinion, there is a need to intensify quality discussions in and around gender in science. Otherwise, gender bias will neither be removed regarding the presence of women and men in the academy, nor will it be removed with regards to the research we foster.

5 Nonetheless, these reports have been important signals and present necessary data, e.g., European Commission (2001): Science policies in the European Union: Promoting excellence through mainstreaming gender equality and European Commission (2003): Women in Industrial Research. Analysis of statistical data and good practices of companies.

6 The German Rectors' Conference ("Hochschulrektorenkonferenz" – HRK) is the voluntary association of state and state-recognised universities and other higher education institutions in Germany. HRK (2006): Empfehlung des 209. Plenums der HRK vom 14.11.2006.

7 "5th European Conference on Gender Equality in Higher Education" at Humboldt-University Berlin, August 28-31, 2007.

Gender Studies and Equality in Science

For a long time, the issue of equality in higher education has been access of women to the holy halls. With more sophisticated analyses of gender in science at hand, the focus has shifted to gender with still only little on masculinity and men. But most people active in the field seem to agree on two major points.

First, there is an obvious problem regarding numbers. At the Berlin conference, Christina Hadulla-Kuhlmann from the German Federal Ministry of Research pointed out that while there are currently explicit rules and clear language, there is no plausible explanation as to why there are so many men with similar biographies in science or why there are so many women who do not make it into these jobs, and thus so little diversity.

Second, there is a less obvious, but by now quite well documented problem regarding content or knowledge itself. Today, we have ample proof that disciplines developed with utter disregard of gender and some continue to work in this way. A lack of consideration in this area has been part of disciplinary identities and not only in the somewhat expected case of engineering. A gender bias, which is in fact a male focus (famous: Wennerås/Wold 1997), has also been and still is largely part of scientists' identities as well as the majority of and especially the most prestigious scientific cultures. Science thus simply missed and continues to miss a lot in living with that limitation, politely called a *blind spot.*

Both points are not only part of the consensus in research on gender in science, but have also made it into status quo analyses.[8] Based on these, and not least in order to guarantee qualified "human resources" in the future, there is significant, official, political will around gender equality in higher education in the wake of global competition and demographic changes. For example, (i) the national research councils name equality as one of their goals, (ii) the EU, the US, the Swiss, the Australian and other national agencies support programmes to further equality, (iii) the German excellence competition among universities declared gender equality a criteria, and (iv) most politicians who administer science endorse sex or gender equality.

So where is the problem? There are tons of best practices, evaluation and monitoring, assessments and comparative analyses, lots of official rhetoric – why then, is it not time to celebrate success? Why are there conferences and workshops and meetings and more in order to again and again discuss efforts towards equality, and to face the challenges ahead? It seems we still have a long way to go.

8 The EU Commission (2008) just published Mapping the Maze. Women in Research Decision Making. See also: European Commission (2001): Science policies in the European Union. European Commission (2003): Women in Industrial Research.

Quality in Science

In the world of knowledge that we live in – the knowledge society, the knowledge economy which is, after the technological revolution, globalized, fast, and diverse – I will argue that we need to revisit the issue of quality. It is quality which governs science, inspires excellence and is the criteria in competition. Sometimes, such quality is called "innovation", as in OECD assessments of national growth potential. Sometimes, scientific quality is labelled "excellence", as in national competition games and in many processes of massive organizational change in universities and research institutions. But whatever the additional implications, and the normative underpinnings, quality is the norm by which we are governed, the norm we tend to believe in, and it is quality we want. However, it is not clear what "quality" is today. I want to raise six points on the matter, starting with the nature of quality between myth and norm, the relationship between quality and equality, and problems with, as well as uses of, quality in science. Following that, I will suggest meanings and indicators to assess quality in science and to strengthen a vision of science which encompasses gender equality rather than continues to live without it.

Quality between Myth and Norm

Quality is a myth, but it is also the powerful leading norm we want to or should adhere to in higher education, in science. Certainly, there are differences in the type and ways in which quality reigns science. Depending on the disciplinary culture you live in, you may accept that people measure the quality of your work, as is most likely the case in the natural sciences, or you may reject any attempt to measure your scientific efforts as fuzzy, irrational or a violation of academic freedom, as is most likely in the humanities. This is part of the disciplinary tradition and habitus, which accepts quality assessments sooner or later. Beyond such differing historical developments though, there is generally a strong belief in science that "quality really counts".

One might argue that this is a myth, but not reality. And yes, most people will admit that there are politics in science, too. However, when it comes to one's own decision about the next faculty member, about the next grant, about the next review, *there is a tendency to uphold a norm of quality.* After all, it is quality which also brought oneself to a position, which is part of the scientific persona, an identity neither easy nor wise to destroy. Therefore, all attempts to document the role of institutional and social factors, of money and politics, of emotions and needs, of reputational capital or other context factors somehow

vaporize when it comes to the foundational myth that after all, it is quality which reigns in science. This seems to be an interesting case of partial cognitive resistance.

Such resistance has reasons. An attack on the quality regimes in science tends to reveal the privileges and the politics one may not want to see out in the open. I at least have not seen a researcher say in public that he is a "quota man", just as only very few women have publicly stated that they are "quota" or affirmative action women. Saying so would convey they got their position not because of objective quality assessment, but because of equality policies. Never mind that affirmative action is based on a fact of equal qualification and that equality rules do not apply without a preliminary quality assessment. Nevertheless, there is a rational resistance to discussing policies in science not only because the men's quota is in fact so large, but also because we want to maintain the myth: that quality counts.

Quality and Equality

Whereas most researchers and scientists see quality as a fundamentally good thing which they at some point believe works, equality is not only perceived as being rather different, it is also seen by many as a bad idea with regards to science. Especially in science, equality is not sexy, it is not a winner and it is not fun to pursue. It is not seen as intrinsic to the field. This is why in the world of science, men and often, successful women, tend to react funny when you really call for more equality: Suddenly, they turn impatient, angry, even aggressive, they take "it" personal, they do not want to be bothered with "such affairs".

Adverse reactions as these rest on solid cultural ground. Deep down and buried in Western philosophy, liberty and thus academic freedom and equality (and thus also, calls for fairness) have been conceptualized as actually colliding with one another rather than coexisting and fostering each other. Liberty is framed as an individual good, related to rational autonomy, while equality is construed as the site of the social, limiting personal freedom. Therefore, a call for equality is a disturbing call to most scientists. It is external to their cause, has nothing to do with their work, does not concern academic freedom and thus is not about academic performance.[9] Equality, then, is the business of women's representatives or some other administrative burden. Or it is the cause of those women in gender studies, who are therefore often confused with equality officers. Alternatively, the call for equality in science is seen as an outdated call

9 I have made this point a bit more in depth in Baer, Susanne (2006).

from the 80s, while those of us in the 21st century care more about "real" problems.

If we want to harmonize quality and equality, and install change in the world of science, we need to modify this. We need to argue and convince relevant actors that equality fosters academic freedom, because excellence can only develop under fair conditions. Equality, then, is an intrinsic factor of quality in science. One already hears this call at times, but we need to hear it more often. We also need to support it with data. Most importantly, we then need to be clear about what we mean when we say "quality".

Problems with Quality

Quality standards are changing, but both traditional and new standards are biased in several ways. Traditional standards of quality have not only been inconsistently applied, but are also inherently tainted. In short, the truth regime has been built on very specific assumptions of a universal mind, of a genius, applying specific kinds of othering, of exclusion. The traditional culture of science is heavily influenced by all kinds of forces, including religions, Occidentalism and colonialism, and, last not least, heteronormative constructions of gender. It is the culture of the disembodied scientist in a lab or in a library. This scientist leaves the body and emotions at the door (compare Barres 2006). And since bodies and emotions have been coded female, women stay out too, as researchers. More precisely, this scientist has no needs (since a private life takes care of those), has no vulnerability, is White and entertains particular civilized, mostly bourgeois habits. Thus, all others stay out of research too. Science, then, is the activity of affluent and able-bodied, White and Western rational beings, coded as Male. And since science requires this scientist to not acknowledge such limitations, to not have research be "disturbed" or "tainted" by such other irrational aspects, research focuses on "purely" disciplinary or "precise" work and "clearly" relevant topics.

In the traditional world of truth, gender is other, irrational, subjective, not relevant. Absent of a recognition of body and emotions, of location, relationships and needs, it is a specific myth of Western middle-class able-bodied heterosexual masculinity which came to count. Deep down in the cultural sediments of this knowledge universe, quality has been coded as such.

However, as much as science is a changing concept, and as much as our notions of gender change over time, quality standards are also changing. In the 21st century, there is an intense debate around new standards of scientific quality. As already mentioned, not all favour that debate. In the context of the knowledge

economy, in which knowledge becomes subject to measurement, such attempts to measure performance are sometimes rejected. Despite the fact that there is indeed much to add to visions of quality in science today, such rejection often seems to serve privilege rather than save academic freedom. What is more relevant to my point is that even today, quality standards tend to be biased.

In some cases, and particularly in the knowledge economy, research is deemed excellent if a product based on it is marketable. This is particularly true for engineering, natural sciences and medicine, but is also tends to swap into social sciences, including law and economics, as well as the humanities, such as in cultural studies. However, as long as traditional marketing as well as canonized "school" medicine take a paradigmatic Male, heterosexual, middle-class Western customer and a paradigmatic White, middle-aged, male patient into account, such criteria support inequality.

In other cases, research is deemed excellent if many colleagues take explicit note of it. This is what bibliometric performance tells you, to a degree. Bibliometric standards do not reveal the intensity of the reading, or the reception of thought. Moreover, as long as studies show that work beyond the mainstream and work by women is not referred to explicitly, but rather rephrased, and that women serve as illustrating rather than foundational, bibliometric quality standards are also a mechanism which fosters inequality.

In yet other cases, research is deemed excellent if *a selected few* consider it as such. This is called peer review in funding, peer review in publishing, and peer selection in hiring. As long as women and other others are not part of the selected few in positions of power, as long as people carry unconscious bias along, as long as admission procedures are not thoroughly blinded, and as long as people generally tend to favour similarity to themselves over difference, this is yet another mechanism which fosters inequality.

Current Uses of Quality: Objectivity and Blind Spots

In light of such problems with quality standards today, we need to rethink quality. From a gender equality perspective, quality is an ambivalent standard. There are at least two distinct strategies in which it is precisely quality which blocks equality, a repercussion of the historical normative stance.

I call the first strategy the objectivity-strategy. Here, quality is the argument used by the science establishment to preserve sex inequality regarding numbers. "Equality is political – and should not interfere with objective and neutral science". Or: "It is not important who does research or teaches – the output counts". Such arguments are employed to reject measuring quality per se. Again, I am

afraid this defends privilege rather than saves freedom. Such is the case with many references to academic freedom, targeting the economisation of the academy. After all, we intellectuals are deeply sceptical when market rhetoric enters our world. The economisation of the academy, the privatization of research, the output pressure – such innovation hinders creativity, it is said. We do not want to be a market. Rather, we emphasize the special nature of ideas, imply the image of the inspired mind, of thinkers and sometimes even poets. And in that ancient world, there is nothing to be measured, and there are few formal rules. At the same time, it is rather obvious that knowledge needs resources, is thus a market, and that there are many rules, however obscured. There has always been a market dynamic with competition as a driving academic force. The fight against "economisation" today is either a fight against inapplicable rules, and then rightly so, or, it is, and more often the case, rather obviously a defence of privilege.

Such resistance to quality then, resembles the chorus of anti-Bologna-songs, in their resistance to EU induced reform of higher learning. If performance is measured, reputation may suffer. If income is output related, some may put out more than the old boys, and they may not like this. Just as in the Bologna case: If I have to define what students will take home from class, I will need to rethink what I give them, and I may have to change things, and many do not like that. So the routines and privileges which come with the traditional style of academic freedom may end the minute the academy applies some rules, including the rule of fairness and transparency. If performance is measured fairly, specific men do not fare better by default. If teaching is valued, some women may fare better in the academy, but be sure, if teaching well is also valued and paid adequately, many men will go into teaching, too. And if leadership or excellence are about performing well, things may be a little different from the image many still hold.

The strategy of objectivity – "equality has nothing to do with science" – is also used when researchers reject gender equality in research teams as a funding criteria. This is when "purity" and "simply science" enter the room, and women and all other others tend to leave. I also see this strategy at work when some declare that the disciplines should be strengthened to ensure the quality of research, for "objective reasons". It is the disciplines which guarantee for canonical exclusion and which function as reproductive institutions of privilege. A call back to the disciplines may be a call away from exactly those emerging fields in which diversity matters and counts. And the moment the disciplines come back, women and other othered may tend to stay outside.

There is a second strategy in which quality is used to block equality. I call it the "blind spot" strategy. It is employed when gender equality is a criteria (success!), but when it is reduced to referring to numbers only. Then, researchers or

institutions argue that everything is fine since after all, there are some women there, and women in the field are an issue and work-life-balance is a goal too. This is a complicated case indeed, one which was not there 25 years ago and is instead a current phenomenon. Again, it is part of current rhetorics, the official political will: Everyone wants equality these days. Or put differently: It is my impression that all favour equality as long as it does not mean more than that, i.e., no serious change. It is very nice to point to blind spots – they are so tiny and so easy to fix. But I think we need to do more. Gender seems to be okay as long as it does not hurt. As soon as we target the real issues and would induce lasting change, efforts are rejected aggressively. Again, this makes things extremely difficult. It is important to note that when the blind spot-strategy is employed, we do not encounter a paradox. There have been discussions of whether we live in that paradox of success and immobility, but I believe it is not one. Rather, we do encounter an interesting effect of our fights for equality: We have come a long way, know a lot, and everyone has learned from us. As Peter Strohschneider, president of the German Science Council[10], said earlier this year, we now face the "lateral effects of our success": We made it on the level of rhetoric, but things tend to just stay there. Some (meaning a few) women in science are a nice idea ("nice" indeed), but more than that – really … And the tone implies that "more" would be crossing a tolerable line.

Under the veil of nice rhetorics, bias prevails. Indeed, we definitely do see better rhetorics. Yet we also see outright aggression, as some studies presented at the Berlin conference aptly document. You may say this is the usual story, that's how it goes. But I think we need to understand that nice rhetorics are the reaction to equality demands *of a specific kind*, while aggression is the reaction to *other demands*, demands for equality with quality.

There are many examples for this. Today, if you want extra funding for mentoring, or money for junior women, or a little centre of gender and equality at your institution, you may get it. And you will have the rhetorics in place. But if you want mentoring *and* money for junior members of scientific minorities, including women, *and* an equality office and a gender studies unit, and gender in all curricula and as part of required research questions, and transparent and accessible funding schemes and performance evaluation and men and women represented on all levels of the institution and and and … you face a fight.

10 The German Science Council (Wissenschaftsrat) is an advisory body to the Federal Government and the state governments. Compare Allianz der Forschungsgemeinschaften (2006): Offensive für Chancengleichheit von Wissenschaftlerinnen und Wissenschaftlern. 29.11.2006, but also Wissenschaftsrat (2007): Empfehlungen zur Chancengleichheit von Wissenschaftlerinnen und Wissenschaftlern.

The pro-equality rhetoric is a reaction to a specific kind of demand, and it waters down any more radical calls for real change. It is rhetorical progress in the face of factual immobility. One lateral effect of success is, then, loosing a radical grip on the issues. So I suggest putting some radicalism back on the agenda, true to the meaning of the term: Address the problem at the root, the radix.

The Meaning of Quality today

The quest for serious quality standards as a quest for fairness is, I believe, more than having some junior women, a small institution and interesting books out. Calling for quality means addressing the utter inequalities which still pervade academic life. Then, when we say quality, what do we mean?

There are many aspects of quality in science discussed today. Among them are educational profile, scope of issues covered in research, research and teaching activities manifest in publication records, knowledge transfer records or funding records, administrative activities, activities in networking, mobility or lack thereof, etc. What do you think really counts as an indicator of quality in research? A rather transparent and critical discussion is needed here. To be sure, quality is a standard we demand for all of science, including gender studies. But in all of science, we need to point out that the effect of gender as a category of knowledge deeply impacts upon how people judge work and what people think are the standards in their field. This means that we need to address the gender of quality.

If we say gender, we should do gender. This requires people active in gender studies itself to critically re-examine the state of the art in our own field. It means not accepting work on "women" as assumed quasi-natural entities, nor on the heuristic happy couple, "women and men". Work on the gendered nature of science reveals the brain's sexism out there, as bipolar heterosexism, men invisible, women othered, and it systematically points to the interwoven racism, classism, ageism and ableism in the fields.

Quality in science regarding gender thus challenges the basics in all fields, including some basics which have been called "gender", but in fact, are not. For example, it is great that in medicine, the "gender knee" has alas been "invented" in 2006, to fit women's knees as well as men's knees after decades of such surgery. Now some areas of medicine think of women, too, which is great and it does not hurt them either, quite the opposite really. But it is nothing more than a starting point.

As another example, it is also wonderful that in some areas economics is now starting to take account of the private sphere as a sphere of consumption and

production. Previously the private sphere has been neglected because the market seemed to be happening elsewhere for a long time. The ideological distinction between the public sphere as Male and the private sphere as Female pervades economics, political and social sciences, law, history and philosophy. If all these disciplines now start thinking of the private sphere as well, it is great. It may hurt a bit, since policies really tend to shift then. It is also an indicator of quality, since it is based on systematic considerations of gendered space. But again, it is not all there is.

Furthermore, and similarly, it is very interesting that there is work on women in history, or work on female figures in religions, or on women in national iconographies. It is an important first step on the way to adequate systematic research, including gender. Yet today, top quality is more than that. To reach that standard, work has to scrutinize the shape and effects of gender as a regime, a sexualized and heterosexual matrix. If research does that, it may be excellent.

Some research then, is not only good and interesting, but, when integrating a gender quality standard, may even be truly excellent. It systematically considers that gender is nothing without and yet more than only about men and women. For example, if gender is taken seriously, studies in engineering reflect upon practices of othering, upon ideas of masculinity and femininity in design, upon gender roles, role ascription and effects of stereotyping in engineering processes or user schemes, and more, I guess. Again, this means using gender as a category intersecting with ethnicity, class, age, or ability. Then, you may find excellence, based on the quality criteria you use.

Thus, a quality debate is not only an issue just for "them", but also a debate for "us". Researchers need to discuss quality and leaders as well as responsible administrators, including gender equality administrators and representatives, need to ensure that this discussion is participatory, transparent, and takes place under conditions of fairness. This will be easy in gender studies, since this field fosters a rather deliberative culture, but it will be more difficult to create such discussions in other academic fields. The grand scene which needs a quality debate is, as we all know, the mainstream of science. And there, transparency is key.

Indicators of Quality

Finally then, when we ask for quality in all fields and in all decisions which affect science and higher learning, what do we want to see? This discussion is only starting. Therefore, I shall rather tentatively suggest some indicators which might help to assess quality beyond bias in the future.

We want to see more than a nice reaction to a tiny blind spot and aggressively negative reactions to anything beyond that. In particular, we want leaders and peers to tackle male bonding[11], tackle biased images of excellence, tackle the contingency of disciplines if they preserve privilege rather than contribute to the world of knowledge, tackle the outrageously simplistic bias in review, tackle the quality assumptions about "interesting" research topics, tackle the sexism in the hallways, on publication boards, in the meeting rooms, in the offices – tackle the quality procedures and the standards of quality. The issue is, then, in positive terms, fairness and diversity, but in necessary negative terms: discrimination, stigma and bias, stereotype and prejudice. The issue is not a neutral academic concept, and more than a procedural strategy like gender mainstreaming.

Be sure that many people in science react very allergic to this kind of talk. If we argue that not all women leave science because they want children, and not all leave because their partners do not get a double-career-job, people get really nervous. "Do you want to say that we discriminate against anyone?" "Do you really want to say we have prejudices?" I think, yes, I do. The leaky pipeline, the floor below the glass ceiling, the space for token women – wonderful analytic terms – they capture effects of pervasive sexism, and systemic othering. Let the resistance indicate how on target you are.

And let us be clear: We want quality, for all. Try it out, in case you have not done so yet – and all those who have: Talk about it, pursue it, do not stop.

- Have people judge recommendations for candidates, coming from a female or coming from a male professor, from someone called Peter White, or from someone called Chantal Makeba.
- Have people judge papers, coming from people with female first names, male first names, or non-gendered first names, or with names which sound East German, or West German.
- Have people judge the value of a statement identified as from the woman in the room, or from a man, or from the "foreigner", or the disabled person, or the "old guy", or someone else not mainstream.

Do all this in different disciplines, in different settings, and change variables: gender, sexuality, ethnicity, class, religion, ability, etc. There is no one recipe for all, but there are projects which have pursued such initiatives. The Advance project at the University of Michigan seems to be a good example. Not that they quickly solved the issue. But it is clear that there is no progress without getting into the heads of those who decide about quality in science. It is a task for re-

11 An account of men in that role can be found in Siegele, Ulrich (1998).

searchers competent in gender studies to inspire the debate, and it is a task for leadership as well as gender equality officers to make sure the debate happens.

The goal then, subject to further deliberation, is that quality should govern according to the norm of equality; the issue is excellence under conditions of fairness. Since we live in a world of diverse options of knowledge, in a world beyond one truth, we need to take the opportunity to revisit quality and reframe it, beyond bias. We need to ensure the quality of research by inviting diverse modes of thinking, under conditions of fairness, beyond discrimination. We need to apply quality standards we agree upon as rigorously to ourselves as to the mainstream. This means excellence under conditions of fairness – in a world of science which uses all options of knowledge, and opportunities accordingly. That should move things a bit.

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The Success of Female Scientists in the 21st Century

Wanda E. Ward

The US National Science Foundation (NSF) has long considered a focus on women in science to be an important component of its strategic investment portfolio. The Foundation's mission is to promote progress across all fields of basic science and engineering through its investment portfolio in research and education, a high priority within that portfolio being broadening participation in science, technology, engineering and mathematics (hereafter, S&E). A number of NSF programs supported to broaden participation in S&E focus on women. These investments are based on the assumption that intellectual diversity in perspective benefits the overall scientific enterprise. They are also based on the recognition of the progressive decline in women's participation at advanced levels of S&E, especially relative to their representation in the general US population as well as their greater representation at earlier levels of the educational and career pathway (Ward 2005a). However, we are still not optimizing the benefits of such talent that can be brought to bear to help solve the most challenging scientific and technological challenges of our time. Looking at Nobel Laureates (whom Sharon McGrayne describes to be the aristocrats of science, the elite, the cream of the crop; 1993), only a paltry few women scientists have actually won Nobel prizes, despite the seminal role that many more played, with the prizes being awarded to their male collaborators (Ward 2005b). Some data points provided in the following section demonstrate this underutilization of talent.

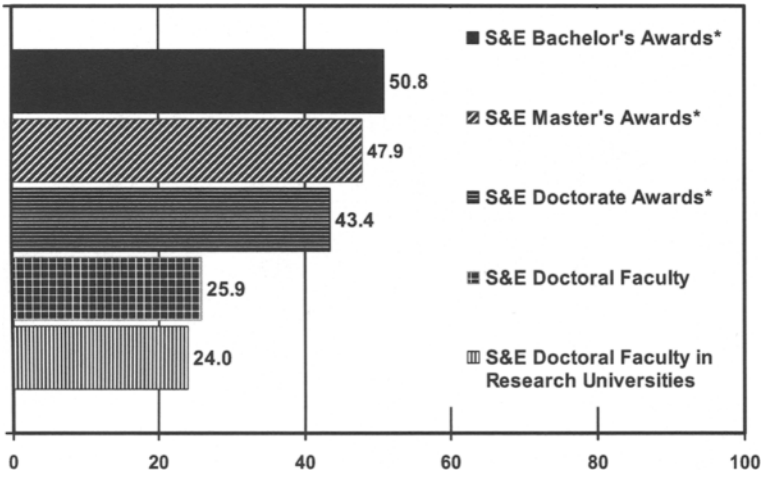
Relevant Data[1]

Women represented 50.8% of S&E bachelor degrees awarded in 2003, 47.9% of S&E master's degrees, 43.4% of doctoral degrees, and 25.9% of S&E doctoral faculty (figure 1). Looking within academe, data on women as a percent of full-

1 These data are intended to demonstrate the loss of talent at progressively higher levels and, thus, the continued need for efforts to increase the representation of women in S&E fields. It is recognized that the production of PhDs and faculty takes many years; the data do not depict the same cohorts of talent.

time S&E faculty by rank (i.e., instructors, assistant/associate/full professors) across a number of fields revealed a steady erosion of participation at higher levels. For example, instructors comprised 49% of S&E faculty overall in the US in 2003, while assistant, associate, and full professors comprised 36%, 28% and 15%, respectively. Similar patterns emerged in engineering (9% overall, 34% – instructor, 17% – assistant professor, 10% – associate professor, 4% – full professor); computer and mathematical sciences (18% overall, 44%, 27%, 19%, and 11%, respectively); life sciences (29% overall, 63%, 37%, 30%, 18%), and the social and behavioral sciences (37% overall, 61%, 52%, 40%, 24%), with a slightly different pattern in the physical sciences (15% overall, 13%, 24%, 18%, and 8%, respectively). These data also show the variation in representation across the fields. For example, variation is noticeably greater in the life and social/behavioral sciences at the associate and full professor levels than in engineering and the physical sciences (figures 2-3). Figures 4-5 show the representation of women scientists and engineers and women doctoral scientists and engineers, by employment sector in 2003.

Figure 1: Representation of Women in S&E: 2003



*US citizens and permanent residents.

Note for Figures 1-3: Faculty includes full, associate, and assistant professors plus instructors. S&E defined by occupation, not degree field and excludes medical sciences. Life sciences include biological and agricultural sciences. Source: NSF/SRS. Survey of Doctorate Recipients, 2003.

Figure 2: Women as Percent of Full-Time Doctoral S&E Faculty by Rank: 2003

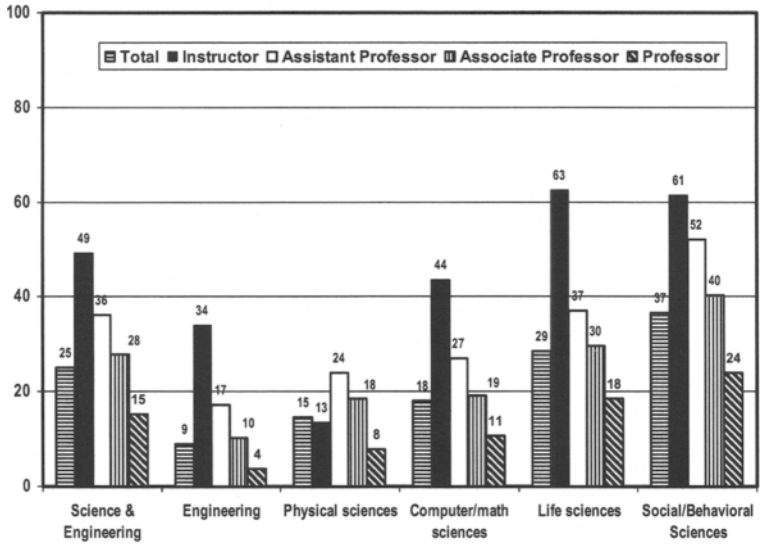


Figure 3: Percent of Full-time Doctoral S&E Full Professors Who Are Female, by Field: 1993 and 2003

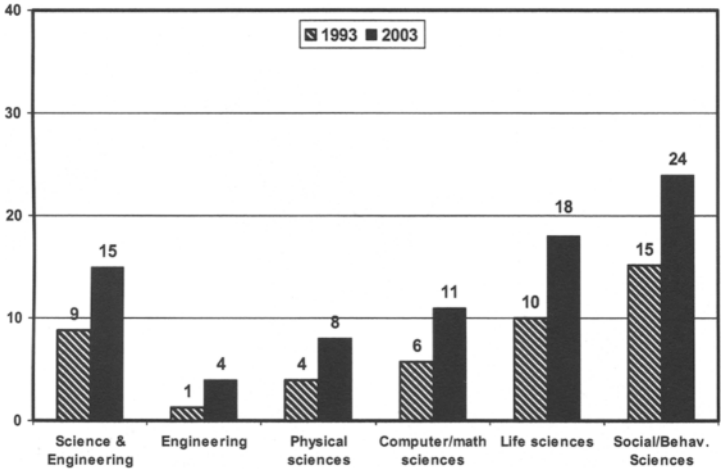
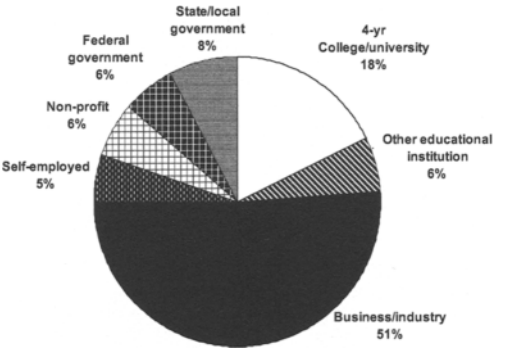
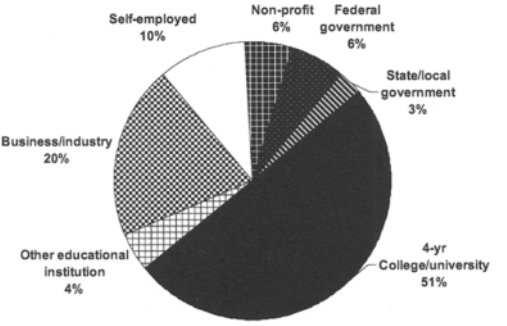


Figure 4: Women S&Es, by Sector of Employment: 2003



Note: S&E defined by occupation, not degree field and excludes medical sciences.
Source: NSF/SRS. Scientists and Engineers Statistical Data System (SESTAT), 2003.

Figure 5: Women Doctoral S&Es, by Sector of Employment: 2003



Note: S&E defined by occupation, not degree field and excludes medical sciences.
Source: NSF/SRS. Survey of Doctorate Recipients, 2003.

NSF Leadership

The participation of women in senior/executive leadership positions at the National Science Foundation has shifted over the past decade, e.g., in the Office of the Director as well as at the Directorate and Division levels (Clutter/Ward 2001, Ward 2004). In 2007, the Deputy Director was female (the first female Director served from 1998-2004). Additionally, females comprised 25% of Assistant Directors, 72% of Deputy Assistant Directors, 43% of Division Directors, and 62% of Deputy Division Directors (vs. 33%, 20%, 13%, and 45%, respectively, in 1997) (figure 6).

Figure 6: Senior Administrators at NSF

	Total NSF 1997	NSF Females 1997	Total NSF 2007	NSF Females 2007
Director	1	0	1	0
Deputy Director	1	0	1	1
Assistant Directors	6	2	9*	2
Deputy Assistant Directors	5	1	7	5
Division Directors	38	5	35**	15
Deputy Division Directors	20	9	13	8

* 1 vacant; ** 5 vacant. Source: NSF/SRS. Survey of Doctorate Recipients, 2003.

Key NSF Policies, Practices, and Programs

A number of key policies and practices have also guided NSF in its efforts on this front. Importantly, NSF is the only US federal agency with congressional authorization to promote diversity in S&E. The Science and Technology Equal Opportunities Act of 1980 authorizes the NSF to make awards to encourage the education, employment, and training of women in science and technology. Within the Foundation, a number of its disciplinary organizations, i.e., Directorates, have instituted practices to promote women's participation. For example, the Assistant Directors in the Directorate for Biological Sciences and the Directorate for Social, Behavioral and Economic Sciences implemented practices in the early 1990s to ensure women's participation in all conferences, meetings, workshops and international congresses for which those Directorates provided funds.

The Science and Technology Equal Opportunities Act of 1980 empowered NSF to implement its earliest programs to promote the participation of women, namely, the Visiting Professorships for Women in Science and Engineering Program (VPW), established in 1982. Our programs have evolved considerably over the past two decades, during which the Research Opportunities for Women Program (ROW) was established in 1985. In 1989, the then NSF Director established the Task Force on Programs for Women, that recommended the establishment of a new program designed to recognize and advance outstanding women faculty to the senior ranks. That recommendation led to the establishment of Research Planning Grants and the Career Advancement Awards for Women Scientists and Engineers program (RPG & CAA) in 1990, followed by the Faculty Awards for Women Scientists and Engineers program (FAW) in 1991. In 1997, programs for women were integrated and incorporated into the POWRE (Professional Opportunities for Women in Research and Education) Program.

ADVANCE

A major evolution in our thinking about programs to promote women in S&E occurred at the Foundation between 1998 and 2000. We engaged in extensive discussion about how best to address gender under-representation in these fields. That process resulted in the design of a new multi-component program, *ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Careers*. Formally implemented in 2001, the goal of ADVANCE is to increase the representation and advancement of women in academic science and engineering careers, thereby contributing to the development of a more diverse science and engineering workforce. Importantly, the development of this program took into account numerous factors that have created barriers that, cumulatively, have adversely impacted women's advancement into the higher ranks of academe. These factors include, among others, competing conflicts between work and family demands, unequal access to scientific resources such as space and supporting facilities, and differentials in salary and scientific awards. This multi-component program has evolved over the years and now consists of 3 types of awards:

Institutional Transformation Planning Grants (IT-Start) Awards are intended to support catalytic groundwork at institutions which are not able to dedicate resources to critical preliminary work, in order to ensure that a wide variety of institutions participate in ADVANCE. These include institutions with various scopes, sizes, experiences and perspectives, e.g. (but not limited to), primarily

undergraduate institutions, teaching intensive colleges, community colleges, Minority-Serving Institutions, Tribal Colleges and Universities, Historically Black Colleges and Universities, Hispanic-Serving Institutions, as well as women's colleges. In FY 2008, NSF expects to make up to 10 IT-Start awards, with durations of up to two years and total budgets of approximately $200,000 each, for a total of approximately $2,000,000 for the IT-Start portfolio.

Institutional Transformation (IT) Awards are designed to catalyze change that will transform academic environments in ways that enhance the participation and advancement of women in senior and leadership ranks of S&E. In FY 2008, NSF expects to award approximately 8 Institutional Transformation awards, at various award sizes, totaling up to $6,000,000 for the Institutional Transformation portfolio of awards.

Partnerships for Adaptation, Implementation, and Dissemination (PAID) Awards are designed to support the analysis, adaptation, dissemination and use of existing innovative materials and practices that have been demonstrated to be effective in increasing representation and participation of women in academic science and engineering careers. This category of award also supports proposals for developing national and/or discipline-specific leadership in enabling the full participation and advancement of women in academic science and engineering careers. In FY 2008, NSF expects to award up to 20 PAID awards at various award sizes totaling up to $5,000,000 for the PAID portfolio of awards.

From a broader NSF perspective, it is encouraging and exciting to see the development of a strong community of practice among the ADVANCE institutions. Awardees learn from each other, from the scholarship, and from their own programs and assessment. There are 30 different experiments underway that share common challenges, but take many different paths to institutional transformation. We have much to learn from what succeeds as well as what does not. NSF recognizes that transforming institutional culture does not happen in five years, but it is encouraging to learn about the many changes to practice, policy, and, in some cases, structure that are already underway and will provide lasting benefits. We are especially pleased to see that ADVANCE is integrating the scholarship on gender, social movement theory, systems theory, and bias and stereotyping. Informed understanding of the underlying causes of women's under-representation in science and engineering will certainly enable us to move farther ahead and with more lasting effect.

The Institutional Transformation Award component is important because it constitutes a significant expansion in the scale of programmatic effort and increase in the level of support provided for women's programs at NSF. The emphasis in these awards is on organizational behavior and change, recognizing that the lack of full participation at the senior ranks of academe often stems from

systemic challenges within the academic culture. Issues addressed through these awards include leadership involvement and attention to factors that are critical to success, recognition that "one size does not fit all" in the approach to transformation, and the diversity among women. IT projects are informed by research from a variety of fields, including sociology, psychology, organizational behavior, and management and business.

Examples of the types of activities supported include: guidelines for searches (e.g., recruitment tool kits), tenure and promotion decisions; release time for work on gender-related issues or the collection and analysis of institutional data; the planning and initiation of programs; examination and revision of institutional policies; and training for department chairs. NSF currently supports three cohorts of IT awards, having made nine institutional awards in 2001, 10 in 2003, and nine in 2006, for a total of 28 such awards to date.[2]

Learning from Experience

Much has been learned about the ADVANCE program over the past five or more years. A recurring theme that we hear from the community is how significant the NSF role has been in enabling institutional transformation. Beyond the funding level alone, awardees articulate how much prestige an NSF award provides them, thereby legitimizing and bringing credibility to their efforts to advance the status of women in S&E. In addition, NSF and awardees have learned the critical nature of requiring the integration of scholarship on gender into fabric of institutional transformation to help inform effective intervention and to avoid reinventing the wheel; the importance of mid-course refinement/correction; the benefit of administrator professional development, especially at the level of department chair; the need for strong institutional cooperation; and the ongoing need for quality data collection and access, evaluation and assessment.

ADVANCE awardees contribute to our understanding of the circumstances contributing to women's more equitable representation among science, technology, engineering and mathematics (STEM) faculties and in academic leadership. Building on this knowledge, ADVANCE institutions have explored varied strategies and practices to increase women's representation and advancement.

Some of the central ideas about which we have learned more through ADVANCE awardees' work on recruitment, retention, and advancement of STEM women in the academy include the following:

2 See www.nsf.gov/advance for a wealth of information from various award sites, including posted climate surveys, recruitment and retention toolkits, etc.

- Implicit biases about different categories of individuals affect most people's perceptions and actions. This effect is reduced by introducing people, even briefly, to the scholarly findings about the existence and impact of implicit bias. (Hunter College of the City University of New York, Georgia Institute of Technology).
- It is critical that men as well as women participate in creating the institutional transformations that lead to increased numbers of women in STEM (University of Michigan, Case Western University).
- Working with department leadership is crucial to the enhancement of the professional lives of faculty women that reduces attrition and increases advancement (University of Wisconsin, Madison).
- Small grants go far (Columbia University Earth Institute, University of Washington, Utah State University, for example):
  - For post-tenure women exploring a change in research direction.
  - For junior faculty with additional, family-care related costs, associated with professional travel.
  - To encourage exploration of possible collaborations with colleagues outside one's department.
  - To bridge the period between start-up funding and winning the first external award.
- Mentoring is important in career development at all stages (New Mexico State University):
  - There are many ways to structure a mentoring program and effectively mentor multiple sites, (including University of Rhode Island, University of Maryland, Baltimore County).
  - When mentoring is purely informally organized, women typically receive less mentoring than do men (Montana study).
- Transparency in personnel decision making is important for faculty retention (University of Arizona, University of Puerto Rico-Humacao).
- Attention to work-family balance is important for many faculty (women and men):
  - Helping a candidate's partner find work (Cornell University).
  - Providing information on elder care services in the community (Kansas State University).
  - Lactation center on campus (University of Rhode Island).

ADVANCE Program Assessment

Evaluation and assessment are important at both the project and program level. Considerable time and effort have been expended by ADVANCE awardees to assess their respective projects. Some have developed "toolkits" in order to broadly share and disseminate those efforts. At the program level, NSF also conducted a Committee of Visitors review and is planning an evaluation of the overall program. NSF employs this process annually to assess the integrity and efficiency of the system for proposal review and the overall health of a program through the accomplishments of its awardees. COVs consist of external experts (selected to help ensure programmatic coverage, broad and balanced representation, and independent judgment) who render their expert judgments to assess the strength, weaknesses and areas of needed improvement in a program.

In June 2005, the ADVANCE program undertook an assessment of its overall programmatic portfolio through a Committee of Visitors (COV) review.[3] The ADVANCE COV made a number of findings such as:

> "IT grants are the best hope for making major changes in Science and Engineering cultures and practices that will ultimately increase the participation of women in these areas. We would like to note that the positive change in climate and culture will have the effect of increasing the number of Americans (both male and female) who decide to pursue careers in Science and Engineering. This is neither a program for women only, nor for science only – this is a program that transforms an institution for the betterment of all. The impact has positively affected even schools that are not part of the program, as they see how ADVANCE galvanizes universities around the issues of gender equity and advancement."

In terms of programmatic future directions, the COV supported the implementation of the new component, Partnerships for Adaptation, Implementation and Dissemination (PAID) as a viable dissemination and synthesis mechanism to leverage successful practices from ADVANCE awards to broader audiences. It was also noted that there is a need to increase the representation of women of color across disciplines and types of academic institutions, while acknowledging that the latest ADVANCE program solicitations more explicitly attend to this issue. The following statement from a previous individual awardee also captures the impact of the program.

3 Source: ADVANCE. Committee of Visitors Review. 2005.

> "My NSF ADVANCE Affiliated Fellows award immediately improved my life, both professionally and personally ... I had long suspected that the lack of respect from those around me was due to lack of funding; personally, I was saddened to confirm to myself that the "success = money equation" affected many of those around me ... My ADVANCE Fellow status, with full financial trimmings, immediately gave me credibility among different divisions within...my host institution." (Fellow, January, 2004)

ADVANCE – Future Directions and Challenges

There are some notable directions for the future of ADVANCE. Consistent with input from the scientific community and the recent ADVANCE COV, the PAID component has been implemented, but is still in its very early stages. The potential value-add of the PAID component is the above-cited opportunity to very broadly synthesize and disseminate organizational/institutional scale best practices.

The COV also recommended increased representation of women of color through the program. The benefits of increasing the representation of women scientists of color include drawing from another source of intellectual diversity and optimizing scientific talent from all available or potential talent pools. It remains lamentable that women from groups underrepresented in S&E comprise only 2% of the S&E workforce and a comparable level of S&E faculty in four-year colleges and universities.

An especially exciting future opportunity for the ADVANCE Program is to forge international collaborations. Gender equality is arguably one of the most pressing global S&E workforce challenges that we face today. ADVANCE offers an impressive human resource development infrastructure with national and international benefits to all participants. This program already supports international activities, but I envision more substantive, strategic arrangements that are clearly mutually beneficial, with the collective potential to strengthen the global S&E enterprise.

The Program's ADVANCE Implementation Committee is taking up this issue further and we see the following activities to be appropriate and important for progressing ADVANCE program goals.[4] They include:

4 These international activities can be supported in the current solicitation (07-582) under the Partnerships for Adaptation, Implementation and Dissemination (PAID) component.

1. *Dissemination* to facilitate the exchange of information between US STEM academic institutions, STEM professional societies, and international academic institutions and international STEM professional societies on the lessons learned about recruiting, retaining, and promoting women in academic science and engineering careers. The international equivalents of the National Science Foundation should be included in these exchanges.
2. *International leadership development* to encourage the development of international leadership skills of US women in academic science and engineering through active engagement of this issue at the international level.
3. *Research on women in academic science and engineering* to support international studies such as examination of the impacts of international research on the academic careers of women in STEM, the study of institutional transformation in international institutions and organizations, and the synthesis of relevant international data on women in science and engineering. Support for international scientific research activities of individuals or networking projects to promote individual scientific research collaborations are not appropriate for the ADVANCE program. These activities are supported by the NSF research directorates and through the existing mechanisms available in the Office of International Activities.

There are a number of remaining challenges to ensuring the success of ADVANCE as an enabler of the advancement of female scientists in the 21st century as well as broader policy issues. At the program level, there is a continuing need to integrate gender scholarship into the fabric of the program. This might entail topics such as understanding and integrating the linkages among cognition, attitudes, and behavior and gender; and drawing on research on organizational culture, change, leadership, and gender in the academy. A second issue of paramount concern is that of sustainability. What happens at the end of NSF support for ADVANCE awards? What changes are in place and how will they be sustained? As mentioned earlier, NSF envisions that PAID will provide some measure of sustainability and adaptation. A number of ADVANCE Institutional Transformation awardee institutions are making commitments to continue the transformation that is underway within their academic communities. It is very encouraging also that the program has served as a catalyst for a number of non-ADVANCE awardee institutions to undertake various forms of institutional transformation to promote greater inclusivity, participation and advancement of women in S&E on their campuses.

Research Directions – The Role of Women in Interdisciplinary Science

An interesting line of research is underway regarding the role of women in interdisciplinary science. As we are all aware, some of the most important scientific undertakings of the 20th and possibly 21st centuries are underway right now, around the world. Examples include the areas of biotechnology; human and social dynamics; the science of learning with its implications for education and workforce challenges; nano-science/engineering/technology; and cyberinfrastructure (e-science). Many of these challenges and the scientific approach to them are interdisciplinary in nature.

Rhoten and Pfirman (2007) have been examining the role of women in interdisciplinary science. They are studying "whether intellectual preferences for and professional consequences in interdisciplinary versus disciplinary science might be influenced by individual attributes such as gender, race and/or ethnicity." They are also considering the relevant literature on topics such as learning styles, work preferences, and career behaviors that might elucidate gender differences in interdisciplinary science. To test for any evidence of "gendering" in interdisciplinarity, they examined four principal mechanisms by which researchers engage in interdisciplinary science: *cross-fertilization*, *team-collaboration*, *field-creation*, and *problem-orientation*. These researchers report that exploratory analyses suggest the following:

1. Female scientists may spend more time on individual cross-fertilization activities as well as borrow tools, concepts, data, methods, or results from more fields and/or disciplines at greater rates than their male counterparts;
2. On average, female affiliates (particularly female graduate student affiliates) do seem to participate in more "knowledge producing" team-collaborations but fewer "information sharing" relations across different fields and/or disciplines than male affiliates (Rhoten 2003);
3. Female scientists, (particularly, female graduate students) are more likely than male graduate students to pursue field-creation activities by pursuing domains that sit at the intersection of multiple fields and/or disciplines;
4. Many of the interdisciplinary domains have attracted higher female enrollment rates than their related disciplinary departments, even in areas where young female scientists are not predominant; and
5. Female students may be more likely also to engage in research that not only draws on multiple fields and/or disciplines but, in its problem-orientation, also seeks to serve multiple stakeholder groups outside of academe, especially in interdisciplinary domains concerned with environmental management and ecological conservation.

Rhoten and Pfirman point out that gender gaps in science are complex issues and suggest that interdisciplinarity, in addition to standing on its own as a policy goal, could serve as a strong entry point into scientific studies for women – particularly, younger women. At the same time, however, they acknowledge that using interdisciplinarity to attract women, as well as other underrepresented groups into science, is only ethical if it leads to stable and secure pathways through scientific and academic careers. They note that the scientific enterprise is itself hard, and moreso for those who pursue an interdisciplinary path – especially for women as well as other underrepresented groups who engage in interdisciplinarity. This is a factor that women must take into account when considering the consequences of pursuing interdisciplinarity.

A number of questions are raised by results, these researchers note. They include: How might one's participation in interdisciplinary research affect individual options and institutional directions? Does interdisciplinarity make it easier or harder, and at what stage of the career and for whom? Should all junior scientists from underrepresented groups be advised to shy away from interdisciplinary frames and practices, and problems or to perhaps wait until they have tenure?

They recognize that further research should seek to elucidate factors such as cognitive inclinations that might make individuals more or less prepared for different intellectual demands of interdisciplinary science and the interpersonal skills that may make them more or less prepared for the different relational conduct of interdisciplinary science vis-à-vis structural biases and/or discrimination across disciplinary fields that could present interdisciplinary science as a more or less attractive alternative.

The Road Ahead – A Call to Action

In a very recent publication by the National Academies of Science (2007), entitled *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering,* the Committee on Maximizing the Potential of Women in Academic Science and Engineering released its findings and recommendations of how to optimize the talent of women in academic science and engineering. Recommendations were made to university leaders and faculties, scientific and professional societies, funding agencies such as the NSF, and the US Congress – all key stakeholders of the US STEM workforce. These recommendations served as another "call to action" to ensure that women are attracted, recruited, retained, and advanced in the S&E enterprise.

Recommendations to US Federal Agencies and Foundations include the following: supporting workshops whose focus is to educate members of review panels, university chairs, and agency program officers about methods to minimize the effects of gender bias in evaluation; collecting, storing, and publishing composite information on demographics, field, award type and budget request, review score and funding outcome for all funding applications; allowing use of grant funds for dependent care expenses (e.g., to attend work-related conferences and meetings); creating additional funding mechanisms to provide for interim technical or administrative support during a leave of absence related to care giving; establishing policies for extending grant support for researchers who take a leave of absence due to care giving; expanding support for research on the efficacy of organizational programs designed to reduce gender bias, and for research on bias, prejudice and stereotype threat, and the role of leadership in achieving gender equity. The report also recommends that Federal agencies provide technical assistance on how to achieve diversity in university programs and employment (pp. 10-12). Agencies such as the NSF, the National Institutes of Health, and the US Department of Energy are taking various steps to address many of these recommendations. There are also steps to address these issues through interagency collaboration.

Addressing the Broader Under-representation Challenge – Innovation through Integration

Regarding programmatic future directions, we at the National Science Foundation are positioning ourselves to better enable the S&E community, notably, institutions of higher education, to produce a robust 21st century workforce. We are ramping up our efforts to foster creativity, connectivity, integration, and synergy – keys to innovation and broadening participation (Ward 2007).

I am encouraged to see the degree of community readiness already in place. In my travels across all regions of the US, I've seen and discussed efforts planned or underway on their various campuses to connect and integrate their various efforts toward the goal of deepening the collective impact of disparate projects into the fabric of their institution, their state, and/or region so that the interaction of elements or projects, when combined or connected appropriately, become a whole.

There are a number of efforts underway at NSF to enable these developments. Increasingly, we base our program designs on research and theoretical frameworks that are generated from social science/science education research.

The Louis Stokes Alliances for Minority Participation (LSAMP) program is one example (reflecting what is commonly known as a student "retention model").

We in the Education and Human Resources (EHR) Directorate are moving to a more portfolio-driven approach that links our programs to several areas of emphasis. For example, we have linked several programs with a common interest in broadening participation in STEM fields (i.e., women, under-represented minorities, and persons with disabilities). NSF has a distinct role in STEM education because it supports the research and development of education innovations. Thus, much of what we do helps build the STEM knowledge base itself not only in basic research, but also on the effectiveness and understanding of what works with intervention programs.

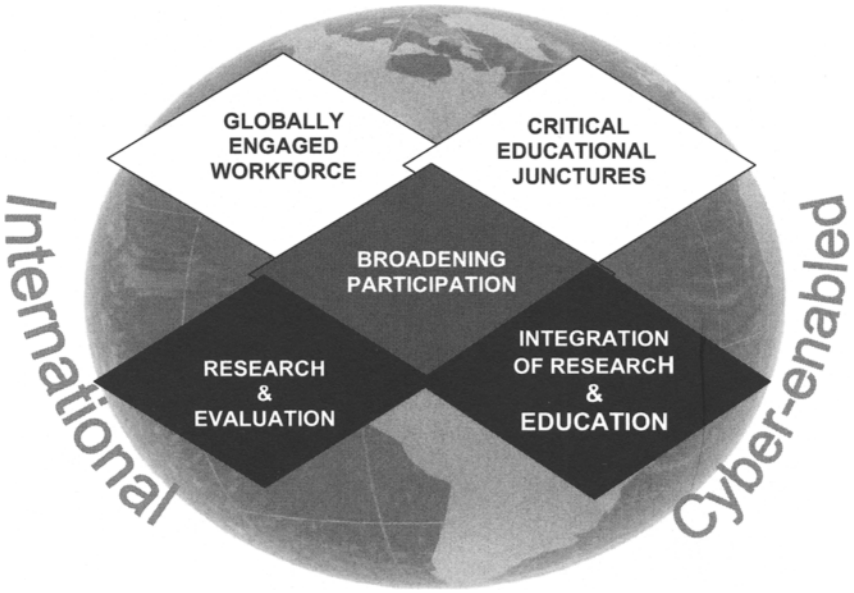
A portfolio-driven approach to broadening participation allows us to connect a multiplicity of efforts from a wide-ranging group of experts who can provide insight from various perspectives; the ability to leverage our resources in a manner that promotes institutional alliances and partnerships that can be transformative in nature and sustainable; and the building of an inter-disciplinary community of scholars who are committed to a common goal. An example of such efforts is the new Alliances for Broadening Participation. As described in the most recent solicitation, this structure links the LSAMP program, the Bridge to the Doctorate (a component of the LSAMP program) and the Alliances for Graduate Education and the Professoriate (AGEP) program. It also links this alliance to other EHR programs, such as the Centers of Research Excellence in Science and Technology (CREST) program, the Integrative Graduate Education and Research Traineeship (IGERT) Program, the Graduate Research Fellowship Program (GRFP), and NSF Research Centers.

We in EHR are now preparing to advance such efforts further, through what we currently refer to as *"Innovation through Institutional Integration."* This initiative is still very fluid, but emphasis areas include: broadening participation – groups under-represented in STEM (i.e., women, people of color, persons with disabilities); types of institutions; geographic regions; critical junctures (the facilitation of smooth transitions or progressions from one level of learning to the next); integration of research and education (a longstanding core NSF strategy, encompassing emphasis on both interdisciplinarity and disciplinarity); and research and evaluation (relevant knowledge bases and tools for assessing the effectiveness of what is planned and undertaken).

Such an effort is envisioned to support greater intra-institutional and inter-institutional collaboration and interaction across NSF-funded projects from among selected flagship programs. These include NSF-supported programs designed to broaden participation (of women, people of color, persons with disabilities); types of institutions; integrate research and education; address critical

juncture; and increase the relevant knowledge base surrounding these issues (figure 7). We believe that this portfolio of programs offers a unique human resource development infrastructure with national and international benefits. Broadening participation will be a key emphasis area of this activity.

Figure 7: Innovation through Integration



Source: Ward 2007

We envision that this broader institutional integration effort will support capacity building efforts, student research experiences, adaptive learning experiences, cyber-enabled learning activities that promote integration and synergy, international experiences, and innovative curricula activities. This effort is expected to better integrate the existing activities and lead to innovative institution-wide benefits. ADVANCE will be a key program included in this effort that focuses on women.[5]

5 These remarks reflect evolution of thinking over the course of many engagements in similar national and international forums and draws from that work. ADVANCE program staff is acknowledged for their contributions to this document.

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Cooling Out? Gender and Research in Switzerland

Maya Widmer, Regula Julia Leemann, Heidi Stutz, Katrin Schönfisch

In Switzerland, too, the numbers paint a clear picture: While the gender ratio is practically even amongst those beginning tertiary study[1] the proportion of women falls consistently from graduates to doctoral students, post-docs and habilitation candidates, right up to professorships. The proportion of women professors in Swiss universities makes up barely 14% of the whole in 2006. Indications are that this proportion is increasing steadily, although slowly. This effect, which can be quantified by analysing gender ratios across particular groups, is what we neutrally call a 'loss rate', resulting from gender-specific elimination or exit points that exist at all levels of the academic career ladder. As the numbers show, this loss rate is greater for women than for men and increases the higher up the ladder one goes. The consequence is the well-known truncation effect, metaphorically known as the 'leaky pipeline'.[2] The gender-based selection processes leading to such truncation seem to vary according to discipline and status, as well as in scale.

The Swiss National Science Foundation (SNSF), the most important institution for the support of research in Switzerland, wishes to evaluate this phenomenon in more depth, but repeatedly finds itself confronted with the same problem. 33% of all early-career research applications received by the SNSF for fellowships in 2006 were submitted by women, while 32% of the applications in the advanced researcher category and only 26% of the applications for funded SNSF-professorships came from women. In proposals for the project funding category, aimed at researchers who are already established, the applications by women made up only 19%.[3] In the last category, involving proposals submitted to 'project funding', a pilot study carried out by the SNSF in 2004 in three se-

1 At least on average, though with significant deviations according to discipline in favour of more men or more women.

2 See the brochure: "Chancengleichheit von Frau und Mann und Gender Studies" by the Swiss Federal State Secretary, 2007. (http:www.sbf.admin.ch/htm/dokumentation/publikationen_de.html (in German and French).

3 All experienced researchers at Swiss universities or Swiss research institutions may submit applications for the project funding category. A professorship is not required.

lected disciplines (psychology, law and chemistry) showed that the number of applications did not correspond to the actual pool of possible applicants.[4] Comparable indices exist in other countries, where indications suggest fewer applications are being submitted by women than by men.

Objectives of the Study

The SNSF has thus commissioned a study, which is being carried out by a research collective consisting of the Pedagogical University of Zurich (PHZH), the Centre for Labour and Social Policy Studies (BASS) and the Federal office of Statistics (BFS). The study, undertaken by the team of Regula Julia Leemann (PHZH), Heidi Stutz (BASS) and Katrin Schönfisch (BSF), began in October 2006 and will continue until the end of June 2008. It has two main objectives:

Quantification of gender-specific loss rates (descriptive aspect): Gender-specific loss rates are to be quantified by disciplinary field and for the Swiss academic system as a whole. In this way, the emigration and immigration of academics into and from other countries can be taken into account. Further, the career trajectories of next-generation academics are to be described, especially with regard to the follow-on effects or receiving individual and/or project funding from the SNSF.

Analysis of the reasons for gender-specific loss rates (explanatory aspect): The aim is to investigate the reasons, both internal and external to research institutions, for the rates of loss. Here the particular interest lies in the role played by the SNSF.

The target groups under investigation are next-generation researchers across all qualification levels (doctoral, post-doc, habilitation). Those academics who have left research careers are also included. There are two reasons for concentrating on next-generation researchers: On the one hand, the disadvantages and difficulties for women occur above all in the pre-professorship phases of the career path. On the other hand, these early-career trajectories can be investigated using various methodological approaches, thereby illuminating different aspects of the biographies and leading to a more complete picture.

4 The pilot study was done by Yvonne Jänchen and Kristina Schulz, University of Geneva, for the summary see: http://www.snf.ch/SiteCollectionDocuments/wom_ber_GEFO.pdf (in German).

Factors Involved in the Loss Rates

In analysing the reasons for the exclusion and/or elimination of women from the academic career path, we must differentiate between factors that are external to research institutions (such as age, family situation and care responsibilities, personal motivations or social background) and factors that are internal to research institutions (such as a male-dominated research culture, disciplinary support through mentoring, ties to informal and formal networks within the scientific community, or integration in universities). Research-internal factors also include access to and support by measures and policies for research advancement, including those aimed at next-generation academics. Greater accessibility is achieved through the intentional directives of research advancement policies and equal opportunity politics than through the support and integration offered by individual university lecturers, or by the institutions and the scientific community. These multiple factors have not only a direct but also an indirect influence on careers, as they mediate the achievements required for a successful academic career (e.g., funding proposals, networking, job applications, publications, mobility, motivation).

Gender-specific loss rates are also characterised by an oscillation between self-exclusion (withdrawal) and social exclusion, though it is often not possible to determine each element precisely or to separate them out from one another. What interests us in the present study is how the research funding and next-generation support provided by the SNSF in particular, but also by the government and other institutions, influences successful career advancement in relation to research-internal and research-external factors.

In Switzerland, unlike other countries, there are few alternatives to the SNSF when it comes to seeking support for one's research. The SNSF is the largest funding body in Switzerland for all disciplines. It remains an independent foundation, even though it is financed exclusively by federal funds. Its total budget in 2006 was approximately 300 million Euros (491 million CHF). The largest portion, 64%, went to the support of projects in the category of 'project funding' (which indicates a free choice of research topics); 19% went to the support of individuals (fellowships, funded SNSF-professorships, etc.), while 13% went to targeted research. For the purposes of tracking project funding, the SNSF divides the range of disciplines into three categories: humanities and social sciences, natural sciences and engineering, and biology and medicine.

The proportion of applications from women is particularly small in the project funding category. In 2006 the humanities and social sciences received 28% of their applications from women, the natural sciences and engineering 9.5%, and biology and medicine 22%, resulting in a total application ratio of 19.5% of

all submissions being made by women. The reasons for the low number of proposals are unclear and demand a more full investigation. The SNSF is particularly concerned with uncovering the reasons for this low rate of participation and learning whether and to what extent the SNSF's own funding policies contribute to the loss rates, in order to optimise the effects of its gender equality measures.

Research Design

The commissioned study 'Gender and Research Support' (GEFO) aims to investigate the scope of and reasons for the gender-specific loss rates. To achieve this, it has set itself five foundational tasks, each arising from a different perspective, in a combination of quantitative and qualitative methodologies. The target groups, as mentioned earlier, are the next-generation researchers (doctoral candidates, post-docs and habilitation candidates). The timeframe for the investigation spans from 2002 to 2007, which includes a historical aspect to the gender-specific loss rates.

Module 1: Evaluations from the Swiss University Information System (SHIS)

Using statistical data gathered over the course of the last decades by the Swiss universities belonging to this system, the analysis processes individual-based data calculating the gender-specific loss rates in the doctoral and habilitation phases as well as the average length of time for PhD and habilitation completion, respectively.

Module 2: Supplementary Module and Evaluations of the University Graduates Survey of 2002 (Panel 2003/2007)

University graduates from 2002 (first degree as well as PhD) were surveyed for the second time in early 2007 about their projected career paths, in the form of the Swiss University Graduates Survey conducted by the Federal Office for Statistics (BFS). The GEFO project inserted a supplementary element into the existing questionnaire on the theme of research or academic trajectories (e.g., gaining qualifications, research activity, scientific networks, academic integration and support by individuals and programs, publications, etc.). The next-generation academics were asked in particular about applications they had submitted to the SNSF and other institutions, and how successful these applications had been. The analysis of this data will support conclusions to be drawn about questions of access to research support and its effects on career trajectories.

Module 3: Analysis of the System for Application Administration at the SNSF

A quantitative analysis of the system for application administration at the SNSF makes it possible to prepare gender-specific personal and proposal profiles from the first application to the SNSF for project support (as either a main or co-applicant) and from applications for a funded SNSF-professorship by next-generation academics. The team aims to trace the effects of various factors such as gender, age, disciplinary field, linguistic region or previous contact with the SNSF (such as applications for individual funding, collaboration on an SNSF funded project) and calculate their influence on the success of an application and the amount of funding received.

Module 4: Content Analysis of Selected Application Dossiers

Approximately 40 randomly selected dossiers from four disciplines (medicine, physics, linguistics and law), consisting of 20 applications by women and 20 by men (150 dossiers in total), are to be systematically evaluated in order to determine further gender-specific differences amongst personal profiles.

Module 5: In-depth Interviews

The aim of these in-depth exploratory interviews with next-generation academics from across the disciplines is to evaluate their subjective experiences, motivations and reasons for undertaking the academic career path. The interviewees come on the one hand from the sample provided by the University Graduates Survey, where those surveyed had an opportunity to indicate their willingness to take part in an interview (Module 2), and on the other hand from the system for administrating applications at the SNSF (Module 3 and 4). The interviews will seek to clarify the following questions:

- How have particular research-internal and research-external factors made it harder or easier to pursue an academic career path after completing the doctorate?
- What difficulties and avenues of support have the interviewees experienced?
- What insecurities and doubts have they had to overcome or are still in the process of overcoming?
- What career alternatives do they see before them?
- Which, if any, applications have they made for either personal or project support at the SNSF or other institutions?

- What has their experience been with these applications? This question seeks to elicit the factors that have led to a successful application record as well as those leading to an unsuccessful record.

Initial Results

Module 3: Evaluations of the System for Application Administration (GA) at the SNSF

A statistical evaluation has sought to answer the following questions:

- What differences exist between the application records of women and men amongst those who first applied to the SNSF for project funding between 2002 and 2006 as either main or co-applicants, and amongst those who applied in this period for a funded SNSF-professorship?
- Do women and men with comparable personal and academic profiles appear equally active in their applications?
- Do women and men with comparable personal and academic profiles have equal funding and career opportunities?

The fundamental data for this part of the study comes from the system for application administration (GA) at the SNSF. To delimit the field of next-generation academics, information was taken from the GA database about everyone who submitted their first SNSF application for project support, as either a main or co-applicant, between 2002 and 2006, as well as those who applied for a funded SNSF-professorship for the first time in the same period. In this case, it did not matter whether the applications were successful or not. Those individuals who were already 45 or older in 2002 were excluded. All applications submitted by individuals in this period were included, such as projects in which they had appeared as co-applicants as well as all fellowship applications. One difficulty that arose was that the GA did not have access to information about all the variables relevant to the investigation, such as the applicant's subject of study at university or present position. The results thus hold for only those variables about which information was readily available. In addition to the descriptive evaluations, the team used regression analysis to isolate gender-specific differences in relation to various indicators of success, simultaneously controlled against other influences. A range of independent variables come into consideration as explanatory factors: gender, age, nationality, linguistic region, disciplinary subject, etc. The most

important results for the total sample of 2413 people, 24% of whom were women, are as follows:

- When women submit an application they do not request any less money for their projects than men (controlled against other influential factors under consideration). This holds for both the total sum per person and the average sum requested per application.
- When women are successful in their applications, they do not receive any less research money for their projects. This holds for both the total sum per person and the average sum approved per application.
- Women who submit applications to the SNSF do so no less frequently and on average are no less successful than men.

The applications for funded SNSF-professorships (560 applicants in total, of whom 26% were women) show results similar to those of the entire sample. When women submit an application to the SNSF for a SNSF-professorship, they do not differ from their male colleagues in the conditions of their application (total sums requested, average of requested sums) or in their chance of success (sums received, average of sums received).

Module 4: Content Analysis of Application Dossiers to the SNSF

The aim of analysing the application dossiers submitted to the SNSF is to strengthen the quantitative evaluation capacity of the system for application administration. This requires, of course, observing strict data-protection procedures. In particular the analysis of curricula vitae and publications lists makes it possible to gain important new insights about the educational trajectory, career trajectory, international mobility and symbolic and social capital of the applicants. The following questions are addressed by the analysis:

- To what extent can the curricula vitae and publications lists in the application dossiers be differentiated by gender?
- Do women and men with comparable personal and academic profiles appear equally active in their applications?

The investigation makes no attempt to distinguish amongst the applications based on the academic quality of proposals. It is thus not an attempt to compare degrees of excellence, but rather to compare the academic careers of men and women in the same disciplinary subjects according to particular variables. The data pool draws on a random sample of approx. 20 women and 20 men from

disciplines that have been largely under-investigated, namely human medicine, law, linguistics and literatures, as well as physics. In total, 150 dossiers were selected and evaluated.

The methodology applied was quantitative case analysis. The first step involved descriptive evaluations of each disciplinary field. This suggested some gender-specific differences, but these could not be counted as statistically significant because of the small size of the pool. In a second step, a Cox Regression over all disciplines was calculated as a more comprehensive form of analysis. Two concrete questions can be approached with this method:

- What affects the length of time between PhD completion and the first application for funding? Do men submit proposals more quickly than women?
- What affects the length of time between PhD completion and the first successful application for funding? Do men submit a successful proposal more quickly than women?

The results of the optimised Cox model for Question A show no gender specific differences, but a clear effect of children for women as well as for men. Ten years after the dissertation 84% of the researchers without children but only 56% of the parents have submitted their first funding application to the SNSF.

The results of the optimised Cox model for Question B show that, of all the explanatory variables available, gender has no significant influence. Again, however, for people with children the chances of their submitting a successful funding application in any given year is lower than for people without children. Whereas fifteen years after their dissertation 80% of researchers without children had at least one successful application the same applied to only 62% of those with children; the proportion of unsuccessful parents remains higher.

These initial results concern only two of the five modules. The final results of the study will be available at the end of 2008 on the website of the Swiss National Science Foundation (www.snf.ch). The findings will then be published in book form in 2009.

Evaluation of Gender Equality Policies

Andrea Löther, Elisabeth Maurer

This paper provides an analysis of the context and the preconditions of evaluations in the area of gender equality policies in tertiary education.[1] As this article will show, the process of evaluating gender equality policies in higher education is embedded in a contradictory context of interests and conflicts, of ensuring quality and allocating resources. Nonetheless, evaluations are becoming an increasingly important topic, not least because they constitute one of several instruments used to ensure quality in gender equality policies. In addition, evaluations are, or at least can be, instrumental in political processes and political decisions within a university. This is true for evaluations in all fields but specific fears about evaluation arise where gender equality policies are concerned. There are several reasons for this. One is that evaluations could be used to cut spending. Another reason is that evaluations might also be used to legitimize earlier political decisions that were insensitive to gender equality considerations. A third possible reason is that some gender equality policy and gender research professionals have encountered evaluations which did not take the particular conditions of gender equality policies into account due to a lack of knowledge and experience in the field (Widmer/Levy 2006, Maurer/Wecker 2003: 24).

Despite these risks, evaluations offer the chance of improving gender equality policies systematically in higher education. They provide the basis for a professional reporting system and contain relevant statistical and qualitative data. This can aid the integration of gender equality policies into a university's regular

1 In this text we have used the term "Gender Equality Policies" for "Gleichstellungsmaßnahmen" and "Gender Equity" for "Geschlechtergleichheit". While preparing this paper we discovered an unclear usage of equality and equity. We refer to the German sociologist Gudrun Axeli-Knapp who distinguishes three strategies in equal opportunities "Gleichheit", "Differenz" und "Dekonstruktion" (see Knapp 1998). Beside this, the American feminist Nancy Fraser influenced our thinking. She refers to Gender Equity as long term and comprehensive goal whereas equality in her understanding is more an action in the sense of equal treatment of men and women (see Fraser 1997). In the context of the European Conference on Gender Equality in Higher Education there is a broad understanding of "equality". This is why we use "Gender Equality Policies" to translate the German word "Gleichstellungsmaßnahmen". Nevertheless it seems to be necessary to clarify English terms and the translation from different national languages on what we mean when we speak about Gender Equality.

monitoring and controlling. This article provides an analysis of the context and the preconditions of evaluations in this political field.

Quality Requirements for Evaluations in Gender Equality Policies

Evaluations in the field of gender equality must naturally meet the common quality standards for any kind of evaluation. Evaluations meet the following generally accepted standards: utility (an evaluation must satisfy the participating groups' need for information), feasibility (it must be practicable and politically feasible), propriety (it bears a legal and ethical responsibility), and accuracy (the rules of sociological investigations must be adhered to; (Widmer/Rothmayr et al. 1996: 24). This set of generally accepted evaluation standards were published by the Joint Committee on Standards for Educational Evaluation 1981/1994 in English (Joint Committee on Standards for Educational Evaluation 1994). In 1999/2000 the *Handbuch der Evaluationsstandards* was published in German (Widmer et al. 2001). Recommendations for the use of these evaluation standards can be found under www.seval.ch.

Evaluations in the field of gender equality, however, have additional requirements to fulfil if they are to be taken seriously. If – as mentioned in the introduction – we assume that qualitatively good evaluations can bring about a systematic and calculated improvement in gender equality work, we also assume that such evaluations increase and professionalize gender-relevant expertise for the target groups. Here we refer to the work of Angelika Wetterer, who differentiates between three kinds of gender knowledge: firstly, gender expertise, created through the professionalization of gender politics; secondly, scientific gender knowledge, which results from gender studies and feministic theories; and thirdly, general gender knowledge ("alltägliches Geschlechterwissen"), which refers to common assumptions about gender relations and enables a general acceptance (Wetterer 2007). In addition, good evaluations enhance the significance and use of gender equality work.

In devising and implementing high-quality evaluations, it is important to take into account professional experience stemming from gender equality work as well as results from gender studies. For example, evaluations must take note of the fact that, to promote gender equality three different elements have to be thought about: First of all, equal treatment policies (treating women exactly like men) run the danger of neglecting the disparity between men and women's prospects and circumstances in both science and society. Secondly, they must also take into account that difference policies ("difference" means treating women differently insofar as they differ from men) run the risk of reinforcing gendered

prejudices and stereotypes. Thirdly, evaluations must also not oversee that (de)construction policies (policies used to question and reduce gendered stereotypes and prejudice) are only effective if they also address necessary structural changes such as men assuming an equivalent role in care work (Knapp 1998, Fraser 1997). This aspect must not be underestimated when being applied in practice – those of us implementing gender equality in today's society are faced with the following dilemma:

a. In the context of current university policy, political measures in gender equality are predominantly situated in the context of gender mainstreaming or diversity management. Seen broadly, such measures have to do with economic considerations and aim at optimizing the utilization of human resources. Here, an evaluation must ask whether some specific economic goals were achieved or not. If one of the measures being evaluated proved successful, it might be further implemented. Such an evaluation also stands a good chance of being accepted by the decision-makers.
b. Research in gender equality work, however, does not focus solely on economic arguments. The question of effectiveness and sustainability can be equally significant. Indeed, gender equality work based solely on economic arguments might even have undesirable side effects: They could compound gender inequality because they ignore either the unequal social standing of men and women, or the stereotypes and prejudices that come into effect in the rating of men's and women's work.

The dilemma is further exacerbated by evaluations or other studies whose results can not be incorporated into the accumulated body of knowledge in the area of gender equality or into the university decision-makers' plans. That such knowledge be incorporated would in our view be necessary, in order to make the evaluation acceptable and applicable in both its design and its results and in order to obtain the necessary financing (Wetterer 2007: 14). The complex demands on evaluations in the area of gender equality work could even in the worst-case scenario lead to the discontinuation of gender equality policies, or important research results in gender studies might not be brought to bear in the evaluation design.

When discussing evaluations, it is moreover important to look at another gender aspect, namely the level of general gender knowledge ("alltägliches Geschlechterwissen"). It is extremely important for the credibility of an evaluation, particularly given that an evaluation should be highly relevant to, and applicable for, the groups being evaluated. General gender knowledge enables us to function in a scientific context. However, general gender knowledge is different

from professional gender expertise and from scientific knowledge. We consider it essential that all persons concerned with evaluations be sensitised to this.

Basics

What exactly are we talking about when we say "evaluating gender equality policies"? There is a vast difference between evaluating the equal opportunity policies of a university, its equality programmes and projects, and its gender equality office.

An evaluation of a university's equal opportunity policies concerns the whole university. Accordingly, the head of the university (president, pro-vice chancellor, or whatever title he or she has) carries ultimate responsibility for the objects of the evaluation here, not the equal opportunities officer. Evaluators look at statistics, the implementation of equal opportunity policies, internal organisation and processes, personnel and financial resources devoted to gender equality policies, and at programmes, projects and their outcomes. An example of this kind of evaluation is the evaluation of equal opportunities and affirmative action in Austrian universities that took place in 2005/2006 (Österreichische Rektorenkonferenz (ÖRK)/Österreichische HochschülerInnenschaft (ÖH) et al. 2007). In this type of evaluations, there is a risk that the equal opportunities officer could be held responsible for problems and failures even if she has no authority. In addition, the equal opportunities officer may fear that an evaluation of the university's equality policies is an assessment of her work and capabilities. It must be clearly stated that the key actor evaluated here is the head of university. Further, one result of this type of evaluation may be that gender equality is integrated into the university's regular monitoring and controlling processes. This includes a definition of short and long term goals, agreement on measures and indicators as well as the annual publication of statistics illuminating the gender equality situation. Those involved in this process include the head of the university, who is responsible for controlling the advancement of equal opportunities, and the departments, which utilize the gender expertise of the gender unit or of the equal opportunity officer.

The evaluation of individual measures, programmes or projects concerns those persons and institutions responsible at a political, financial and organisational level, and/or those persons and institutions responsible for implementing these measures. At the moment, this kind of evaluation seems to be the most common. Examples include the evaluation of the Swiss Federal Program for promoting equal opportunities of women and men at university level (Müller/Bachmann et al. 2007, Bachmann/Rothmayr et al. 2004), the evaluation

of German programmes supporting women post-docs (Körber-Weik 2004, Krischer 2004, Lind 2004, Schindler/Stewart 2004), the evaluation of the Swiss graduate programme "Knowledge – Gender – Professionalisation" (Schreiterer 2002, Leemann/Maurer 2000), or the evaluation of projects at other individual universities.[2] Unfortunately, due to a lack of funding, these evaluations are often conducted by members of the programmes themselves and thus lack an external perspective. Another problem is the fact that external agencies charged with evaluations do not have gender competence or knowledge about the specifics of this political field.

Evaluations of specific offices of equal opportunities are very rare (here we mean the equal opportunities officer, the officer of women's affairs or the equality unit). Such an evaluation is useful when integrated in the evaluation of all units and parts of the university. We are familiar with only one example of this kind of evaluation – the evaluation at the University of Zurich.[3]

Further differentiations stemming from general evaluation research help clarifying our thinking about the evaluation of gender policies (Stockmann 2006, Löther 2004).

First, the objectives of an evaluation must be clearly stated. These may include output, outcome and impact (Widmer 2004). Output evaluations study the organisation, resources and activities and their relevance to the object of evaluation. Outcome evaluations look at a programme's achievements and its effects on the participants and the target audience. Impact evaluations also try to identify longer-term and unintended societal effects. When evaluating the impact of a programme or an equal opportunity unit, we can, for example, take note of cultural and organisational changes within an organisation. Another aspect of impact evaluations are unintended effects, if they are based on equality (equal treatment), difference and (de-)construction as equity strategies (Fraser 1997), since solely evaluating gender equality may mean neglecting men's and women's differing opportunity structures. For instance, focusing on childcare as a problem concerning primarily or only women scientists may result in reinforcing gender stereotypes instead of breaking them down. Furthermore, different evaluations require different methods. The use of quantitative and qualitative methods such as standardised questionnaires or qualitative interviews are neces-

2 An overview of the evaluations of projects run within the German programme "Equality in Research and Teaching" can be found at: http://www.cews.org/hwp/ (Grundlagen – Publikationen). See e.g., Wender/Popoff 2005, FrauenFörderKommission der TFH Berlin 2004, Weiß 2004.

3 The evaluation of the "UniFrauenstelle – Office for Gender Equality" as part of the evaluation of all units of the University of Zurich is conducted by the "Evaluationsstelle" of the university. Reports are not published. Information about the evaluation process at the University of Zurich can be found at: http://www.evaluation.uzh.ch/index.html. See Daniel 2005, 2004.

sary for output and outcome evaluations in particular. Outcome and impact evaluations require a longer period of time. For example, evaluating the effects of a mentoring programme solely at the end of the project is a somewhat limited approach, compared to (also) carrying out a survey a few years after the project's end. Due to the fact that evaluations are often done during the duration of a programme, outcome and impact evaluations are often not possible. While the notions of output, outcome and impact might help us deal with the dilemma in evaluating gender equality policies, the gender perspective leads further: From this perspective there would be no separate impact evaluation; rather, all kinds of evaluations would be integrated into long-term prospects and unintended effects in each evaluation.

An evaluation may be carried out during or after a project (formative vs. summative evaluation). The timing of an evaluation calls for different objectives, questions and methods. In addition, institutions starting an evaluation of gender equality policies must be clear about its function: do they want control, quality assurance, knowledge about gender policies, legitimacy or dialogue? Some of these functions contradict each other (Kromrey 2004, Stockmann 2000). The main function in an evaluation affects the way we deal with the dilemma in gender equality policies. If the focus lies on monitoring and legitimacy, it is more important that the evaluation can be linked with the knowledge of the decision-makers in higher education. In contrast, if the goal is quality assurance and knowledge about gender equality policies, another approach is necessary.

Criteria are crucial to an evaluation. First, we have to differentiate efficacy and efficiency. Efficacy is the degree to which the desired output or outcomes are achieved. Efficiency is the ratio of resources to desired objective, i.e. cost-benefit analysis. Currently, efficiency cannot be a criterion for equal opportunity policies because effects are often not quantifiable in monetary terms.

Criteria for measuring a programme or unit's quality must derive from their stated aims. Those responsible for the project must be familiar with them prior to the evaluation. Otherwise, evaluators and programme participants must ascertain quality criteria together at the beginning of the evaluation (participatory evaluation). The criteria should not be changed during the evaluation (Maurer/Wecker 2003: 305). It is moreover vital that the project aims and the criteria are reliable and concrete, because otherwise they are likely too unspecific to be measured in an evaluation. To view the appointment of more female professors as a mark of a project's quality is of questionable value. That could at most be an indirect aim or criterion in a project focusing on female post-docs. The following example illustrates this fact with a complex results model in a positive way. This model was devised for the evaluation of the Swiss federal programme "equal opportunities", which has three parts: part I provides newly appointed women professors

with additional resources, part II is about mentoring programs, and part III deals with the provision of childcare for university staff. Different quantitative and qualitative statistical instruments were developed to evaluate the programme (Bachmann et al. 2004: 17-22).

Even if long-term effects are unobservable (as yet), finding out whether the participants were satisfied with the programme would constitute a very limited evaluation of the programme. To go beyond satisfaction of the participants, additional measurement can be employed. A good example of that is Wender's and Popoff's (Wender/Popoff 2005, Wender 2004) internal evaluation of a project meant to interest girls in technical studies and professions. This evaluation focused on self-concept as an important factor in professional orientation. To measure this, the evaluators used a questionnaire about self-reliance, competence attribution, and intrinsic and extrinsic motivation. They questioned participants at the beginning and end of the programme and asked them to compare changes.

Finally, criteria on gender policies must take into account that equity, affirmative action and (de-)construction are different approaches.

Conducting an Evaluation: Good Practice and Pitfalls

To give an idea of good practice and pitfalls when evaluating gender equality policies, we would like to analyse some evaluation procedures we were involved in. This analysis follows the sequence of an evaluation.

An evaluation is a multistage procedure consisting of the following parts:

- Self-report by the organisation,
- Evaluation by evaluators and experts,
- Report by the expert group and/or the evaluators, and
- Follow-up (decisions about consequences and monitoring the implementation of recommendations).

Transparency about the procedure dispels fears about being evaluated. Evaluations at the University of Zurich are a good example of this. The steps in the evaluations are set down in a document (Universität Zürich 2000, Evaluationsstelle der Universität Zürich Evaluationsverfahren). This transparency also helps the experts to contextualise their participation.

The objectives and functions of the evaluation must be clear before beginning. Everybody concerned with the evaluation must agree to or at least be informed about the objectives and functions and the steps in the evaluation. What

should the evaluation achieve? Are decisions about financial resources or the continuation of the project adjoined to the evaluation? Are counselling and internal quality assurance the main objectives of the evaluation? In addition, objectives such as output, outcome and impact, the subject and the evaluation's target audiences must be decided prior to beginning. Finally, the criteria must be clear and transparent.

Lack of clarity about these aspects will lead to great problems in the course of the evaluation and can cause the evaluation and its results to be rejected. Thus for example, due to ambiguity about objectives and the subject of the evaluation, not all Austrian universities participated in the evaluation of their gender equality policies (Österreichische Rektorenkonferenz (ÖRK)/Österreichische HochschülerInnenschaft (ÖH) et al. 2007). In contrast, the evaluation of a project at a German university[4] provides a positive example: Before starting the evaluation, the financial resources for the next year were confirmed so that all persons involved in the project and at the university were open to a critical assessment and practice-relevant counselling.

Self-Report

The self-report is not only an important document for the evaluators and experts – the persons evaluated also experience writing and sampling the report as a critical step in quality development. There are two possible ways of organizing the report: a set questionnaire or guidelines with an open structure. Guidelines may include the following issues (Evaluationsstelle der Universität Zürich Musterstruktur):

- structure and organisation (of the unit, the programme or the project),
- resources (financial, personal, facilities),
- activities and achieved performance,
- cooperation,
- internal quality management,
- analysis of strengths and weaknesses, and
- future perspectives

These items are so flexible that they can be used for various projects and organisations. At the same time it is useful to specify them for a particular evaluation.

4 Internal evaluation is lead by one of the authors.

To evaluate the gender equality policy of the Austrian universities a working group drafted a questionnaire with questions such as:

Which units are concerned with gender equality, affirmative action and gender mainstreaming? What are the objectives and tasks concerning gender equality, affirmative action and gender mainstreaming? List the activities and achievements of the unit responsible for gender equality? The motivation for the questionnaire was establishing comparability between the universities and a better handling of a great number of participating universities.

On the basis of our experience we prefer a more flexible structure. By using guidelines, an individual project or organisation can present its specific profile. That way, evaluators and experts gain a better view on the entire project or unit. Writing the report is part of the self-analysis of the programme participants; in addition, it demonstrates the capacity of self-reflection to the evaluators.

Evaluation by Evaluators and Experts

Who are the evaluators and experts? This depends on the type of evaluation. When evaluating the gender policy or the gender equality unit of a university, peer review with external experts is valuable. Peer review is a common assessment instrument in science and research. Using peer review for the evaluation of gender equality policies facilitates the acceptance of the evaluation results. However, an expert group seems to have too many people and to be too expensive to simply evaluate an individual project at a university. In such cases, agencies or specialised institutions carry out the evaluation. Combining both, the Swiss Federal Program for promoting equal opportunities was evaluated by an independent agency – specialized in social research, evaluation and knowledgeable in gender equality policies in higher education – accompanied by a commission from the managing organisation and by three experts (Schweizerische Universitätskonferenz 2004). Thus, the kind and the size of the group of evaluators and experts depend on the type of evaluation, the project and the financial resources.

In all cases, the persons evaluated must be involved in the choice of evaluators and experts. This might mean the right to suggest experts – at the very least, the unit or project being evaluated must have the right to refuse a particular expert. In addition, the persons responsible for a programme or a gender unit must feel acceptance for the evaluators and experts. The participation of a university board member, for instance, increased the board of the university's acceptance of the expert group evaluating the gender unit at the University of Zurich. The gender competence of the evaluators and experts is important for all evaluations but it is crucial to evaluations of gender equality policies. When taking part as a

gender expert in some evaluations, it is not uncommon for experts to fear that being engaged in gender policies would cause a bias or a rejection by those critical to gender politics. Up to now, this has not been the case. In addition, being an external expert provides a critical but empathetic view and raises the degree of acceptance on the part of university management.

The evaluation by evaluators and experts consists of an analysis of the self-report and other documents as well as of on-site visits. Written material can provide deep insight into the projects and their strengths and weaknesses. Nevertheless, on-site visits are also necessary. They supply knowledge about the organisational culture as well as the context of the project or unit. They help avoid misunderstandings that may occur in written documents. The dialogue with the university board and with those being evaluated is as important as the site visits. This exchange of ideas (often) leads to evaluations being met with greater acceptance and is in itself a kind of counselling.

Initially, site visits were not planned as part of the aforementioned Austrian evaluation. Instead, the experts wrote an initial report on the basis of written documents. Some universities rejected these reports in no uncertain terms. Afterwards, on-site visits and a review of the reports were offered to the universities. Ultimately, it was not necessary to rewrite the reports substantially, because the evaluation results contained in the written reports and the experts who had written the latter found much more acceptance after the visits.

Report by the Expert Group and/or Evaluators

Evaluations are imbedded in conflicts and interests and in a political process. This explains why there may be different interpretations and different views of the activities and performance of a gender equality project or unit. Furthermore, there is always the risk that evaluators and experts may misunderstand certain issues. To avoid incorrect data, to encourage respect for different views and to increase the acceptance of the results, those who are evaluated should be given the possibility to comment on the report. In this vein, it is advisable that the evaluation team produces a preliminary report that may be amended in light of reactions to the report on the part of those who are evaluated. Another suggestion would be to allow for the inclusion of a comment on the evaluation by those evaluated in the report.

Follow-up

Before starting the evaluation, the presentation of the results and the follow-up must be determined. Who are the evaluation's target audiences? To whom are the results presented? Will the results be published? If internal quality assurance is the main function of an evaluation, the report will not normally be published. Keeping the results confidential ensures a greater willingness to reflect on weaknesses. This was the case with the aforementioned evaluation of an individual university project, carried out by the CEWS. Controlling and the need to legitimise a project can spark the decision to publish an evaluation. Evaluations on federal programmes or on projects on a regional level are normally published so that future projects can learn from them. In the case of the evaluation of the Austrian universities, even at the closing workshop it was not clear whether a final report without data from individual universities would be published. This can be frustrating for the experts.

An evaluation should bring about an improvement in the quality of a policy, a project or a programme. Thus, the consequences of an evaluation must be clear from the beginning. Who will implement the recommendation and how will it be implemented? An agreement on objectives could be one way of following up an evaluation. In this case, those who are responsible for the project, the unit or the programme and decision-makers within the university must agree on activities, tasks and resources. Both sides are involved – not only those directly involved in a project. It is moreover crucial that evaluations are not used to cut spending. At the University of Zurich, the evaluation of the gender unit resulted in negotiations between the head of the university and the gender unit about a contract for the mission and expected performance of the unit. The contract is to include the role of the university board concerning gender equality, the tasks of the gender unit and the resources at its disposal.

Conclusions: Gender Competence and Evaluation

Gender sensitive evaluations take into account not only gender equality policies and various forms of gender knowledge, but also generally accepted standards and basics of evaluation. These various aspects must also be considered when the results of an evaluation are implemented. This undertaking must not be underestimated and it implies a professional attitude that is not easily come by. In our opinion, various kinds of evaluations with various objectives all have their place depending upon the reasons for both the measures being evaluated and the evaluation itself.

The work becomes complex if the purpose of an evaluation is simultaneously intended to advance measures for gender equality in university policies and to examine unintended side effects of such measures. In this case, it is imperative that findings from gender studies be integrated into the quality control of evaluations. A balanced ratio of gender in the sciences can only be achieved and sustained by combining the policies of gender difference and (de-)construction with changes in social standing and recognition factors.[5]

The dilemma in the politics of gender equality, however, does not simply pose a unique challenge – gender equality policies (equal treatment, difference and (de-)construction) simultaneously provide a good framework for evaluating projects or programmes in gender equality. Programmes in gender equality work often concentrate on one of the three policies. Inquiring after missing strategies opens up new perspectives and can help overcoming dead-ends and dealing with unintended consequences. Such a framework becomes even more attractive when we consider the fact that evaluations also serve as an instrument bringing about future improvements in a programme, project, etc. For example, questions in mentoring programmes could be: How do we improve women's access to leadership positions (equal treatment)? How can we take specific living conditions of women into account when giving workshops or planning mentoring programmes (difference)? Does a relationship to male or female mentors strengthen or weaken stereotypical gender roles (de-construction)?

Based on our experience, we consider three pre-conditions to be important for good evaluations of gender equality programs in scientific fields:

1. Knowledge about evaluation methods and the related quality requirements in science and science policy are important. It also needs to be kept in mind that science will have inborn resistance to evaluations.
2. Both knowledge about evaluation techniques and gender equality is necessary for good evaluations. This implies awareness of the state of research in gender studies within institutions of higher education.
3. Case studies are relevant when looking for hidden gendered substructures. Statistical data alone are insufficient.

Up to now evaluations of gender policies have not been very common. However, more and more gender equality programmes and projects on a national, regional or institutional level are being evaluated. But the evaluation of a university's

5 These thoughts are established in the standard book Justice Interruptus by Nancy Fraser. The gender equality strategy chosen must be taken into account when evaluating from this perspective. It is also necessary to ask whether any unintended side effects on gender relations have ensued (Fraser 1997).

gender policy or the evaluation of a gender unit is very rare. Assessment of this kind of evaluation is just starting. We therefore need a critical discussion about evaluations of gender policies that have integrated gender research and evaluation standards. Only critical reflection will ensure that evaluations in gender policies lead to more quality in this political field.

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Pathways to Success for Women Scientists in Higher Education in the US

Terry Morehead Dworkin, Angel Kwolek-Folland, Virginia Maurer, Cindy A. Schipani

A continuing problem regarding gender equity in higher education in the United States is attracting and retaining women in the STEM (science, technology, engineering, and mathematics) fields. For example, only 20% of the science and engineering faculty at four-year colleges and universities are women.[1] Within certain disciplines such as mathematics and physics, the numbers are dramatically smaller.

The problem does not seem to lie in reduced numbers at the undergraduate level since the number of women taking those courses is fairly equivalent to the male undergraduates enrolled. However, there is a "leakage" problem in the pipeline. As people go from undergraduate to graduate school, to post doctorates, to faculty jobs, to acquiring tenure, and to administrative jobs in the sciences, the number of women drops at each level. (See figures 1-4).

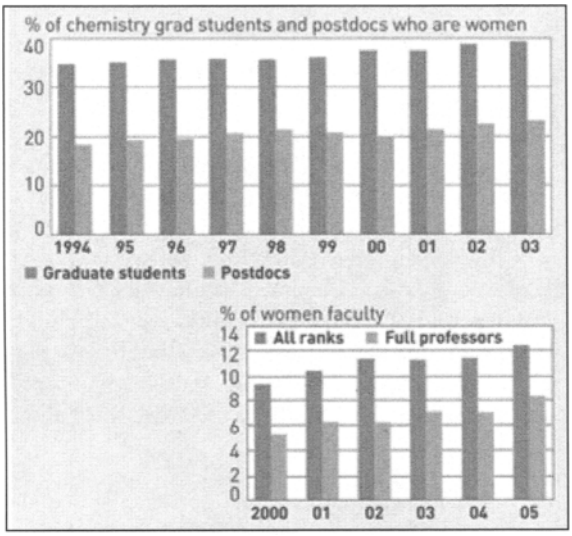
At the beginning we will present the issue using tables depicting the proportion of women in STEM disciplines. Following that we will discuss recommendations from agencies and experts designed to alleviate the problem as well as provide some examples of best practices. Finally, we will conclude by specifically focusing on initiative undertaken at three major research universities – Indiana University, the University of Florida, and University of Michigan – to help stem the leakage and increase the number of women at all levels. Concluding remarks follow.

1 Press Release, National Science Foundation: NSF Announces Institutional Transformation Awards Under "ADVANCE". 9.10.2001 (Noting that less than 20% of this faculty are women).

Astronomy	32.9/42.1	34.4/		
Chemistry	44.7/51.1	40.9/46.2	28.5/31.7	20.3/22.1
Physics	19.2/21.9	17.0/25.2	13.8/15.5	11.4/13.8
Atmospheric Sciences	19.3/35.5	23.7/37.4	23.3/36.5	20.4/24.4
Mathematics & Statistics	46.3/45.9	41.3/45.4	23.4/28.4	13.0/22.5
Computer Science	27.2/25.1	28.4/31.2	16.5/20.5	14.3/20.6
Biological Sciences	54.1/62.5	53.3/58.6	43.1/46.3	36.9/38.9
Engineering	18.4/20.5	18.2/21.1	12.3/17.6	11.6/17.7

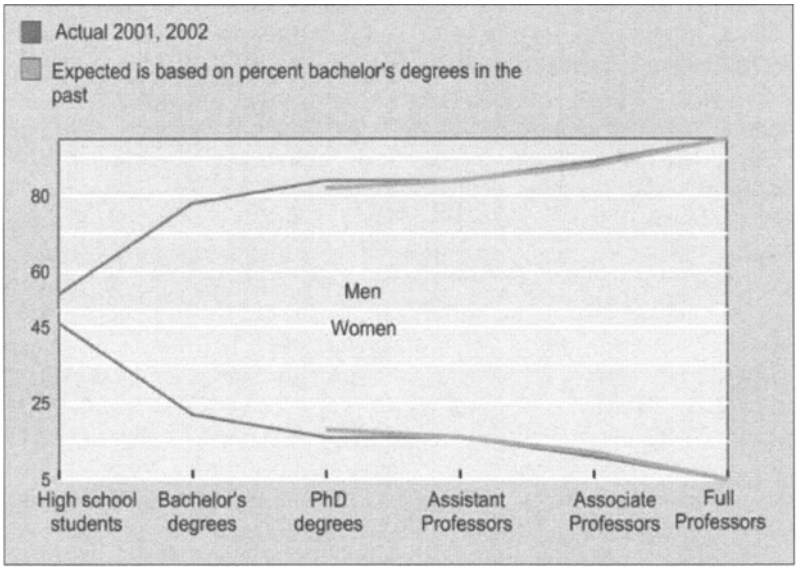
Source: National Science Foundation, Division of Science Resources Statistics: Completions Survey, 1995-2004

Figure 2: Percentage of Female Chemistry Graduate Students, Postdocs and Faculty



Source: Zare 2006: 3 (citing National Science Foundation, Division of Science Resources Statistics)

Figure 3: Actual and Expected Percentage of Women and Men in Physics in the US



Source: American Institute of Physics, Statistical Research Center

Figure 4: Women Physicists Who Agreed That the Following Needs Improvement

	Percent
Daycare cost	55
Daycare availability	65
Travel with young children	58
Balance of child care in family	69
Discrimination	65
Attitude about women in physics	80

Source: Ivie/Guo 2006: 12

A National Issue

The National Academy of Sciences (NAS) is an honorific society of distinguished scholars engaged in scientific and engineering research. It is dedicated to the furtherance of science and technology and to their use for the general welfare.[2] The NAS provides independent advice, often through its subsidiary, the National Research Council, on major issues facing the country. It has acknowledged the shrinking role of women in the sciences and recommended steps to address it.[3] Recently it published the National Academy of Sciences Report: *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science & Engineering.*[4] This report reflects the thinking of some of the top experts in the country and recommends actions that can help overcome the disparity.

Another national organization that has studied the issue and made recommendations is the National Science Foundation (NSF). This is an independent federal agency created by Congress that provides major grants to help promote the progress of science in a variety of ways. The NSF accounts for approximately 20% of all federally supported basic research for colleges and universities.[5] Within the last decade it has attempted to address the gender disparity in colleges and universities through making individual and institutional ADVANCE grants. The institutional grants are designed to both help a campus make changes that will attract, retain, and promote women, and also to develop "best practices" that can be used at other campuses.[6] These best practices are available to colleges and universities who want to initiate programs. Additionally, a new round of funding is going to former ADVANCE institutions to sponsor their dissemination of what they learned to other campuses and to build on their initiatives.

Professor Virginia Valian[7] is one of the country's leading experts on gender equality in the sciences. She is the author of *Why So Slow? The Advancement of Women* (Valian 1999). Valian has been an invited speaker at most major univer-

2 It has approximately 2,100 US members and 380 foreign associates, of whom nearly 200 have won Nobel Prizes. http://www.nasonline.org/site/PageServer?pagename=ABOUT_main_page (last visited Aug. 20, 2007)

3 National Academy of Sciences 1997

4 See Committee on Maximizing the Potential of Women in Academic Science 2006

5 National Science Foundation: About the National Science Foundation: http://nsf.gov/about (last visited Aug. 20, 2007)

6 National Science Foundation: supra note 1. The Advance grant system is discussed in the article "The Success of Female Scientists in the 21st Century" by Wanda E. Ward in this volume.

7 Virginia Valian is Professor of Psychology and Linguistics at Hunter College and the CUNY Graduate Center.

sities interested in addressing this issue, as well as at major conferences. Organizations, including those discussed above, have relied on her work in making their recommendations.

Recommendations and Best Practices

The following is a synopsis of the recommendations and best practices gleaned from the sources mentioned above. They could be helpful at any institution. After a brief discussion of these, this paper will address specific implementation at three campuses. The programs at these campuses have examined a wide variety of writings on the issue in addition to the above.

A main recommendation of the NAS is that all levels and parts of the system must work in unison for effective change.[8] By all parts of the system, they mean, ideally, that Congress and national funding organizations will work in coordination with higher education organizations, with scientific, professional, and honor societies, journals, and colleges and universities to achieve gender equity. This is an ideal but is difficult to achieve. This does not mean that there cannot be progress without it; merely that progress will not be as widespread, uniform, or rapid as if it existed.

The same is true at the campus level. As shown below, a major recommendation is for leadership from the top; however, progress has been made at several institutions by people taking the initiative at a department or individual level. It should be noted that each campus has its own culture and what works at one will not necessarily work at another. Strong top-down leadership will almost always be successful, though. The recommendations below are focused on different university levels.

1. "*Trustees, university presidents, and provosts* should provide clear leadership in changing the culture and structure of their institutions to recruit, retain, and promote women – including minority women – into faculty and leadership positions." They should do this by:

a. "Incorpora[ting] into campus strategic plans [with] the goal of counteracting bias against women in hiring, promotion, and treatment. This includes working with an inter-institution monitoring organization (...) to perform annual reviews of the composition of their student body and faculty ranks,

8 See Committee on Maximizing the Potential of Women in Academic Science 2006

publicizing progress toward the goals annually, and providing a detailed annual briefing to the board of trustees."

b. Developing compelling rationales for change, focusing on benefits to the institution.

c. Immediately attempting "to remedy inequities in hiring, promotion, and treatment."[9]
Example: The University of Wisconsin's Women in Science and Engineering Leadership Institute (WISELI) recommends spending sufficient time on each application to read the entire application rather than relying on one measure of performance. Criteria for evaluations should be developed that can be consistently applied, and these should be periodically evaluated to determine whether the resulting decisions are leading to qualified women and minority-group members being included.[10]

d. "[A]s part of their mandatory overall management efforts [the campus leadership should] hold leadership workshops for deans, department heads, search committee chairs, and other faculty with personnel management responsibilities that include an integrated component on diversity and strategies to overcome bias and gender schemas and strategies for encouraging fair treatment of all people. It is crucial that these workshops are integrated into the fabric of the management of universities and departments."[11]
Example: The University of Wisconsin-Madison offers workshops for faculty chairs of search committees which introduce participants to the effects of unconscious biases and assumptions on evaluation of candidates. Departments who sent at least one faculty member to a workshop showed a 19% increase in the percentage of their new assistant professors who were women, compared to a 23% decrease for those departments that did not participate.[12]

e. Before approving appointments, campus leaders "should require evidence of a fair, broad, and aggressive search." Departments should be held "accountable for the equity of their (...) outcomes even if it means canceling a search or withholding a faculty position." They should make equity and diversity part of normal reporting functions of chairs via annual surveys, and use equity status as one criterion in allotting lines, space, and money.
Examples: Purdue University took the above measures and significantly increased the number of female engineering faculty and after a few years was able to demonstrate that the quality of the faculty, as measured by research

9 Id.: 7
10 Memorandum from Women in Science & Engineering Leadership Institute
11 See Committee on Maximizing the Potential of Women in Academic Science 2006
12 Id.: 149

publications in major journals, had increased. This measurement helped reduce resistance to the plan. The University of California at Berkley sought input from graduate students, selected diverse search committees and established relationships with women at professional meetings and invited them to apply.

f. "[L]eaders should develop and implement hiring, tenure, and promotion policies that take into account the flexibility that faculty need across [a career], allowing integration of family, work, and community responsibilities. They should provide uniform policies and central funding for faculty and staff on leave and should visibly and vigorously support campus programs that help faculty with children or other care giving responsibilities to maintain productive careers. These programs should, at a minimum, include provisions for paid parental leave for faculty, staff, postdoctoral scholars, and graduate students; facilities and subsidies for on-site and community-based child care; dissertation defense and tenure clock extensions; and family-friendly scheduling of critical meetings."[13]

Examples: Both Stanford University and Dartmouth University have announced graduate student childbirth and pregnancy leave policies that allow students to postpone or reduce academic requirements for up to three months while remaining eligible for full-time enrollment status and retaining access to university facilities, housing, and benefits (Wilson 2006: A12). Harvard Law School's parental leave policy allows either parent who is the sole provider of care for twenty or more hours per week to take paid leave.[14] The University of Washington ADVANCE program offers awards of $5,000-$12,000 to faculty dealing with the birth of a child, caring for an ailing parent, or confronting other personal issues. The grants provide assistance in the form of release time, conference travel, research support, etc.[15] Similarly, the Earth Institute at Columbia University offers "transition support grants" that provide partial salary support for women researchers during times at which they must limit their research productivity to tend to family issues.[16] Duke University is spending an additional $2 million to expand its day-care center, doubling the number of children it can handle from 76 to 153 (Wilson 2003: A12). It has also invested in day-care centers off-

13 Id.: 8

14 Parental and Personal Leave Policies Applying to Faculty Members of the Harvard Law School 5. 01.07.2001. www.law.harvard.edu/faculty/faculty_leave_policy.pdf (last visited Aug. 20, 2007)

15 University of Washington. Center for Institutional Change. ADVANCE Transitional Support Program. www.engr.washington.edu/advance/tsp.html (last visited Aug. 20, 2007)

16 Earth Institute at Columbia University. Transition Support Grants. 1. Fall 2004. www.earthinstitute.columbia.edu/advance/pdf/ADV_Transition_Support.pdf

campus which, in return, reserve a number of places for Duke faculty, staff, and graduate students. Princeton University identified adequate childcare as the first initiative they would take in efforts to increase women in the sciences there. Some universities are discussing giving all tenure-track professors a 10-year tenure clock. The professor would choose the best 7 out of the 10 years on which to base the tenure decision. This alleviates any stigma women might suffer for stopping the tenure clock due to childbirth, care of a parent, or of a child.

g. The campus leadership should announce institutional efforts and successes; visit divisions, departments, and working groups, and stress the focus on gender equity; incorporate as many people as possible into working for institutional goals.

h. It should create and maintain other leaders by vouching for them and legitimating them. It should develop faculty for leadership positions within the institution, establish paths toward leadership, place women and minorities on important committees, and provide guidelines on how to run committees.

2. "*Deans and department chairs and their tenured faculty* should take responsibility for creating a productive environment and immediately implement programs and strategies shown to be successful in minimizing the effect of biases in recruiting, hiring promotion, and tenure."

a. In addition to "initiat[ing] a full faculty discussion of climate issues," the faculty and their senate "should develop and implement programs that educate all faculty members and students in their departments on unexamined bias and effective evaluation (...). [T]hese programs should be integrated into departmental meetings and retreats, and professional development and teacher-training courses (...). [S]uch programs can be incorporated into research ethics and laboratory management courses for graduate students, postdoctoral scholars, and research staff; and can be part of management leadership workshops for faculty, deans, and department chairs."
Example: The University of Michigan CRLT Players (discussed under Indiana University and the University of Michigan below, III.A.3.)

b. "Deans and department chairs and their tenured faculty should expand their faculty recruitment efforts to ensure that they reach adequately and proactively into the existing and ever-increasing pool of women candidates."

Examples: Avoid narrow position specifications. The BEST (Building Engineering and Science Talent) report recommends *targeted recruitment* – establishing and sustaining a feeder system to increase participation of underrepresented groups.

c. "Faculties and their senates should immediately review their tenure processes and timelines to ensure that hiring, tenure, and promotion policies take into account the flexibility that faculty need across the life course and do not sacrifice quality in the process of meeting rigid timelines."[17]

3. "*University leaders* should work with their faculties and department chairs to examine evaluation practices to focus on the quality of contributions and their impact."[18]

Best Practices at Indiana University, the University of Florida, and the University of Michigan

Indiana University

In the 2003-2004 academic year, the Chancellor of the Bloomington campus appointed a new Dean, Office of Women's Affairs (OWA). A primary mandate of that appointment was to address the problem of the low numbers of the female faculty and graduate students in the sciences. The Dean has approached the problem in several ways. Three of the most important and effective include:

1. Outstanding Women Scientist Lecture Series

Two prominent women scientists from other institutions are invited to the campus to give public lectures, meet with faculty and staff in their discipline area, hold special meetings with graduate students, and meet with the OWA Women in Science Program (WISP) Advisory Board. Often these prominent scientists have been involved in the issue of women in science on their campus. In those cases, they will also hold a special talk about how the issue has been addressed at their institution. OWA covers the expenses involved in the series. The Advisory Board nominates the scientists to be invited. Criteria (besides prominence in the field) include diversity of discipline (so that different topics are covered in different years) and general appeal (to attract a large audience to the public lecture).

17 See Committee on Maximizing the Potential of Women in Academic Science 2006
18 Id.: 9

OWA heavily publicizes the events to the campus and community. A third speaker in the series is a woman scientist from the Bloomington campus.

The lecture has brought prominent women to campus who can serve as models for students, and also improve the networking contacts for women in that field. Featuring "one of our own" gives community-wide notice to the outstanding women on campus.

In the following year, I.U. is building on this series by creating a speakers series within Indiana universities. Initially, those will be Purdue University, Indiana University, and the medical school at IUPUI-Indianapolis. It will be a named series at each campus, and each campus will invite a woman from the other two campuses to present her research. The focus will be on pre-tenure scientists. Advantages include increasing exposure and networking possibilities, and resuming expansion of networking contacts through invited lectures.

2. Establishing Campus Discipline Groups

The women scientists on campus have been divided into five discipline groups: technology; life sciences; astronomy, math and physics; environmental sciences; and chemistry. Each group is given funds that they can use for various purposes related to women in science such as inviting speakers to campus, developing student-faculty mentoring, implementing community outreach activities, and holding networking events to promote collaboration among women students and faculty in their field.

The groups also engage in outreach outside the University. For example, the technology discipline group, in order to address the low percentage of women seeking Computer Science and Informatics degrees at I.U., developed *Just Be*, a 1-hour presentation for elementary and high school students in Indiana designed to correct misconceptions about computer scientists. Since the program began in 2004, it has emphasized the important role of women and minorities in the future of computing. *Just Be* presenters are I.U. students who volunteer their time to lead these interactive presentations in which participants voice their own perceptions of computer scientists using remote-controls and computers.

3. Changing Negative Department Atmospheres

To create a more gender-equitable atmosphere in science departments, I.U. invited Dr. Virginia Valian to give a series of workshops to different levels of university administration. She met with three separate groups: the Provost and

Deans; the Chairs and Promotion & Tenure Committees; and the Women in Science Faculty Advisory Board. Each workshop was specifically tailored to the administrators in attendance. During the workshops Valian discussed her extensive research into the factors fueling gender inequity in STEM fields and outlined appropriate remedies proven successful at other academic institutions. However, instead of listing recommendations for change across all levels of administration at each workshop, Valian focused on improvements which could be implemented by the level of administration she was addressing. This enabled administrators to concentrate their attention and efforts on actual change they could instigate in the near future.

An additional measure I.U. has taken to improve the atmosphere for women in science departments is to request two performances by the University of Michigan Center for Research on Learning and Teaching (CRLT) Players, a theater group from the University of Michigan which aims to promote a more positive institutional climate at universities and colleges across the country. With sketches specifically addressing issues faced by women in science, the theater group is able to present research on this topic in an engaging way. Following the performance, a member of the theatre group involves the audience in thoughtful dialogue focusing on solutions which can improve the departmental and campus-wide climate for women in science.

The University of Florida

The University of Florida has tackled the issue of women in the sciences as part of its larger effort to diversify the faculty along several trajectories, including race, class, and gender. Since the University had a good track record on recruiting, retaining, and graduating women and minorities in general (and in the STEM disciplines in particular), the institution's most recent efforts have focused on faculty.

In 2003-04, the Provost and Faculty Senate shared a task force on quality of life for faculty.[19] Among the task force's many recommendations were a series of climate surveys for faculty and staff, the creation of an informational website, and the adoption of multiple venues for the discussion, review, dissemination, and implementation of information and practices to further faculty diversity.[20] These efforts have had some very positive results, creating long-term changes in

19 Provost's and Faculty Senate's Task Force on Quality of Life Issues for Faculty. 02.04.2004
20 Id.: 1

the culture and institutionalization of diversity practices. Of these, several initiatives are particularly noteworthy.

The task force identified a problem for recruitment and retention of faculty in the lack of alternatives for partner employment. The University is located in a small town set in a relatively isolated area of north central Florida. In addition, many faculty members are partnered with other academics or professionals who also desire careers. In response, the Provost's office initiated a dual career program. This program provides cost-sharing to departments willing to hire a partner, an information and referral service for non-academic partners, and education for colleges and departments about creative ways to effect dual career accommodation.[21]

At the prompting of the task force, the Provost's office also now offers Diversity Workshops as part of a comprehensive effort to educate search committees, chairs, and deans about the most productive ways of identifying and recruiting diverse faculty. These workshops are mandatory for all search committee members.

The evaluation of deans and chairs now includes information on their efforts and successes in fostering diversity among their faculty. These efforts are backed up by chair training workshops that emphasize the importance of diversity recruiting. The Provost's office provides leadership training through a number of programs. An invitational Provost Fellowship brings a faculty member onto the Provost's staff for a year to work on special projects. The Provost's office has also supported faculty attendance at several external leadership seminars, including American Council of Educators fellowships, the state's Institute for Academic Leadership, and the Bryn Mawr Institute for Women in Higher Education Administration.

The Faculty Senate (the university's main faculty governance body) has taken an active role in furthering faculty diversity through its faculty Welfare Council, including spearheading changes in university practices to allow faculty to stop the tenure clock for family leave, negotiate with chairs for "active service with modified duties," and make plans to expand the University's on-site day care facilities.

The President created a new position of Vice President for Human Resources. This officer has been responsible, among other things, for working with the Board of Trustees and the Faculty Senate to institute more family-friendly policies. These now include the provision of health insurance benefits to domestic partners and a more flexible and inclusive family leave policy.

21 Id.: 11

It has been important to positive change to include as wide a spectrum of university stakeholders as possible. The "buy-in" of the Provost and President, as well as the Faculty Senate, deans, chairs, and other campus leaders is crucial to continued positive change.

The University of Michigan

1. Women in Science and Engineering (WISE)

One of the most significant ways in which the University of Michigan promotes gender diversity in the sciences is through its Women in Science and Engineering (WISE) program. Founded in 1980,[22] WISE's mission is "to increase the number of girls and women pursing degrees and careers in science, technology, engineering and mathematics while fostering their future success."[23] Some ways in which WISE is trying to accomplish this are:

WISE Residential Program (WISE RP): The WISE RP provides a collegiate living environment for first and second year women undergraduates majoring in science, mathematics and engineering. Located in one of Michigan's residence halls, the program does more than merely offer accommodation to its approximately 125 participating students. All women are given an upper class mentor and the program provides networks, tutoring, and study groups.[24] Central to WISE RP are bi-weekly academic nights where science and engineering faculty share their research and experiences with the students.[25] The program has been a success; it recently received the National Science Foundation's 'Recognition Award for the Integration of Research and Education.'[26]

Marian Sarah Parker Graduate Preparation (MSP): The Marian Sarah Parker Scholars Program provides support to women as they are making decisions about pursuing a graduate degree in the sciences. The program tries to encourage women in their junior year of college to consider a graduate degree in

22 The Center for the Education of Women. http://www.umich.edu/~cew/PDFs/pubs/Newsletter%20Fall%2004.pdf (last visited July 25, 2007)

23 Women in Science and Engineering, About Us. http://www.wise.umich.edu/about-us/ (last visited July 25, 2007)

24 Women in Science and Engineering, Programs. http://www.wise.umich.edu/programs/undergraduate/ (last visited July 25, 2007)

25 WISE RP, Benefits of WISE RP, http://www.wiserp.umich.edu/index.php?option=com_content&task=view&id=27&Itemid=54 (last visited July 25, 2007)

26 Women in Science and Engineering, Programs: supra note 7

engineering. It does this by organizing workshops and internships in the College of Engineering for its participants.[27]

Lectures, Workshops and Counseling: In addition to the specific scholar and residence program, WISE also organizes lectures, workshops, and counseling for students. The workshops focus on careers in science, mathematics, or engineering, and on helping students finding their way through the university. There is also individual counseling available for students who want to talk about the concerns they have and problems they face as women in science. The lectures are given by women in the science and engineering departments and there is an opportunity to interact with the speakers outside of the lectures.[28]

2. ADVANCE Institutional Transformation Program

Another significant way in which Michigan is promoting gender diversity in the sciences is through its participation in the National Science Foundation's ADVANCE Institutional Transformation (IT) program. The university applied to the NSF program after President Lee Bollinger created a committee on Gender in Science and Engineering in 2001. The goal of the committee was to come up with proposals for improving the climate for women faculty in science and engineering; one such proposal was to apply to ADVANCE IT. Michigan started receiving funding from the NSF under the ADVANCE IT program in January 2002.[29] The grant was awarded for a 5-year period and set to end in 2006. However, the university is committed to the program and will continue to fund it through 2011.[30] The goals of Michigan's ADVANCE IT are:

1. To improve the institutional climate for tenured and tenure-track women faculty in science and engineering;
2. To improve recruitment, retention and promotion of tenured and tenure-track women faculty in science and engineering [and];
3. To increase visibility and authority of women scientists and engineers in leadership positions.[31]

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27 University of Michigan Admissions Lawsuits, FAQs http://www.vpcomm.umich.edu/admissions/new/mbp_faq.html (last visited July 25, 2007)

28 Women in Science and Engineering, Programs: supra note 7

29 Moore/Stewart: 1-2

30 NSF ADVANCE at the University of Michigan. http://sitemaker.umich.edu/advance/home (last visited July 25, 2007)

31 Moore/Stewart: supra note 12: 4

Some important steps that have been taken under ADVANCE IT to achieve those goals are:

Strategies and Tactics for Recruiting to Improve Diversity and Excellence (STRIDE): The STRIDE committee consists of 10 senior faculty members at the University of Michigan. They provide information on how to increase the chances of identifying a diverse and well-qualified candidate pool for faculty positions at Michigan. They also advise on how to retain such diverse, well-qualified faculty members. STRIDE does this by organizing workshops for faculty members involved in hiring, and by advising search committees throughout their search process.[32] University administrators can require a department to participate in the university's STRIDE program before approving a faculty search. STRIDE has been a success. From 2000 to 2002 Michigan's three largest colleges recruited 10 women faculty members in science and engineering, which amounted to 15% of new hires in those fields. From 2002 to 2005, after STRIDE was implemented, the same departments recruited 46 women in those fields, representing 35% of the total hires.[33]

Network of Women Scientists & Engineers and Career Advising: This Network is for tenure-track women in science and engineering at the university. They meet a number of times per year to socialize and discuss plans for the future.[34] Moreover, there is career advising available from senior women faculty advisers for the women who are part of the network.[35]

ADVANCE Theater Performances: Together with the CRLT's Theater Program ADVANCE IT developed sketches that deal with faculty recruitment, mentoring and tenure review.[36] The sketches are based on research on the experience of faculty members and students.[37] They are interactive and meant to generate discussion among the audience on climate issues within their respective departments.[38] Lasting about an hour,[39] they are performed both on campus and off campus for administrators and faculty members.[40]

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32 Id. NSF ADVANCE at the University of Michigan, STRIDE. http://sitemaker.umich.edu/advance/STRIDE (last visited July 25, 2007)

33 Moore/Stewart: supra note 12: 8

34 NSF ADVANCE at the University of Michigan, Network of Women Scientists and Engineers. http://sitemaker.umich.edu/advance/Network_of_Women_Scientists_and_Engineers (last visited July 25, 2007)

35 NSF ADVANCE at the University of Michigan, Faculty Career Advising. http://sitemaker umich.edu/advance/faculty_career_advising (last visited July 25, 2007).

36 Moore/Stewart, supra note 12: 10

37 NSF ADVANCE at the University of Michigan, CRLT Players. http://sitemaker.umich.edu/advance/CRLT_Players (last visited July 25, 2007)

38 Moore and Stewart, supra note 12: 10

39 NSF ADVANCE at the University of Michigan, CRLT Players, supra note 23

40 Moore/Stewart, supra note 12: 10

Conclusion

The programs described above have made some important improvements at the campuses. However, these best practices can be threatened by backlash, legal change, and a shortage of resources. A renewed conservatism, lack of political will, and severe financial shortfalls in both federal and state budgets have weakened the climate for progressive change in the United States. The NSF ADVANCE program is a good example. Although some funding continues to be available, the program has not announced any major new initiatives in several years. In Florida, severe state tax cuts have meant steep overall reductions in base university budgets in two of the past three years.

Although the need for a more diverse scientific community is clearly established, recent shifts in federal law may make change difficult. New legislation and federal court cases focused on student admissions and retention efforts at colleges and universities, for example, have undermined the status of affirmative action programs in California, Florida, Michigan, and Texas in the areas of scholarships, mentoring programs, and diversity initiatives.[41] In employment law, a recent US Supreme Court opinion undermined legislation designed to address gender discrimination in pay.[42] In the future, it may not be legally possible to target specific groups for socio-economic change. This will not necessarily render impossible efforts to initiate best practices; however, it will create new challenges to their presentation, funding, and permanence.

41 See, for example: "Split Ruling on Affirmative Action," 23.06.2003 http://www.npr.org/news/specials/michigan (on USSC Barbara Guetter v. Lee Bollinger, et. al.); Peter Schmidt: "Supreme Court Leaves Affirmative-Action Precedents Intact in Striking Down School-Integration Plan". In: Chronicle of Higher Education. 29.06.2007. http://chronicle.com/free/2007/06/2007062901n.htm; Bill Mears: "Divided Court Rejects School Diversity Plans." 28.06.2007. http://www.cnn.com/LAW/06/28/scotus.race/index.html (on USSC Meredith v. Jefferson County Board of Education and Parents Involved in Community Schools v. Seattle School District No. 1)

42 See, for example, Valerie Dowdle: "Ledbetter, Lilly v. Goodyear Tire and Rubber Co." 29.05.2007. http://docket.medill.northwestern.edu/archives/003741.php; Katha Pollitt: "Tough Luck, Ladies." In: The Nation. 25.06.2007: 9; Ledbetter v. Goodyear Tire and Rubber Co. 127 S. Ct. 2162. No. 05-1074. slip op 29.05.2007

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Gender Equality as Organizational Change Frames, Challenges, and Strategies in the European Union and the United States

Mary Ann Danowitz

Envisioning gender equality measures as a dimension of university change opens new possibilities to rethink gender activism within the dominant framework of competitive markets and entrepreneurialism. Success will depend on persistent and consistent work over an extended time to adjust to external environmental change. Challenges to gender equality progress are inevitable, but good leaders and committed activists have not been daunted. Excellence in research and teaching calls for having the best talent in our universities, whatever their gender and background.

In the following, I identify current conditions and the status of gender equality in higher education and strategies for transforming our universities. First, I provide a brief overview of the differing conceptions of equality in the European Union and the United States. Second, analyzing data from 12 case studies from the EU, Austria, Germany, the UK, Finland, and the US from the recently published book, Women, Universities and Change: Gender Equality in the European Union and the United States (2007), I identify factors influencing progress toward gender equality change. Conceptually, I treat gender equality as a dimension of organizational change drawing upon Sporn's (1999) model of university adaptation to identify examples at the nation-state and university levels. Third and lastly, I present key internal organizational issues that require attention if gender equality is to become more fully part of university change processes.

Transatlantic Perspectives

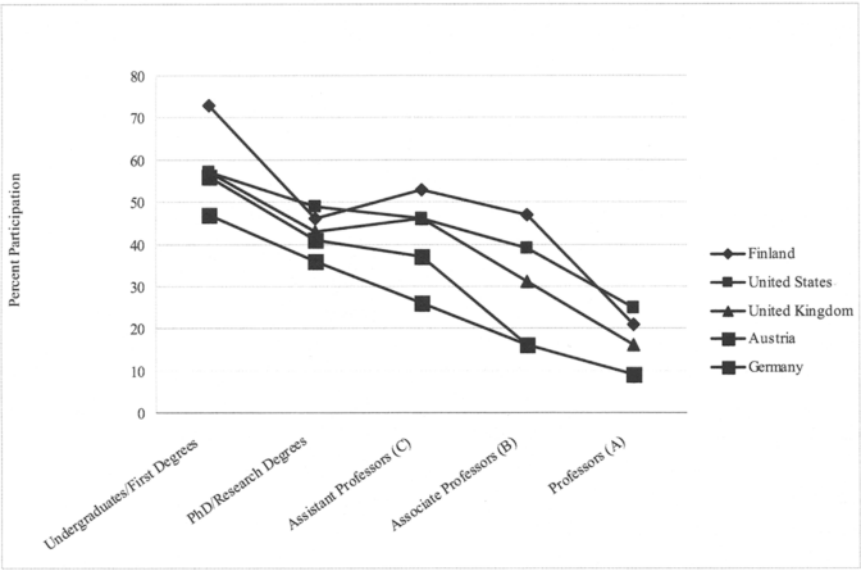
Neo-liberalism is reshaping the purposes and workings of universities in the European Union and the United States. In freeing markets from trade barriers to increase the movement of goods and generate economic opportunities and profits, neo-liberal ideology is creating a culture of entrepreneurialism and competi-

tion among universities to increase their economic strength through research accomplishments and by preparing individuals for the labor market. Müller (2007) explains how within the frame of the Bologna process, this economic ideology is driving structural changes in German universities, making them contested locations with contradictory opportunities and challenges for progress toward gender equality. These structural changes include the further decentralization of institutional autonomy, reduced time toward a degree, a split of the bachelors/masters degree, and increased auditing measures. Though perceived as neutral, these changes, in effect, may have unintended and adverse consequences.

Universities on both sides of the North Atlantic share very similar patterns of gender representation in their institutions. Women make up the majority of undergraduates in the European Union (58%) (European Commission 2005) and the United States (56%) (National Center for Education Statistics 2002), but then their presence becomes more scarce at each level of the academic hierarchy so that at the senior rank they make up only 14% of the full professors in the European Union and 15.8% in US research universities. As Morley (2007) notes, because the majority of undergraduate students are women, policymakers may no longer perceive gender as an issue; hence there is a silencing of gender in policy discourse. Figure 1[1] shows the repetition of the pattern in the five nations, Austria, Germany, the UK, Finland, and the US.

1 Figure sources and years are as follows: Finland, Germany, Austria and the United Kingdom are from the 2006 SHE Figures (European Commission and Directorate General for Research, http://europa.eu.int/comm/research/index_en.cfm). Academic staff ranks were consolidated and correspond with the categories used in the SHE Figures. Professors (A) refer to the single highest grade/post at which research is normally conducted. Associate Professors (B) refer to researchers working in positions not as senior as the top position but more senior than new PhD holders. C represents the first grade/post into which a new PhD graduate would normally be recruited. Examples of positions in each category are: Austria (A) Universitätsprofessor/in, (B) Universitätsdozent/in and Ao. Univ. Prof. and (C) Assistenzprofessor/in and Universitätsassistent/in. Finland: (A) Professor, (B) Lecturer and Senior Assistant and (C) Assistant/fulltime teacher. Germany: (A) C4 and W3 Professor/in, (B) C3 and C2 Professor/in, and (C) C1 wissenschaftlich/r Assistent/in, and W1 Juniorprofessorin. United Kingdom: (A) Professor, (B) Senior Lecturer and Senior Researcher, and (C) Lecturer. Figures for academic staff in the United States are from all degree granting institutions, thus they include universities and colleges and institutions that offer degrees below the doctorate. The data source is the United States Department of Education, National Center for Educational Statistics, Integrated Postsecondary Education System (IPEDS) from 2005 (http://nces.ed.gov/programs/digest/d07/tables/dt07_239.asp and dt07_177.asp. All figures have been rounded to the nearest whole number.

Figure 1: Representation of Women in Universities 2003/2005



Each descending line represents terrible losses, in opportunity for individual women and in institutional potential for solving pressing problems and increasing economic performance. Clearly, the lack of gender equality continues to be a serious problem.

The Gender Equality Rationale

For approximately thirty years, from the mid-1960s to the mid-1990s, the European Union and the United States approached equal opportunity in a somewhat similar fashion – through positive action and affirmative action, respectively. Proactive measures were established to change policies and procedures. On both sides of the North Atlantic, legal measures calling for equal treatment of women unlocked opportunities but failed to provide a means of bringing about equal representation and intended policy outcomes. In the 1990s, however, the approaches began to diverge: the European Union incorporated mainstreaming as its principal strategy to increase equality, and the United States identified diversity as its legal remedy. Beneath the policies, however, there have been and con-

tinue to be differing assumptions and values. In the EU the approach has been to ensure a human right, enhance human talent, and in turn, increase economic strength (Danowitz Sagaria/Agans 2006). In the United States the approach has been to remedy past discrimination.

The European Union

Gender mainstreaming as an equality strategy recognizes the inherent relationships between human rights, equal opportunity, and the strengthening of women's role in the labor market for Europe's economic security. Efforts of the European Commission [EC] and its policies on mainstreaming have been instrumental in many EU member states' decisions to incorporate equal opportunity into their agendas.

The shifts in the EU frameworks can be seen through the three major policy strategies employed: equal treatment, positive action, and transforming (mainstreaming) policy. Rees's (1998) work on tinkering, tailoring, and transforming the mainstream offers an accessible vocabulary to explore differences among the underlying principles of the gender equality frameworks. Equal treatment (tinkering) has sought to augment equal access for women but has had limited success because of a lack of mechanisms to reinforce its application and measures to monitor effectiveness. Positive action and positive discrimination (tailoring) have sought to alter directly the status quo quantitatively and provide interventionist and active measures to ensure changes in outcome. However, while providing for equal access, unchanged structural and attitudinal barriers have continued to reinforce gender differences, placing expectations on women to assimilate into a male-dominated organizational culture in order to advance. Mainstreaming (transforming) shifts the responsibility from individual women for gender equality to organizations. Universities are expected to bring about structural and cultural changes within their organization by incorporating gender equality into all policies, procedures, and budgeting. In Rees' (2007) words, "The transforming agenda is predicated upon the argument that opportunities to participate in education, training, and employment should not be enhanced or restricted by membership of one group or another" (p. 46).

The development and legislation of the gender mainstreaming policy in the EU has intertwined with a larger international movement of policy makers working in concert with feminist activist groups in Europe and internationally. Its most visible origins worldwide are in international development which in the 1950s and 1960s shifted away from gender-blind development to a women in development approach (WID) and then to a gender and development (GAD)

approach that identified gender as a central part of development strategies. Gender mainstreaming became a core concept in international public policy in 1995 at the Fourth World Conference on Women in Beijing, when it was featured as part of the Platform for Action, which committed the United Nations and its agencies to systematically integrate a gender perspective into policy making (Hafner-Burton/Pollack 2002). The EC gender Equality Commission participated in the Beijing Conference, where it adopted the United Nation's Fourth Programme platform on gender equality.

As I trace gender equality in the European Union, I recognize the inherent danger of privileging a single frame or generalizing from one distinctive nation-state to another. I also recognize that by drawing upon writings from five nations I exclude important geographical, historical, and cultural considerations in Europe. In describing shifting frames, I am referring to the formal adoption of legislation and practices of the EU. I also acknowledge that the implementation of these approaches is mediated by the historical, cultural, social, and political textures of each nation-state.

The United States

Currently, gender equality in the United States is linked to diversity, which is the result of restructuring equal opportunity and affirmative action through legislative and judicial processes. National social movements for civil rights in the 1960s and 1970s eventually influenced key decision-makers to create affirmative action mechanisms that enforce gender equality policies. Affirmative Action as a gender equality framework created conditions that allow for equal employment opportunities and for treatment that does not discriminate on the basis of race, creed, color, national origin, and as of 1967, sex (Glazer-Raymo 2007). The backlash against affirmative action that began in the 1990s along with the shift toward industry logic in university behavior has had detrimental effects on equality in higher education in general and on women in particular. US Supreme Court decisions have affirmed diversity in education as a compelling interest of the state to better prepare students for a complex labor market. The concept of diversity itself is rooted in the different cultural characteristics, such as values, language, customs, skills, knowledge, and behaviors of individuals and groups (Sagaria 2003). Legal challenges, however, have established that the diversity precedent is not binding. Consequently, the current framework for gender equality rests on precarious ground. The state's dismantling of equality measures and the shifting emphasis from providing for the social good to providing for economic enterprises are causing US research universities to redefine their priorities.

While the social, political, and legal contexts within the EU and each of its nation-states differs from that of the US, evidence from the case studies indicates that there are lessons to be learned from the change strategies, albeit tailored to local situations.

Factors Influencing Progress toward Gender Equality as University Change

Five conditions emerged as contributing to effective gender equality change strategies from the case studies:

1. External Environments Influence Gender Equality Change

The work by the Helsinki Group identifies 14 formal governmental commitments to gender mainstreaming (Rees 2002), such as policies, structures, the presence of gender studies, and institutes responsible for equality plans. The information in the present nation-state case studies of Germany, Austria, and Finland add to this information by demonstrating how the reality of the dynamics of external demands, the enforcement of laws, and the manner of policy implementation by the state can advance gender equality change at the university level. In Germany, the expectation of gender mainstreaming in the new curricula is helping to incorporate gender into audit measures associated with university excellence (Roloff 2007). In Austria, recent legislative measures have contributed to the promotion of women in science. The University Act 2002 provides for equal treatment of men and women in university policy, incorporates a quota for female employment, requires affirmative action plans, and establishes a unit for the equal treatment and promotion of women and gender studies in each university (Pellert/Gindl 2007). In Finland, the creation of supportive national childcare policies, gender quotas on research councils, and the establishment of a position Equality Ombudsman have been catalysts for progress toward gender equality within universities (Husu 2007).

The UK and the US demonstrate how external environments can be either adversarial to progress toward equality or null, preserving gender asymmetry. Both external conditions have similar inhibiting consequences for the progress of gender equality. For example, despite the presence of laws, policies, and structures in the UK, there is a gender silence in higher education policy, suggesting that universities have addressed equality and that they have acted to reduce inequities only when legal expectations and activism have mandated or called for change (Morley 2007). Likewise, in the US, challenges to affirmative action

measures have led to policy alterations, effectively ungendering higher education and removing programs aimed at improving gender equality (Danowitz Sagaria/Van Horn 2007).

2. Positive Action from University Leaders is Essential for Progress toward Gender Equality

In five university case studies, leaders were instrumental in bringing about significant progress toward gender equality. Their universities illustrate the important role that a rector, president, chancellor, or dean have in both providing the vision and leading efforts for gender equality. They show that when a senior administrator publicly advocates for equality and visibly makes a personal and university commitment to equality, then he or she influences others by sending a powerful signal that the university is committed to equality.

At the University of Dortmund, the rector and a vice rector assumed responsibility for the Volkswagen Foundation's funded project Quality and Innovation: Gender Equality Challenges Higher Education Reform to produce significant changes in gender equality with the governing board and administration and to improve quality and performance within faculties and departments. The Volkswagen Foundation expected the rector to lead the project (Roloff 2007), a condition generally considered critical in organizational change in higher education (Clark 2004, Sporn 1999).

At the Vienna University of Economics and Business Administration, the rector has provided leadership to ensure policy efforts to mainstream gender equality. Two of his approaches have been to draw upon his social policy research and to support the Working Group for Equal Opportunity. His actions have contributed to the creation of a belief system within the university that supports gender equality (Sporn 2007). At the University of Helsinki, a vice rector has chaired the Equality Committee. While in that role, he gave many presentations at Finnish universities and viewed himself as an ambassador for gender equality within and outside of the university (Husu/Saarikoski 2007). At Ohio State University, the president and provost have advocated for and overseen the development and implementation of family and women-friendly policies and have encouraged the collection of extensive gender, racial, and ethnic data as well as the creation of an internal leadership development institute for women and underrepresented men (Danowitz Sagaria/Van Horn 2007). At the University of Kansas, a dean has championed and implemented a dual career couple hiring policy in which the partners of 25% of all recently hired faculty members have been accommodated (Rice/Wolf-Wendell/Twombly 2007).

3. Supportive Structures and Incentives Are Necessary to Put in Place Equality Measures

The creation of new committees, offices, programs, and positions demonstrates tangible change for guiding and/or providing resources and activities associated with equality. The triangulation of policies, structures, and procedures dealing with a particular phenomenon often has the affect of aligning activities with espoused goals (Brown/Van Ummersen/Hill 2002). The University of Dortmund demonstrates efforts to mainstream gender equality through both structural and cultural change. By requiring departments to commit funds to improve unacceptably high female dropout rates and rewarding departments for progress toward gender equality, institutional leaders have encouraged behavioral and cultural changes. The University of Helsinki has succeeded in integrating gender equality into the highest management agendas and creating an infrastructure to monitor and promote gender equality. It has also utilized the position of the equality advisor to create cultural change by reducing sexual harassment. Finnish legislation and documentation of the problem of sexual harassment in the university compelled the university to develop policies, provide training, and place a well-qualified professional in the role of equality advisor. As a result, most cases have been handled properly at the faculty or unit level (Husu 2007).

Miriam David's (2007) story of her development of the professional doctorate in Education at Keele University is an example of creating a program that mainstreams gender into the curriculum. It shows two simultaneous change processes. One, the program has disrupted dominant pedagogical discourses and practices and created new ones in order to better serve women students. Two, the feminist approach of the program has created a more equitable and inclusive higher education environment and may become a catalyst for subsequent change in higher education as graduates apply their learning to practice. This case study also shows how academic program creation infusing women's personal experiences into knowledge development and the curriculum can radically reform teaching and learning.

Ohio State University established a new structure, the Women's Place, to offer important resources for women. The formation of this unit has provided a senior administrative position of Associate Provost for Women's Policy Initiatives. The incumbent is an equality activist who is involved with university-wide policy matters. Creating this organizational unit has occasioned a source for ongoing feedback on policy issues, a data clearinghouse, a communications hub, an advocacy base, and a source of increased visibility for the needs and contributions of women at the university.

4. Funding Puts in Place Equality Measures

Scarcity of resources in an increasingly competitive market gives status and priority to funding as a determinant in decision-making and university adaptation. The use of financial rewards to stimulate or reinforce a practice indicates that resources have been redistributed. In an entrepreneurial university culture, financial allocations are symbolically and practically important. Similarly, budgetary increases, over time, demonstrate an institutionalized commitment to gender equality and enable activities and programs that otherwise would not be possible.

For instance, the gender equality project, "Quality and Innovation: Gender Equality and Challenges in Higher Education Reform" at the University of Dortmund, demonstrates the importance of leadership and financial incentives for reform as a way of making university structures vulnerable and susceptible to new ideas in order to overcome the asymmetrical gender divide in German society (Müller 2007). At the institutional level, the University of Dortmund demonstrates efforts to mainstream gender equality. Behavioral and cultural changes are encouraged by requiring departments to commit funds to improve unacceptably high female dropout rates and rewarding departments for progress toward gender equality. Additionally, the establishment of scholarships and programs, including the Austrian Program for Advanced Research and Technology (APART) as well as a mentoring project for women in academe, are contributing to meaningful progress toward gender equality in Austria. In the United States at Ohio State University, the commitment of resources for the Faculty Hiring Assistance Program (FHAP) included the setting of a minimum number of female and minority faculty member hires to be achieved as part of the diversity strategy of the organization-wide Academic Plan. These examples demonstrate that while economic forces may marginalize gender equity measures, economic incentives can have a powerful effect on propelling gender equality programs forward.

5. Auditing Puts in Place Equality Measures

Increasingly, external entities have used audits to redirect financial allocations. Within an entrepreneurial environment, accountability emerges as another important variable in shaping university change. Müller (2007) explains how incorporating gender as a criterion into such acts as budgeting, promoting, and evaluating has become routine. Furthermore, the German Ministry of Science and Education includes a *gender concept* in their requirements for the distribution of research funds. The United Kingdom, as Morley (2007) points out, stands in

contradistinction to these policies, as their audits are gender-neutral. The Research Auditing Exercise (RAE), which incorporates no gender equity measures, directly affects the amount of research funding an organization receives. Accountability and the definitions used in evaluating "excellence" at universities in the EU and US are often regarded as value-free. However, socially based constructs of knowledge and excellence effectively norm the male-dominated status quo and thus devalue women in academe and the labor market. Awareness of gender within accountability and auditing, such as the inclusion of gender-scorecards in reviews of the implementation of the Bologna process, become all the more important for creating change.

Conclusion

As the aforementioned review of factors influencing progress toward gender equality indicates, nation-states and universities are engaged in significant policy changes and program developments. Yet, it is also clear that reforms are tempered by several factors. In the external environment, universities have shifted toward an increased market orientation with finances driving the priorities of institutions (Sporn 2003). In many nation-states, legislative measures have not brought about the anticipated progress toward equality, and policymakers no longer consider gender an issue because women now comprise more than 50% of undergraduate students (Morley 2007). Gender equality reforms in the policy sphere have set new directions for universities, but they continue as male-dominated cultures grounded in principles of meritocracy and scientific methods as well as practices of peer review and informal networks, which often are not gender-neutral.

Changing universities to achieve gender equality ultimately means changing organizational structures and cultures, and, at times, the larger policy spheres in which they function. Ideally, institutional efforts to progress toward gender equality will occur in the broader policy sphere, the overall institutional sphere, and in decentralized faculty and department spheres. Many of the cases reported show the impact of successful structural change. But as Müller (2007) points out, the impact of structural changes on gender developments is important but is insufficient in itself because it fails to consider the "androcentricity of the organization of science and of the culture of universities" (Rees 2007).

Key issues within organizations require attention for gender equality to become a part of a deeper cultural organizational change that makes transparent changes in practices, which, at best, under-serve women and at worse discriminate against them. I offer five key internal factors derived from the American

Council on Education's work on the experiences of US university presidents as they strive to advance women in the name of equality (Brown et al. 2002):

- Gender equality measures must be grounded in the university's basic values and strategic action plan.
- Various constituencies within the university must buy-in or accept the proposed gender equality measures.
- Gender equality initiatives must be tailored to the particular needs of the university and must be adapted to its mission and culture.
- Gender equality initiatives must be linked to major programs and endeavors.
- A gender equality monitoring system with accountability must be put in place to assess short range and long-range outcomes.

There is no definitive end to the factors and initiatives that will advance gender equality in universities nor is there a limit on the kinds of individuals and coalitions that can bring about positive change. Achieving equality in our universities will require state policy makers, university leaders in management and staff roles, and activists to be both prepared and to engage in this crucial task for both short term and long term changes (Danowitz Sagaria/Agans 2007).[2]

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'Keeping your Eye on the Prize': Gender Equality Programmes in Enterprise Universities

Jane Wilkinson

This paper explores the material impact of major transformations in the Australian academic field upon a group of ethnically and socioeconomically diverse academic women leaders[1] who, because of their varying degrees of seniority, were positioned as key 'change agen(ts)' in their diverse locales (Yeatman 1995: 203). It examines two key questions. Firstly, despite long term policies of equity and diversity, how are such women leaders positioned in a field in which to be an academic leader/manager still requires that one both 'masculinises and whitens'? (Williams 1991 cited in Reay 2004: 31). Secondly, given the small amount of research upon such women and the largely unexamined assumption underpinning educational studies which posits white and middle-class as the naturalized subject location of leadership (Fitzgerald 2003, Wilkinson 2005), what learnings can we draw from these women's experiences in relation to gender equality programmes in universities?

Drawing on Pierre Bourdieu's theorizations of symbolic violence, habitus, capital and field, the paper explores these questions through case studies of four ethnically and socioeconomically diverse women leaders[2] (Wilkinson 2005). Three were of working class origin, whereas a fourth was middle class but with a large, working class extended family. Two were Aboriginal[3], and two were non-Aboriginal. The women were located in a range of contemporary Australian universities, comprising the most elite, research intensive, to the newer universities, formed in the late 1980s, who often lack the inherited resources and research intensive focus of the sandstones (Marginson/Considine 2000). The women held a variety of formal leadership roles, ranging from senior lecturer

1 The term 'leaders' is used to describe participants drawn from the larger study upon which this paper is based, who held formal management, research and/or teaching positions within the Australian academic hierarchy.

2 Interview data is drawn from a larger study conducted by the author which examined representtations of ethnically and socioeconomically diverse women leaders in the media and Australian universities.

3 The word 'Aboriginal' with a capital 'A' is used in Australia to denote the Indigenous people of Australia (see Craven/Rigney 1999).

(the commencement of the promotion ladder) to middle and upper management. The paper seeks to compare and contrast the women's leadership experiences at a time when major restructuring of the Australian academic field had shifted former notions of education as a public good to the contemporary concept of education as one of a series of fundamental 'national economic priorities' (Ozga/Deem 2000: 141-142); thus leading to the production of new entrepreneurial academic identities and 'enterprise universities' (Marginson/Considine 2000). In particular, the paper examines how the subsequent rise of new managerialism as part of the commodification of academic management, and the shifts in leadership identity which accompanied these changes, had both constraining and enabling impacts upon the ethnically and socioeconomically diverse women leaders in the study upon which the paper is based. Moreover, it posits that the intersection of gender, ethnicity, and class is a key under-examined factor in research upon women's leadership in academe and that there are subsequent implications for gender equality programmes which may flow from this position. In order to set the scene for these case studies, however, it is necessary to briefly contextualise the Australian higher education sector in which the women were located.

The Context of the Australian Higher Education Sector: Some Key Characteristics

In the late 1980s, the Australian higher education sector underwent a series of major reforms, including turning colleges of advanced education and institutes of technology into universities with doctoral awarding powers. 16 new universities were formed through a series of upgrades and amalgamations over a four year period (Marginson/Considine 2000). The premise behind this shift was complex but included the need to manage increasingly high youth unemployment, as well as an equity principle to encourage much higher numbers of young people from a range of different backgrounds to attend university. It also marked, however, the introduction of a series of market reforms to universities based on neoliberal principles of efficiency and competition between institutions (Blackmore/Sachs 2007). As a result of the amalgamations of the late 1980s, the university sector is now divided into five distinct segments, each characterized by amongst other factors, their differing histories, level of economic resources, and ability to attract external funding for research, key researchers and doctoral students (Marginson/Considine 2000). An important point to note however, is that although in theory universities in Australia are on a similar footing for they all conduct re-

search, teach and have the power to confer degrees and doctorates, in reality there are deep divisions and inequities within the sector.

Research by Simon Marginson and Mark Considine suggests the following descriptors to characterize the varying segments within the field and to capture the differences in prestige and power. There are the 'sandstone' universities, that is, the oldest and most prestigious of the institutions characterized by a research intensive culture, high ability to attract and retain major academics, the highest levels of research incomes and most doctoral students. Second in status are the 'redbricks', formed after the Second World War and in terms of status, research intensive focus and income, very similar to the sandstones. The 'gumtrees' were founded between 1960-1975 at a time when there was major public investment in the sector. They often lack the high status and research income of the sandstones and redbricks. The 'unitechs' are the former institutions of technology and thus have a major bias towards vocationalism and industry. Finally, the 'new' universities are a mixture of institutions founded after 1986 with less economic and symbolic capital to attract top scholars and researchers (Marginson/Considine 2000). Nonetheless, the newer universities may in fact hold more promise for the women leaders in the study for they are not weighed down to the same extent by the history of their traditions. The women in the case studies were located in a variety of contemporary Australian universities, ranging from on the one hand, the sandstones, that is, the oldest, most elite, research intensive, and wealthy universities; to the other hand, the gumtrees and newer universities, who lack the inherited resources, symbolic capital and research intensive focus of the sandstones (Marginson/Considine 2000).

Another characteristic of Australian universities is the prevailing middle to upper class background of most academic staff (Hatton 1999) and their predominantly Anglo-Australian 'face'. This is particularly surprising given the highly multicultural nature of Australian society. For example, 23% of the total Australian population have been born overseas, compared to 11.4% of people in the United States. 16% of Australians speak a language other than English as their mother tongue in their homes (Human Rights and Equal Opportunity Commission 2005: 21). Indigenous Australians, that is, those of Aboriginal or Torres Strait Islander descent, now make up 2.3% of the population but remain severely under-represented in postcompulsory and higher education study in general (Human Rights and Equal Opportunity Commission 2005: 29-30). Hence, as leaders in a largely Anglo-Australian, masculinist and middle class leadership, the case study participants were located as both oppositional to and 'non citizens' of the prevailing Anglo status quo (Stanley 1997). Yet their diversity also provided a form of positive capital, which could be exploited in the 'greedy' enterprise universities (Coser 1974) in which they were situated (Wilkinson

2007). Let us now turn to the first study participant, 'Iris'[4], to examine how the intersection of her class, gender and ethnicity, as well as her location within a gumtree/newer university, impacted upon her leadership work.

Do White Girls Rule? Constructing Leadership in Australian Universities

Iris was the most junior of the female leaders interviewed, of working-class, European origin, and had begun to establish a reputation of real note in her cutting-edge research and teaching. She remarked in relation to her upbringing:

> "I've been taught ... be a bit uppity and answer back ... be loud, be strong, muck up if you have to ... don't be intimidated... Yes, it looks really lower-class but that's not an issue for me, I don't care ... I think this politeness thing has been used to keep women subjugated and while I'm all for politeness, there is a place just to say ... 'Don't interrupt me' ... I won't stand for it. But I think it comes from having experience as a kid from some of the men in my community. Yeah, but also having parents who then taught me just not to put up with it."

Iris draws on her hybridity – her working-class background and minority ethnicity – as positive symbolic capital which provides her with 'good "crap detectors"' and an ability to '"cross" classes' in a kind of '"performance"' (Mahony/Zmroczek 1997: 5). However, in so doing she also must contend with the symbolic violence that ensues from her challenging of the orthodox subject position of Anglo-Australian, middle class academics. This is despite the fact that she is located in a newer university, which has had a proud commitment to equity and diversity, and in a faculty that is extremely supportive of her work. She recounts:

> "(W)hy is it laughable to some other academics when at the end of every semester I bring in big boxes of celebration chocolates to all my students ... at the lecture theatre ...? You know, let's all eat ... this is a celebration – we've finished another course. So what is wrong with that? ... They ... (older, Anglo, male academics) ... say, 'Well that's her ethnicity coming out.'"

It is fascinating that Iris's actions in handing out chocolates are automatically constructed through a racist discourse as emanating from her ethnicity. The patronizing comments and laughter serve a number of purposes – they stereotype, trivialize, exoticise and visibilise Iris's behaviour while at the same time concealing the dominant ethnicity of Anglo-Australian academic practices which can then continue uninterrogated. Importantly, Iris is a descendant of the Euro-

4 Pseudonyms are used for the study participants.

pean origin women who immigrated to Australia after the Second World War and were employed largely as 'factory fodder'. Although for women such as Iris, their 'positions may have altered', the media and societal discourses of such women have barely shifted, leading to women such as Iris being positioned on the negative side of the civilised/uncivilized hierarchy (Tsolidis 2001: 33). Hence, the derision from other academics attempts to symbolically punish Iris, revealing the negative connotations associated with the symbolic capital of her working class, European origins in the Anglo (white) academic field. Her experiences suggest the dangers of essentialising whiteness as a discursive category for it is an "ambiguous, fluid, diverse category influenced by changing cultural, economic, political and psychological contexts" (Kincheloe/Steinberg 1997: 212 cited in Singh 2000: 127).

Nonetheless, Iris has had the courage to unsettle previously-hidden dualisms which have so strongly advantaged a particular type of masculine and Anglo-Australian construct within academe. She refuses to be patronized by stereotypical racial and sexist discourses which would seek to place her in her 'rightful place' as the subservient minority ethnic woman (Tsolidis 2001, Wilkinson 2005). However, she does note how the material effects of feeling like a 'fish' out of water, of not knowing how to play the academic 'game' (Wacquant 1989: 43), and of experiencing a lack of 'entitlement' to the professional space occupied by the Anglo white, middle-class academic (Skeggs 1997: 133) – act to neutralise, silence, marginalise and disempower some minority ethnic academics. She comments:

> "I've noticed that with a few older academics here in different schools in our university who ... work really hard just to maintain their status within that department and will find themselves either sort of becoming less assertive ... or very stressed. Others manage it really well. And the other thing especially with the Asian young ... academics ... people just assume they've just come off a boat and some of these women could be third, fourth generation and they are as 'Australian' whatever that means but (you know) it's the visual ..."

Managing the 'Organizational Housework[5]': Lauren's Story

'Lauren' was an Anglo senior manager from a middle class background who took great pride in her extended family's working class roots, noting 'I'm not ashamed of my background. I am who I am and with whatever comes with that and people can either take it or leave it'. Lauren was located in a new university whose major source of clientele constituted 'non-school leavers' and many stu-

5 Blackmore/Sachs (2007)

dents from working class, as well as middle class backgrounds (Marginson/Considine 2000: 208). Lauren described her previous work culture, where she was an extremely senior manager, as 'impersonal ... all climbing up greasy poles', allied to a sexist, 'blokey' culture. Hence, she decided to leave this location in preference for what she felt would be a 'more civilis(ed)' culture of senior management in a university. Nonetheless, Lauren confronted a university management which exhibited 'a different kind of ... (sexist) ... annoyance' – characterised by male domination, in which one worked one's way up the ranks and consequently, 'there are very few newcomers so it's hard to break into'. Most power appeared to be centralised in upper management and meetings were described as 'a rubber-stamping exercise'. The overall management environment, she contended, was like 'being in the feudal age sometimes', with a rhetorical commitment to equity only. For example, she mused on the contradiction between her university's reports on equity 'which look very good' given the majority of academics are female, but notes that:

> "They're ... nearly all in the lower echelons. There is a view that sometimes women don't want these extra responsibilities – I don't think that's anywhere near a full explanation for what is happening ..."

It is only because Lauren had had previous experience of leadership in a very different setting that her confidence in her ability to manage well remained intact. She comments:

> "I suspect there's a stereotype ... that any leader has to be hard-nosed, authoritarian, aggressive ... extremely decisive ... my ... natural approach is different ... I have the confidence of having been the leader of a group ... that worked extremely well and I have no intention of changing my style ... It's more to do with bringing people along than kicking them into submission ... a softer style ... I think the style that we currently have is really quite inappropriate for an ... institution of experts."

Lauren ponders the material effects of the symbolic violence that this management style evokes, asking:

> "(H)ow much better could it have been for me and how much aggravation has it been? How have individuals suffered in achieving those ends? Many have prospered but I think many have suffered too."

Jeff Hearn has contended that in the restructured field of universities, rather than 'layers of gendered relationships of ruling' disappearing, they continue in sedimentary layers via the formal and informal practices of management (Hearn 2001: 72). The sometimes 'feudal' nature of management from the nineteenth century (Hearn 2001: 79) remains in Lauren's institution. However, a newer

entrepreneurial masculinity overlays this mix, described as 'aggressive, top-down, resistant to dialogue and exchange, and singularly lacking in empathy to the human costs of the changes ... instituted in many institutions' (Collier 2001: 23). It is implied in Lauren's remarks that people are 'kick(ed) ... into submission'.

Moreover, Lauren, like many other female managers in new managerialist academic regimes, appears to be discursively located within her university as simultaneously a leader, a change agent and the soft, feminised face of management (Blackmore/Sachs 2007: 14) – a role that is being increasingly allocated to women academic leaders who supply the 'extra emotional labour' needed in times of often brutal restructuring (Munford/Rumball 2001: 140). She notes, for example, that 'the most important change' she has tried to make as a senior manager is 'bottom-up' through 'listening' to staff, that is, constantly mopping up the damage and dirt left behind in the university 'house' by the 'hard-nosed', 'kicking-into-submission' style of some of its most senior managers. In carrying out this work, the danger is that women leaders such as Lauren are then positioned by feminist discourses of women's ways of leading in terms which construct the genders as 'irreconcilably different'. Formal authority characterised by 'knowledge, judgement and capacity for ruling' thus remains the property of males and gender as a category is 'maintain(ed)' rather than made 'fluid' (Blackmore 1997: 20). In addition, there is 'little recognition or reward' for such work (Prichard 2000) and indeed, in Lauren's case, she appears to be symbolically punished for her transgression as a female.

In restructured universities such as Lauren's, 'soft management skills' such as collaboration, caring and listening, appear to remain devalued 'women's work', albeit, rewarded at a more senior level than previously. However, one of the trends in Anglophone universities is a redrawing of traditional binary divisions between feminine/emotions/caring/management versus masculine /rational/hard-nosed/research. It is most clearly seen in the increasing divide between more feminised management roles which do not attract the funds necessary for increasingly cash-hungry universities to survive, and remasculinised research-only positions, with the latter becoming 'the new patriarchal heartland of the university' due to its ability to 'pull ... in big dollars' (Yeatman 1995: 202).

Louise Morley has contended that in the new university environment, '(b)eing seen to perform ... counts more than substantive social action such as addressing issues of inclusion/exclusion and social justice' (Morley 2003 cited in Blackmore/Sachs 2007: 2). This is an apt description of the symbolic violence produced by the practices of new managerialism upon talented women such as Iris and Lauren.

Ruffling the (Anglo) white, Middle Class Surface of Academic Women's Leadership

Let us muddy the waters a little further at this point. Lauren's story, though compelling, is not necessarily qualitatively different from the many tales that feminists have catalogued over the years in regard to 'women's outsider status in the academy', which, when 'combined with narrow institutional criteria for success, result in a situation where they suffer considerable pain' (Acker/ Feuerverger 1997: 137). This is not to dismiss or denigrate the degree of Lauren's pain but to suggest that feminist analyses of women and educational leadership which ignore the class and ethnic diversity that exists between different groups of women, and the material impact of these differences upon leadership for women, need to adopt more robust theorizations of power which will provide them with the analytical tools required for more nuanced readings and situated analyses of women's leadership. For example, what Lauren's story hints at is how a combination of embodied femininity and working class signifiers imbued in her bodily hexis represents a symbolic transgression against middle class constructions of Anglo white male academic leadership, which results in Lauren's decision to leave this punishing environment.

Iris's story takes Lauren's narrative a step further for it belies unitary notions of women leaders as a group. It suggests that essentialist readings of whiteness would benefit considerably from interrogations of how constructions of a continuum of whiteness as privilege in academic management operate as a form of hegemony, with one's gender, class and ethnicity marking the degree of difference between the 'ideal ... (Anglo, middle class, masculinised) ... legitimate body' of formal academic leadership and its 'inevitable compromise' with the 'real bod(ies)' (Bourdieu 1990: 72). In the case of Lauren and Iris, the former's Anglo 'body' marks her as closer to legitimacy than Iris's, thus allowing her to 'masquerade... as ... (a) ... genderless, dressed-up professional...' to a far greater degree than is afforded Iris (Trioli 1999: 124). For example, after many years of research and management in her previous field, Lauren's professional habitus had become that of disembodied/honorary male researcher and was so pervasive that she observed, '(eventually) I didn't really think much about being a woman although I was so alone in the beginning. I ... worked my way into being able to speak up ... without anybody thinking, "Oh, she's a woman"'. In the 'emotional politics' of class (Skeggs 1997: 90), both Lauren and Iris display considerable agency by refusing to disguise their mixed class (and Iris's European) origins and instead draw upon them as a source of identity and pride. Nonetheless, their experiences of virulent sexism, class discrimination and in Iris's case, racism, are telling tales of symbolic violence and act as a reminder

that Anglo/European, working class origin 'females in the public sphere ... are forever being caught out as ... (classed/raced) ... women' (Trioli 1999: 124).

There is one key difference between Lauren and Iris's stories on the one hand, and Aboriginal (and other black and Indigenous women leaders) on the other hand[6] Lauren and Iris are able to 'pass' as white women in a way that Aboriginal women leaders are not. As part of the 'historically constructed premise of inferiorisation within the hegemony of white ideology', the latter women as a group are positioned by a 'racial continuum as the most encumbered by nature, and therefore, the least civilized or most degenerate' with the '"white male" ... (who) ... represents culture and civilisation' at the other end of the continuum (Moreton-Robinson 2000: 112). Crucially, in relation to academic leadership, this 'same ideology allows white women to be positioned closer to the other ... (dominant) ... end of the continuum' deploying the 'subject position (for) middle-class white woman to speak for ... (Aboriginal women) ... as the authoritative voice of the all-knowing subject' (Moreton-Robinson 2000: 112). Two points can be drawn from the preceding concept of a continuum of whiteness. Firstly, Iris's experiences as an academic leader suggest that it behoves feminists to examine more closely through detailed case studies how such a continuum is operationalised in relation to specific constructions of whiteness, class and academic leadership/academic authority. Secondly, a closer examination of Ruth and Amelia's leadership habitus and practices – the two Aboriginal female leaders interviewed for the study – provide a glimpse of how this continuum is a construct and thus can be challenged in neoliberal times through a combination of strategic deployment of equity and diversity discourses at an institutional level; deep institutional commitment to equity principles; and a willingness from those in senior positions of authority to put these principles into practice.

The Political Capital of Diversity: Subverting Relations of Ruling

Ruth was a feminist Aboriginal woman academic of working class origin, working as a researcher/educator and middle manager in an elite university. Because of the 'robust(ness)' of the resource rich institution in which she worked, it could afford not to be 'fully entrepreneurial' and to attract 'top scholars and researchers' who possessed the symbolic capital to 'resist managerialism' (Margin-

6 As Tanya Fitzgerald (2003) notes in her article on Indigenous women's leadership, it is important to stress that the issue of diversity within educational leadership places me on challenging territory both because of my own location as a white female academic within a continuum of whiteness; and because I do not wish to subscribe to the notion of an 'add-difference-and-stir' approach to leadership and diversity.

son/Considine 2000: 193-194). Simultaneously, Ruth was actively involved as a leading Aboriginal feminist in the political field of government Indigenous/Non Indigenous relations, and because of this role, was regularly called upon by the media for commentary on Indigenous issues.

Amelia, although working in a non-elite institution, was the most senior of the women leaders interviewed and a committed feminist from a working-class background. She held a powerful figurehead role in her institution, which carried with it a great deal of symbolic capital. Importantly, as a member of the legal field and, previously, a senior ranking public servant, Amelia was located within a 'metafield ... which acts on other fields and influences their practices' (Webb et al. 2002: 85). Her leadership habitus was powerfully shaped by her location within the fields of feminism, law and academe and she called upon second wave feminist discourses to enact change at the most senior level of her university. Moreover, she possessed the formal authority to bring about change within her university to a far greater degree than the other five women interviewees, while simultaneously being subjected to the power, which arises from her location within the metafield.

Both women cited how the racism was subtler in academe, yet no less pervasive for that. For example, Ruth noted that her relationship with some of the senior (male) hierarchy in her university at times replicated the colonial dynamic of a 'black woman, white male boss, power dichotomy'. However, in terms of 'anti-racist struggles', she observed that as a result of her work in the political field of Aboriginal/Non Aboriginal relations, the leadership within the university had 'been very supportive with reconciliation issues ... protocols, policies and so forth'.

Amelia also observed the levels of racism in her university, but unlike Ruth and the other women participants in the larger study from which this paper derives, the senior position she held at her university afforded her the formal power and authority to contest the 'white woman, white male boss, power dichotomy'. She observed that she had been given a unique opportunity:

> "to be able to change attitudes within the universities ... (which) ... have been ... like law ... the strongest bastions of sexism and male privilege and there's an enormous opportunity ... to break that down."

Amelia was appointed to her university as harbinger of change, 'to "call" all the fustian, patriarchal inefficiencies of the old institutional culture' (Yeatman 1995: 203). She seized her power with alacrity, drawing on her significant pool of knowledge about the change process as a former senior public servant. For example, in describing a major change she brought about to the gender balance of a

significant academic committee over which she presided and which was to select new senior management, she commented:

> "I ... looked around the ... table and saw that there were only ... (a minority of) ... women ... and I said that this had to change. Whereupon I got a blast from ... men ... (one of the men) ... was ... actually racist and sexist ... (T)hat was pretty much the ... culture ... at the time ... I suppose they could see ... that this was actually a threat to their incumbency ... I intended to get rid of them and ... that's precisely what I did. It took me about ... (a certain period of time)... but I did it."

Moreover, as a leader one must:

> "be absolutely clear about why you are there, what is your agenda, what is it you think you're going to achieve and how do you think you're going to achieve it. And you've got to be absolutely clear – you've got to keep your eyes on the prize – you don't waver ... The big challenge is to find your way through the morass of rules and the regulations and conventional practices ... but ... if you've got a very clear idea of what it is you want to do and how you want to do it, you soon find your way through those things ... And not to be sidetracked and not to waver ... I think it's because people are impatient or that they haven't done their own work on themselves ... So they become acted upon instead of acting upon themselves."

Amelia had the power to change her university's management to reflect her commitment to equity, feminism and more democratic management. In this sense, her experience is opposite to that of Lauren, who was brought in as a harbinger of change and then struggled with an institution whose commitment to equity did not extend beyond the level of rhetoric. Instead, Amelia is afforded the opportunity to make deep-seated change to all three levels of the organisation, that is: its symbolic layer, that is, the 'signal ... about what is important and valued in the organisation'; its organizational practices, that is, the 'norms of behaviour embedded in systems and structures'; and its values, that is, its 'deeply held attitudes and beliefs' (Newman 1995: 25).

Amelia worked to achieve this through a range of strategies including: her own leadership practices as a form of role modeling; via the appointment of committed equity workers at senior management levels; and through the appointments of minority groups in both academic and general staff. It has been argued that part of managing innovatively involves '"pushing the boundaries"' in order for 'universities to remain as sites of struggle and contest ... encourag(ing) practices that lead to collaboration and collegiality' and 'identify(ing) the barriers to ... full inclusion' of groups such as Indigenous peoples (Munford/Rumball 2001: 142). Amelia commented that in terms of the adherence to social justice principles with which her professional and personal habitus was imbued:

> "I do try to treat everybody around me – and I don't care what position they hold ... as a human being. I know ... of men who walk past and don't even acknowledge the presence of people like typists or ... their PA's ... they treat them like dogs ... I have the view that everybody ... has a view on how the institution can run ... So that's important to try to include everybody in the team rather than being ... the head honcho ... I'm actually much more interested in having the institution achieving a position within the world hierarchy ... and ... long after I'm dead and gone ... the ... institution will be remembered and I think that's what's important."

Though not possessing the same levels of institutional power and the 'feel for the game' of leadership as it is played at the most senior levels (Wacquant 1989: 43), the political capital which Ruth's indigeneity and her location within the field of Aboriginal/White Australian politics afforded her ironically gave her the 'freedom to play seriously' in the latter field (Bourdieu 1998: 128) rather than in her increasingly constrained middle management role. Ruth observed:

> "(Y)ou're so stifled by educational institutions and they're a bureaucracy. And I've always hated working in a bureaucracy and increasingly more I find it very frustrating working in an educational institution because I'm starting to feel straitjacketed ... particularly as now I'm ... (Manager) ... there are all these administrative things that you have to do and answer to ... (Boss A) or take it up to ... (Boss B) who'll take it up to ... (Boss C) and I find those issues of negotiation very difficult to deal with. Whereas I'm a lot freer person in terms of being an Indigenous woman and leader in politics because in a very real way I can say what I want to say. I'm not a public servant. I'm not hamstrung to Governments. I can say what I really feel ... there's a lot more freedom out there to be an Indigenous woman leader in politics."

Ruth's indigeneity provides her with positive capital in both the academic and political field, and this has allowed her to 'make some impact' upon the tertiary and political fields in which she is located (Moi 2000: 331-332). Yet her gender is mostly constructed as negative capital. Ruth comments:

> "(I)n both of these ... (positions) ... I'm not constrained in any sense by my indigeneity – it is a real bonus ... I've never feel hampered or constrained. Certainly as a woman, in both of them, at times I have felt very subjugated."

Both Ruth and Amelia appear to have found themselves in a position of real power, in being able to turn their '"difference" into intellectual and political capital' (Ang 1995: 57). It is a theme which emerged with three of the other participants from the larger study: Simone (European, working class origin); Suzanne (Asian, middle class background) and Iris (European, working class origin); for all pointed to the symbolic capital of their ethnicity within the academic field, and in the case of Suzanne and Simone, to the symbolic capital which attached at times to the combination of their gender and ethnicity, in positioning them as 'change agents' in their academic field. However, Simone was located in an institution which in a manner similar to Lauren's, had a rhetorical

commitment to equity only, and thus experienced a form of symbolic violence when her diversity could not be managed but was constructed as deviant from a silent norm of leadership as Anglo and middle class (Wilkinson 2006).

In addition, Ruth's location within a sandstone university which dominated the field with its 'positional advantage' and which possessed the symbolic capital to 'resist managerialism' (Marginson/Considine 2000: 193-194), may have also allowed the university to fulfil its traditional role of dissent through providing a discursive space for anti-racist struggles. There is also the suggestion that the university itself derives symbolic capital by being seen to support reconciliation through its formal policies and protocols.

Both Amelia's and Ruth's leadership imbued current depoliticised diversity discourses (Blackmore/Sachs 2007) with a commitment to principles of equity grounded in democratic and inclusive forms of decision-making, drawn from their feminist values and Indigenous models of leadership which emphasise a collective orientation rather than 'a personal need for achievement' (Wihak et al. 2006: 13). The former is a discourse that has become marginalized in new enterprise universities with their emphasis upon increasing concentrations of power within senior executive (Marginson/Considine 2000: 11). The latter model, despite a small but increasing body of scholarship on Indigenous theories of leadership, remains largely ignored in both theory and practice in the educational field (Fitzgerald 2003: 9). Yet, both Amelia and Ruth's experiences provide a glimpse of how 'subjugated knowledges' around leadership drawn from the Indigenous and feminist fields may be utilized as a form of political capital within academe (Moreton-Robinson 2000: 2-3). It suggests that the drive towards the marketisation of education, new managerialism and performativity which characterizes the contemporary Australian academic field (Marginson/Considine 2000) may not be monolithic. It implies that one needs to examine the local contexts in which such discourses are played out and in particular, how specific intersections of class and ethnicity in particular historical contexts and fields may carry a form of positive capital which can be 'exploited' for political ends (Ang 1993: 4).

Amelia and Ruth appear to turn the negative capital of their gender, ethnicity and class into positive capital, thus illustrating the paradoxical and ambiguous nature of the concept of disadvantage. They occupy 'that "creative interval" which is, in reality, a multiplaced location ... of possible oppression and ... power and resistance' (Pallotta-Chiarolli 1996: 98). In Amelia's and to a lesser extent, Ruth's case, it seems that the site has become one of 'power and resistance'. However, Lauren and Iris's stories sound the warning that this location is hard-won, precarious and fragile.

Where to From Here? Implications for Gender Equality Programmes in Universities

What are some of the possible insights and potential policy implications that may flow from a study of ethnically and socioeconomically diverse academic women leaders? The recommendations below pose a range of possibilities as fruitful but certainly not exhaustive areas for exploration and development and which hopefully provide food for thought in regard to practical, follow-up strategies in regard to gender programmes. The recommendations include:

- The importance of recognising the specific institutional context in which equity/diversity policies are operating and the different ways in which such policies may play out depending upon the institution's organizational culture and, in particular, the degree to which racist, sexist and classist attitudes may underpin the internal logic of the specific institution;
- The importance of embedding policies such as equity/diversity at the three organisational levels, that is, the symbolic; the structural and organisational; and the attitudinal (in terms of institutions' values and beliefs) (Newman 1995: 25);
- The agentic possibilities that can flow when there is a clear senior commitment to diversity policies; when such policies are embedded at all three levels of the organisation; and when they are infused with a recognition of the political nature of educational leadership and the power of all players to be both 'policy makers' as well as 'policy takers' (Gunter 2004: 38);
- The diverse fields in which equity groups such as the female leaders were located, and the importance of recognising within diversity policies, firstly, that not all women are the same and that they bring multiple subjectivities and diverse logics of practice to their leadership work from these diverse fields; and secondly, the differential ways in which women leaders may be located within the tertiary education field, depending upon the different forms of gendered, raced and classed capital they bring to their leadership and the valuation of that capital by the field itself;
- The importance of specific case studies which examine the playing out of specific policy texts and practices in a variety of institutional conditions, in particular, in terms of examining the myriad daily practices which may work to reconstitute deeply gendered, raced and classed power relations within individual institutions with a view to understanding how such practices can be challenged and transformed into more socially justice processes, structures, attitudes and beliefs;

- The importance of collecting gender-disaggregated statistics (Morley 2006) on staff and students which provide data on ethnicity and levels of disability so that a clear picture of where the deficits and areas of privileging are occurring can emerge, thus allowing for more strategic targeting of programmes.

What are the ways forward? In her study of South African universities in the post-apartheid regime, Melanie Walker has made the following observations in regard to diversity and equity policies and their manifest stakeholders:

> "What then might a feminist *and* antiracist practice look like in universities? How do we avoid a slippage into a depoliticised concern with individual advancement and attainment? We need a more nuanced understanding of how women are marginalized in universities, how this experience unfolds differently, with different emphases and shades of meaning, so that we construct inclusive accounts and new possibilities for what it might mean to be 'Black' or 'White', 'female' and 'academic', and a more inclusive view and so more fully human account of social reality ... Nor however, should academic women overlook a careful critique of their positioning within the academy – where all women remain a minority and universities are sites of some of the most intractable and covert forms of resistance to women's advancement." (Walker 1998: 353-354)

It is this insistence upon critical awareness as a political responsibility for *all* stakeholders in the game of diversity policies and practices, which suggests a crucial step forward.[7]

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Balancing and Optimising Gender Mainstreaming at German Universities

Quirin J. Bauer, Susanne Gruber

Although women now comprise the majority of students and graduates at German universities, they are still a rarity in leadership positions. In Germany the so-called "classical" promotion of women, which focuses on special measures and promotion possibilities for women, has long been a weapon in the fight against this imbalance. For ten years now, gender mainstreaming has been a mainstay of policy on the European as well as on the national level. The aim of increasing gender equality faces several significant challenges that are generated by the very structure of the university. The key to success in a large bureaucracy like a university is an effective implementation strategy that fosters sustainable organisational change. This implementation strategy and its possible success are the focus of the research project "Balancing and Optimising Gender Mainstreaming at German Universities". Fifteen German universities cooperated with and contributed to this project, which was conducted under the leadership of Prof. Dr. Hildegard Macha of the University of Augsburg. The project was funded by the German Federal Ministry of Education and Research. The duration of the project was from October 2006 to February 2008.

In the following presentation we will first describe the research assumptions and design. We will then present selected findings regarding the current situation of gender mainstreaming at the participating universities as well as factors contributing to the success of gender mainstreaming measures.

Gender Mainstreaming at Universities: Challenges posed by University Bureaucracy

Gender mainstreaming, which makes "gender equality a key subject" (Kirsch-Auwärter 2002), is a cross-sectoral task of organisational development. It thus follows a top-down strategy, meaning that the management of an organisation is held to be responsible for performing the process. The gender equality officer or a project group can of course suggest activities to the management, but the re-

sponsibility for implementing gender mainstreaming remains as much as possible with the administration. There is not one particular person, such as the gender equality officer, who is solely responsible. Instead, all actors who plan, perform, and control decision-making processes are both competent and obliged to work according to the gender mainstreaming principle. Gender mainstreaming can be understood as quality management for social equality.

In principle, if gender equality is to be achieved, all practises and behaviours in the academic environment and in the organisational structure of the university have to be considered from the perspective of gender. This includes laws, regulations, norms, and policies concerning personnel, the faculties' agreed upon goals, the organisation of courses, regulations pertaining to courses and examinations, didactics, instructional content, research, and the distribution of resources. These many areas can be broken down into five categories relevant to gender mainstreaming at universities: 1. university steering, 2. personnel development and the promotion of the next generation, 3. research, 4. teaching and studies, and 5. social structural conditions. These categories were used as coordinates in the empirical survey (Kahlert 2003).

Design of the Empirical Study

The design of the empirical survey and the analysis of the status quo of gender mainstreaming strategies were adapted to the diverse situations at the various universities. In view of the multi-dimensional subject of the research it was also a goal of the analysis to reflect this diversity and protect the anonymity of the collaborating universities and their respective data by means of a cluster evaluation. A cluster evaluation makes it possible to investigate several measures and projects in a comparative way. It is also used to identify and optimise common themes and connections between the various gender mainstreaming programmes, as well as their success or failure (Haubrich 2001).

The empirical basis of the project is supported by different "pillars", which allow for a description of the gender mainstreaming measures at the collaborating universities and which give insight into their structures. Additionally, this triangulation of methods (Flick 2004) allowed us to look at, analyse, and interpret the research from various quantitative and qualitative methodological perspectives. The analysis of various documents and sources (promotion plans for women and their legal foundation, university guidelines, etc.) was combined with an examination of both quantitative and qualitative data. In the first case this involved a survey with questions on six different topics and, in the second, episodic guided interviews with experts at the various universities. This allowed

for the heterogeneity of the gender mainstreaming plans at the fifteen universities in the study to be adequately understood, analysed, interpreted, and optimised.[1]

The aim of collecting and analysing the data was to show how the implementation process of gender mainstreaming at universities can be optimised. The aim was not to rank the universities. The results of the surveys were summarised in the form of an "ideal university". This "ideal university" is characterised by beneficial and successful structures and processes and is an example of "good practice" in gender mainstreaming (Macha et al. 2008). The study also describes the structural conditions for a promising implementation of the gender mainstreaming strategy and outlines the "nuts and bolts" of a successful process and successful implementation. By "nuts and bolts" we mean the catalysts of acceleration thanks to which the implementation of the gender mainstreaming strategy at a university can achieve maximum effects. Adjusting one of the nuts or bolts affects the whole structure of the process, which in turn also influences other nuts and bolts. The "nuts and bolts" are thus key elements of a successful gender mainstreaming processes. Those responsible for implementing a gender mainstreaming process are given a powerful instrument of control when they are put in charge of adjusting the nuts and bolts.

The form of analysis used in this study allows the universities to remain anonymous while giving them the opportunity to compare their structures and measures with more successful ones. In addition, the structures and measures resulting from the analysis were supplemented and contrasted with practices described in the research.

The following presents some of the survey's results. Our main aim here is not to describe the processes as such but to highlight some of their "nuts and bolts". In the foreground are the implementation, direction, course, and design of the gender mainstreaming processes at the universities. Special attention and an in-depth analysis are given to the gender mainstreaming process measures at the universities analysed. The questionnaire provides the study's main data. In order to better understand each university's particular culture, two interviews were conducted at each institution, one with the gender equality officers, the other with one of the university's administrators.

1 15 of a total of 349 German universities were selected for the study, each representing either the northern, southern, eastern, or western part of the country. Additional criteria for the selection of the universities were a high degree of heterogeneity.

The Focus of Gender Mainstreaming Strategies

At all universities in the study, the systematic promotion of women was the predecessor and the historical basis of the gender mainstreaming process. Statements made in the interviews by gender equality experts form the basis of our presentation of the idea of "gender mainstreaming".

One of the questions asked in the interviews was whether there were interferences between the gender mainstreaming strategy and the promotion of women. As the analysis of the interviews shows, the concept of gender mainstreaming can be described on three different levels. First, there is the starting point, which is the legal basis of public organisations; second, there is the process that helps transform the university into an organisation providing gender equality; and the third level focuses on the result: a university in which there is gender equality. The way in which the process is implemented at the university in question depends on the individual perspectives of the gender mainstreaming experts. According to the mission statements of the universities analysed, only two of them are currently pursuing a gender mainstreaming strategy only, while four are pursuing the double strategy of the promotion of women and gender mainstreaming. One university does not distinguish between these two strategies. According to their mission statements, two other universities do not make explicit reference to the concept of gender mainstreaming. During the period of the survey, two universities initiated the process of gender mainstreaming and four universities either took a break after beginning to implement the process or did not explicitly continue to work with gender mainstreaming. All these findings show clearly that the gender mainstreaming process at universities is heterogeneous, that the label is not used in a uniform way, and that it has been implemented with quite different degrees of stringency, if at all. The following examines the various ways universities deal with the label and with the strategy of gender mainstreaming. In each case, we allow the experts and the universities to give an account from their own perspective, so that the various views of what gender mainstreaming is can be fully represented.

The analysis is based on the data from fifteen universities, insofar as they made statements pertaining to the label "gender mainstreaming".

Implementation and Direction of the Gender Mainstreaming Strategy

One of the "nuts and bolts" of gender mainstreaming is management and controlling. In the existing literature on the topic, gender mainstreaming is understood as a "top-down-process" directed by the management. In the following, we analyse more closely the issue of directing the gender mainstreaming process.
In general it must be said that the statements of the gender equality officers on the issue of directing the gender mainstreaming process are equivocal. This suggests that a simple view of the label "top-down" is insufficient for understanding the situation at the universities and the complexity of the whole subject.

The survey raised the question of the controlling of the gender mainstreaming process at several different points. In the written survey, the gender mainstreaming experts could describe their accountability for the process or at what organisational level their university has settled the de facto responsibility for it. At six of the universities, the responsibility lies de facto with the management, two universities divide the responsibility between the gender equality officer and the management, while at one university the gender equality officer is solely responsible. We can conclude from this that university administrators take part of the responsibility for the gender mainstreaming process. In the daily practice of one of the universities, this means that: "We do NOTHING without the university management. [...] That is the only possible way: we do not come as petitioners, but go straight to the management."

On the other hand, it is generally the gender equality officers who direct the process: nine universities stated that the gender equality officer had a strong leadership position, three gender equality officers oversee the process in conjunction with the management or the responsible committee, and at one university the committee (of which the gender equality officer is a member) is in charge. The gender mainstreaming experts report that these different approaches have implications for the whole process: a gender equality officer with a strong leadership position means that the implementation of gender mainstreaming remains entirely her responsibility. This could also mean the de facto non-implementation of gender mainstreaming. There is also the risk of overburdening the gender equality officers. When responsibilities for controlling are shared between the management and a committee, binding structures are put in place that are essential to the implementation of gender mainstreaming. Respondents to the survey described this kind of controlling as being effective and efficient in implementing the desired measures. Thus an intensive collaboration between the management and a directing committee figures as a "nut" or "bolt" of the gender mainstreaming process at universities. Here the results indicate that there is no longer a clear division between top-down and bottom-up-approaches. In practice,

the process involves consistently working with each of the various responsible actors.

The importance of establishing new committees for the implementation of gender mainstreaming has already been mentioned. Five of the universities surveyed had such committees. They are involved in controlling and are the main responsible entities for the process. The universities described this change in their structure as a result of the gender mainstreaming process as highly significant "nuts and bolts". It allows for extremely efficient work processes, as described by the following expert: "We have a direct line to the university's management. In practice we don't do ANYTHING without the management. We don't come up with our own projects." The practical necessity of establishing a committee is made clear by this expert: "A gender equality officer cannot direct the gender mainstreaming process by herself [...]. You desperately need more responsible parties."

"More responsible parties" means integrating more and more people into the process and communicating information about the whole process throughout the university. These committees thus essentially contribute to the transparency of the gender mainstreaming process as well as to its practical establishment in the university's culture.

The history of gender mainstreaming has made it clear that the gender equality officers play a key role in the whole process. The strategies they employ are a significant element in this description of the implementation of gender mainstreaming processes. The experts address these strategies in the interviews, and their answers paint a very diverse picture. Several emphasised communication and information, which can accordingly be seen as a key element in the strategy of gender equality officers. Remarkably, the only real disagreement that surfaced in the interviews on this topic had to do with the kind of pressure gender equality officers work under and how they achieve certain goals. Here the officer's behaviour is certainly also greatly influenced by the degree of openness shown by the management and the culture of the particular university. The experts describe the issue of communication in a more detailed way in the interviews. Communication and any claims made are based on scientific understanding, statistics, or previous successful projects. Overall, the academic language and the language of the university form the basis of all communicative processes. These elements thus need to be considered and put into practice at each step of the planning process. Moreover, they contribute to the possibility of an exact evaluation and a scientific analysis of the whole process as well as of individual measures.

Design of the Gender Mainstreaming Process

The design of the gender mainstreaming process refers to its conception and implementation. The design includes various aspects, including the question whether a gender mainstreaming analysis has been performed or is planned, what "milestones" of the process occur, and whether controlling and evaluation of the whole process have taken place and with what intention and to what extent. Both of these last elements give an indication of the transparency of the process itself. Another issue is whether controlling elements and countermeasures are already integrated in the plan. Less than half of the universities – five altogether – have so far implemented controlling procedures; two of the other institutions are currently developing one. Six gender equality officers clearly stated that there was no such procedure in place at their universities. As far as a controlling exists or is currently being set up, gender-relevant data proving the effectiveness of the performed measures is generated. Gender-analysis data is also important for universities' future planning. Not any of the experts mentioned descriptive aspects of controlling, such as the analysis of the progress and the structure of the process.

On the question of performed and planned evaluations of the gender mainstreaming process, only two experts reported positive feedback. At these two universities, there was a scientific evaluation of the process of implementation, which focussed on starting assumptions and end results. Two more universities were planning an evaluation, while eight did not intend to implement an evaluation. The advantage of evaluation is that it can be assessed from the perspective of current research. One gender equality officer described the experience of evaluation at her university this way: "In the beginning there was a lot of resistance, but the evaluation allowed us to prove them all wrong, and since then they have even been positive toward the process as a whole."

Gender data analysis is a widespread tool for evaluating the performance of the gender mainstreaming strategy. This analysis is already being conducted at eight of the universities involved in the study. Generally, universities collect gender statistics as part of the regular reports of the gender equality officers. At a few universities there was a more differentiated consideration of individual fields of data and statistics relating to special projects. At five of the universities, the gender data analysis occurred regularly, while there was only one at which it did not take place at all. All the experts interviewed consider the gender data analysis to be useful. The strength of the method lies both in its premise as well as in its basis for action, which makes it possible to prioritise certain activities. In addition to changes in the long term, the mid-term effects of analysis are also considered to be positive, in that it provides the possibility of a "screening" of the uni-

versity's strengths and weaknesses in terms of gender equality. None of the experts mentioned negative effects or implications of gender data analysis.

It thus becomes evident that all elements of the design contributing to transparency have a positive effect on the whole process. It is also clear that the participation of many actors is key for a successful gender mainstreaming process. Here again we see signs of a shift away from the strictly top-down or bottom-up approaches. The analysis shows the necessity of training for all actors involved in order to prepare them for their new and special tasks. The results demonstrate that the implementation of gender mainstreaming in the form of organisational development depends on the professionalism of everyone at the university.

Gender Mainstreaming Milestones

In the course of the survey, experts were asked about the milestones of the gender mainstreaming process. Milestones are defined as key events that promoted or restrained the process. This method of referencing the experts' descriptions of the complete, complex process is a powerful instrument of the analysis. Each university outlines the important steps of their process, giving an indication of the most significant steps that have to be taken for a successful implementation of gender equality.[2] The description of the milestones also formed the basis of the interviews. The data collected in this way gives a unique perspective on how these processes have been implemented but also on the ideal method of initiating processes of organisational development.

In the following, we examine the milestones from the perspective of the dynamics of the implementation of gender mainstreaming and ask about the form and the meaning of the key milestones in such a process. The influence of external milestones on the process, such as federal regulations, is noted in particular.

First it must be observed that universities are clearly reporting fewer milestones of the gender mainstreaming process than for the traditional promotion of women. Several universities, after initiating a gender mainstreaming process, do not describe any further events. One university compared the gender mainstreaming process with that of the promotion of women.[3] The beginning of the process was always counted as a milestone, whether the experts mentioned it or not. The following presentation shows clearly that the number of milestones increased significantly throughout all universities in 2003. Until then, the num-

2 Again the source here is the universities' own statements. The milestones and measures are defined by the gender equity officers themselves ex post as "gender mainstreaming".

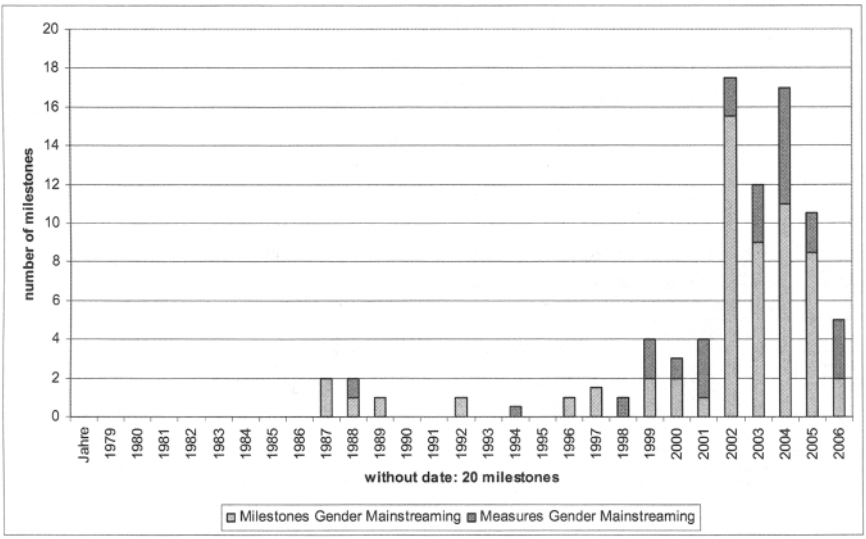
3 In order to receive a valid total number, the universities' own statements were included, but were given an importance of 0.5.

ber of milestones at all universities increased slowly, and began decreasing again at the same rate after the 2003 peak. The survey does not include 2007, as it was conducted between January and March of that year. We can assume, however, that the number of milestones in 2007 will be similar to 2006. We can conclude that after 2003, the projects in the fields of gender mainstreaming became established on an advanced level.

The following chart shows the milestones and the starting points of all gender mainstreaming measures (in black) at fifteen German universities. The data gives the impression that the gender mainstreaming processes at universities do not have a very long tradition. Many were initiated in or around 2003. This survey gives a snapshot view of the phase of implementation at all the universities.

The analysis of the data also points to another quality of the gender mainstreaming process as compared to the promotion of women. Gender mainstreaming processes seem to be more complex and affect the whole university. This imposes other requirements on those responsible for controlling, in that they have to supervise the complexity of the whole process along with various other individual processes.

Figure 1: Gender Mainstreaming: The Progress of the Process at all Universities



Total: 15 universities, absolute numbers

In the following, we look more closely at the milestones named by the female experts. Significantly, all milestones were described as positive and as strengthening the process. None of the experts mentioned a reversal in the process.

Figure 2 gives an overview of some of the main categories of milestones. The milestones named most frequently have to do with activities and events. Milestones concerning "new structures/motivating systems" and "commitment to the gender mainstreaming plan" are named almost as often. The category of commitment summarizes the universities' statements and activities intended to improve equality. This includes, for example, committee resolutions concerning this issue as well as the adopting of women's promotion plans. The category of new structures and motivating systems includes goal agreements as well as the establishment of new committees responsible for equality policies. The large number of milestones named in these areas, especially compared to the rather small number in the categories "financial changes" and "personnel changes" is remarkable. Nor did respondents frequently mention the transformation of external structures. We can draw two conclusions from this: first, it is likely that this is a reflection of the generally rather modest funding and small staff of the gender equality offices. It also shows in what areas activities take place and can take place. The field of offers and events is generally the gender equality officer's responsibility, who, as we have seen, is herself intensively involved in the controlling of the process. Transforming the actual structures, including in the area of commitment, is a much more difficult task. Decisive steps are taken much more rarely in these areas, and it clearly takes longer to prepare them. Yet at the same time, activities and events certainly have a positive effect on the process as a whole and can therefore function as a positive catalyst.

Figure 2: Types of Milestones in the Gender Mainstreaming Process

Type of milestone	Frequency of mention
Personnel changes	2
Changing of external structures	3
Financial changes	4
New structures/motivating systems	10
Commitment	10
Activities/events	31
Other	7

Total: 52 milestones at 15 universities, absolute numbers

The role of activities and events in the gender mainstreaming process can thus be seen as the cornerstone of this process at the cooperating universities. In the following we examine the data concerning the gender mainstreaming measures analysed in terms of their design as well as their success factors.

The Design and the Success Factors of Gender Mainstreaming Measures

As with all other aspects of gender mainstreaming, the measures put into place by universities during a gender mainstreaming or promotion of women process are highly heterogeneous. In order to be able to compare them, we developed a classification of these measures. We distinguish between two kinds of measures: "structural measures" and "programmes". A main criterion of this classification was the focus of the measures: if they directly influence the working, living, and studying conditions of the group in question, the measures were included in the category of "programme". Measures whose influence is more indirect, such as on the university's structure, belong to the category "structural measures".

In the following analysis of the various gender mainstreaming measures, we will distinguish between those with structural qualities and those that are more akin to a programme. The analysis focussed on the kind of measures as well as their frequency. Here the evaluation of individual measures deserves special attention, as these contribute to the transparency of the whole process of gender mainstreaming. The data is also analysed in terms of the measures' goals as well as their target groups.

Frequency of the Implemented Measures

The table below ranks the gender mainstreaming measures in the category of "programmes" named by the cooperating universities according to the frequency with which they were mentioned:

Figure 3: Programme Measures

Type of adopted measure	Frequency of mention
Seminars (i.e. workshops for young academics, continuing education)	4.5
Measures to increase family friendliness	3
Meetings	3
Continuing education	1
Mentoring	1
Information flow (i.e. communication)	1
Measures as part of the national programme for the advancement of women	1
Motivating systems	1
Performance-related bonuses	1

Total: 15 universities, absolute numbers; in order to receive a valid total number, the universities' own statements were included, but were given an importance of 0.5.

Seminars were the most popular programme measures named by the participating universities. The analysis of the structural measures implemented in the process of gender mainstreaming revealed striking differences to the programme measures.

Figure 4: Structural Measures

Type of adopted measure	Frequency of mention
Motivating systems, performance-related bonuses	5.5
Measures to do with university reform	4
Gender data analysis	2
Changes in the course structure (i.e. BA/ MA degree courses)	2
Information flow (i.e. communication)	2
Continuing education	1
Projects	1
Seminars	1

Total: 15 universities, absolute numbers; in order to receive a valid total number, the universities' own statements were included, but were given an importance of 0.5.

The number of structural measures named is a little larger than the number of programmes. Many of the measures mentioned had to do with motivating sys-

tems as well as the transformation of university structures. It is particularly measures in these areas that prove to be important "nuts and bolts" in the implementation of the strategy as well as of the whole process.

The differences between the frequency and regularity of the programmes and structural measures are less obvious. In both cases the focus is on activities and events that are offered continuously. Yet at 67.6% of all measures, the share of continuously performed programmes is slightly greater than that of structural measures (62.2%). All the other measures were classified as "one-offs", meaning that they happened only once and have already been completed.

Evaluation

As mentioned above, transparency and the relevance to current research are important "nuts and bolts" for an optimal implementation and supervision of gender mainstreaming. In the following we take a closer look at the evaluation of the individual measures.

Only 6 out of 17 programme measures, or 35.3%, were evaluated. This percentage is higher for structural measures, where an evaluation took place of 48.6% (9 of 18.5 measures). Evaluations allow for the success or failure of a measure or an event to be assessed and for changes to be introduced accordingly. One way to optimise the gender mainstreaming process could thus be to develop an evaluation tool that can be adapted to all of the individual universities' needs. Evaluations contribute to a lasting optimisation. The collected data can be used for internal feedback (within the university itself) as well as feedback from outside the university (such as possible funding sources). Key here is transparency. The following figures prove evaluation to be very important: at the moment, 13 out of 15 measures that were evaluated are still being carried out.

This means that 86.7% of the measures implemented have been successful through time. This includes short-term programmes and structural measures (two years minimum), but also measures that have been in effect for more than a decade (twelve years maximum).

Goals of the Measures

In addition to the content of the measures undertaken, it is especially important and interesting to look at their goals. In the following, we do this from two different points of view: we analyse the goals of the individual measures and make

suggestions about what goals are most useful; and we look at the target groups the measures address.

The goal of a measure can be broken down into several categories. The main goal of course is to increase the percentage of women at the universities. But we can categorize structural measures and programmes according to *where* the percentage of women is to be increased – whether it is the share of female pupils, students, doctoral candidates, assistant professors, post-docs, academics in general, or professors. A further goal is the qualification of women, and another is work-life balance. The table below lists the goals of the programmes and structural measures analysed.

Figure 5: Goals of the Measures

Goal	**Programmes**	**Structural measures**
Qualification of women	5.5	1
Work-life balance	4.5	1
Overall increase in the percentage of women	4	
Increase in the percentage of female doctoral candidates	2	5
Increasing the percentage of female assistant professors	2	5
Increase in the percentage of female professors	1	6
Increase in the percentage of female academics		4
Increasing the percentage of female students		2.5
A measure that already works with female students		1

Total: 15 universities, absolute numbers; in order to receive a valid total number, the universities' own statements were included, but were given an importance of 0.5.

These tables show clearly that programmes seek to achieve different goals than do structural measures. Particularly the increase of the percentage of women at the different levels of the university hierarchy is clearly more often achieved by means of structural measures than by means of programmes. Programmes play a greater role in the qualification of women and, in the long run, can thereby also increase the percentage of women at a higher level of qualification. On the whole, we can say that the gender mainstreaming measures implemented at the universities cover a broad range of goals. Different goals are reached in different ways and using different methods. Because the analysed measures are those the

experts consider to be the most successful and promising, they give an insight into the possibilities of optimisation for all universities.

Target Groups and Fields

Our investigation of the various measures showed that they often, though not always, are aimed at special target groups and at a particular field. The target groups include male and female pupils, students, graduates, doctoral candidates, post-docs, assistant professors, research assistants, and women in general. The target field can be subdivided into non-academic support, research and teaching, university management and committees, the entire university, outside groups, and the university's structure as a whole.

In terms of the programmes, four measures were aimed at female students as their target group and another four measures were aimed at female graduates. Only two measures aimed at female doctoral candidates as their target group, one was aimed at female assistant professors, and another at research assistants in general. Seven measures had a clearly defined target field. Four measures were aimed at the whole university and 3.5 measures concentrated on the university's structure as their target field. Committees, university management, and non-academic support services were each targeted with 1.5 measures. Two measures were aimed at outside groups.

4.5 structural measures aimed at women as their target group. 2.5 measures addressed research assistants, 2 addressed female graduates, 1.5 addressed female students, and 1 addressed female pupils. It was interesting to see here that four of the measures aimed at both sexes. This is the first time that gender mainstreaming has implemented measures appealing to both women and men. It is not surprising that seven structural measures concentrated primarily on the scientific field. Another 4 measures dealt with the university management and committees, 2 focussed on the whole university, 1.5 measures focussed on the university's structure as a whole, and another 1.5 on the non-academic supporting services. Only one structural measure dealt with an outside target group.

Summary

The experts at the universities surveyed named the following factors leading to the success or failure of the measures:

An interviewee confirmed one of the results of the questionnaire, which was that only measures that are evaluated are sustainable over a long period of time: "The measures led to some new insights, but because they were not further de-

veloped and systematically evaluated, they did not have any further effects or consequences." Gender mainstreaming measures can work very well if several strategic steps are taken and if they are not reduced to just one goal: "Measures are very successful with the following steps: 1. qualification of female graduates, 2. development of faculty cultures, 3. development of a follow-up project". Another finding was that successful implementation not only takes place within the university, but also outside of it: "We received good feedback in the discussion with members of the state parliament of different parties concerning gender equality and gender mainstreaming." The universities can now quantify the results of best-practice measures: "The number of qualified women serves as an indicator of successful programmes. Here the figures have increased steadily in recent years, so that of all tenured professors, 21% are female." Another supporting factor for the success of the measures that was named by the experts was the Bologna Process: "Thanks to the reform of the educational system, it became possible to systematically integrate gender research into more educational offers." The great effort exerted by the experts led to a new consciousness at several universities: "Strengthening gender research and a more intensive discussion concerning the meaning of diversity as a category of research helped us succeed in our work." Generally the experts wanted this question to be discussed at several levels of the university: "How is gender mainstreaming seen by the international public and how is it seen in different disciplines?"

Perspectives

All results of the analysis are summarized in the model of the "ideal university". This model demonstrates best-practice examples of implementing a gender mainstreaming strategy at universities.

One of the main things that became apparent during the analysis of the data was the interaction between top-down and bottom-up approaches in the gender mainstreaming process. This circular process with its reciprocal influences leads to a shift in the traditional idea of gender mainstreaming as a top-down process. Instead, all actors are involved in the feedback loop. Closely connected to this observation are the keywords transparency and communication, which can also be seen as elements of a successful gender mainstreaming project. At the "ideal university", therefore, the management of the university controls the process. A new committee has also been formed at the very beginning of the process. This committee brings together all participants in the gender mainstreaming process at the university and in this way guarantees a high degree of transparency of the process for the whole university.

The analysis of the individual measures initiated during the gender mainstreaming processes shows clearly that different goals and target groups can be reached in an optimal way by exerting different kinds of influence. Based on the evaluation of these measures, the best-practice measures can demonstrate how the goal of gender equality can be reached at Germany's universities.[4]

In principle, if gender equality is to be achieved, all practises and behaviours in the academic domain as well as institutions such as universities have to be considered under the aspect of gender. Gender mainstreaming is a successful strategy for realizing the equality of women and men in higher education in Germany and Europe.

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4 All of the project's results will be published in the book "Gender Mainstreaming: Professionalisierung der Organisation und Potentialentwicklung der Akteure an Hochschulen" (Macha/Bauer/Gruber/Struthmann) (Barbara Budrich Verlag; forthcoming).

Political Will is Not Enough
Results from the Evaluation of a Pilot Scheme for Implementing Gender Mainstreaming

Angelika Paseka

There is much proof that gender inequality still exists in nearly all areas of social life. Therefore the equality of women and men is a social and political challenge for all of society, not only in the educational system. The EU gender mainstreaming strategy is the expression of the political will to translate equality into social practice. In order to comply with this will, all European governments are obliged to initiate appropriate action. In Austria the Federal Ministry for Education, Science and Culture chose the teacher training colleges as a target group for a pilot scheme. The implementation process of gender mainstreaming was documented and evaluated by external evaluators. This paper emphasizes the conditions and presumptions under which the pilot scheme took place and critically analyses the organisations and their structure as a frame for equality activities. In addition, it assesses the chances for further development in the future.

Gender Mainstreaming as a Political Strategy

With the Treaty of Amsterdam (1999) the equality of women and men was established as the fundamental principle and aim of the EU. All members were obliged to achieve gender equality in all political fields and areas (Wobbe 2001). In order to implement this idea the EU adopted "gender mainstreaming". The concept of gender mainstreaming first appeared in the final papers of the Third World Women's Conference of the United Nations in Nairobi 1985. Ten years later it was accepted as an appropriate strategy for promoting equality at the Fourth World Women's Conference of the United Nations in Beijing (Callenius 2002, Bergmann/Pimminger 2004). EU politicians negotiated these ideas and defined a formula resulting in a concept that could be accepted and utilized by national politicians and policy-makers. Gender mainstreaming as a top down-strategy was passed on to the national governments and from them to the ministries.

In the specialist literature as well as in the publications of the EU and governmental offices, different explanations of the gender mainstreaming strategy can be found. This was and is cause for critical analyses (e.g., Stiegler 2005, Wetterer 2002). As a basis for this discussion I will first provide the Council of Europe's official definition: "Gender Mainstreaming is the (re)organisation, improvement, development and evaluation of policy processes, so that a gender equality perspective is incorporated in all policies at all levels and at all stages, by the actors normally involved in policy-making" (Council of Europe 1998).

In this definition it is clear that all members of an organisation or subunit of an organisation are challenged to follow and support a gender sensitive perspective on all organisational and structural levels, in all working areas as well as in all activities and measures. Gender mainstreaming, however, cannot replace specific women's empowerment programmes. Both strategies have to go hand in hand particularly in case of persistent discrimination of women (Bergmann/Pimminger 2004).

In 2000 an interministerial workgroup (*Interministerielle Arbeitsgruppe*) was installed in Austria for coordinating all activities. Later on internal workgroups (*ressortinterne Arbeitsgruppen*) were established in all ministries. They were responsible for formulating general aims after examining deficiencies and necessities in their working area. In the Federal Ministry of Education, Science and Culture the teacher training colleges were chosen as one of the target groups.[1] The head of the department for gender-specific education & gender mainstreaming, who later also became the project leader, worked out a pilot scheme which began in March 2001 and ended in December 2003. From the point of view of the project leader there were two main reasons for this decision:

1. Teacher training can be seen as a link to the next generation of teachers, however, there was strong evidence based on previous research (Hahn/Paseka 2000, Hasenhüttl 2001) that teacher trainers have a remarkable lack of knowledge concerning gender topics.
2. In October 2007, the teacher training colleges were to be replaced by so-called university colleges of teacher education[2] (*Pädagogische Hochschulen*) which would be responsible for the pre-service as well as the in-service training of teachers. From the beginning of the restructuring process a gender perspective was to be kept in mind and the experiences from the pilot scheme were to be used for further development.

1 The other target group were universities (e.g., Holzleithner 2002).

2 Transl. Note: This translation of "Pädagogische Hochschulen" i.e., "university colleges of teacher education" is the official one provided by the "Bundesministerium für Unterricht, Kunst und Kultur" (BMUKK) – Federal Ministry for Education, the Arts and Culture.

This short overview demonstrates the fast career of the term gender mainstreaming within the last decade. In view of its very general and abstract definition, the speed and success of its development is amazing. Perhaps though the definition's intangibility is the very reason for its success. However, it has to be asked what really happens when this strategy is implemented and what are the effects of it (Bustelo 2003). This essay therefore focuses on gender mainstreaming as an implementation *process*.

Gender Mainstreaming as a Learning Process

In order to implement gender mainstreaming several instructions are recommended. I refer here to the four-step-model by Bergmann and Pimminger (2004: 27), the so-called "GeM-spiral": To start with, it is necessary to carry out a gender analysis of the respective organisation or organisational unit (1), i.e., the current situation has to be described as a basis for formulating general objectives. In the second step these general aims have to be discussed with the involved actors, whereby, detailed and operationalized objectives should result from cooperative negotiations (2). These objectives have to be carried out step-by-step (3). The temporary end is the final evaluation of the process as well as the outcomes (4). The results of such an evaluation are the starting point for a second cycle and for continuous further development.

To implement gender mainstreaming in organisations several preconditions are necessary: first, an explicit *political* will has to exist; secondly, *management* has to have the will because gender mainstreaming – especially in the first phase – is a top down-strategy; however and thirdly, the commitment of all involved *actors* of an organisation has to be ensured by involving them in the development of shared visions, objectives and acting; fourthly, in order for the success to be *sustainable* it is not enough that just some individuals learn and acquire gender competence, nor does adding a gender-sensitive perspective to current topics and aims of an organisation suffice. Rather in order to initiate long-term changes and continued development of both individuals as well as structures it must include individual as well as organisational learning. The results of the learning processes must be embedded into the organisational structure.

Organisational learning happens when revised presumptions and results are *embedded* into the structure of an organisation and when new norms, values, guidelines, knowledge become part of the memory of an organisation. Although individuals learn, the reference point of their learning is the organisation (Schreyögg 2003). Argyris and Schön (1999, Smith 2001) differentiate three levels of learning:

- "Single-loop learning" means instrumental or adaptive learning involving the detection and correction of error (motto: "trial and error"). The reflection emphasizes techniques and making them more efficient. Although single-loop learning yields an improvement in performance and outcome, the basic and underlying assumptions and rules of acting are not questioned and therefore remain unchanged.
- "Double-loop learning" covers learning processes, which explore and change the governing values, general criteria and "mental models" (Senge 2003). It occurs when implicit as well as explicit knowledge on which the individual and collective acting is based are analysed critically. A process of re-construction starts which allows the revision, de-construction and modified production of new values, assumptions and policies. Such a "generative learning" (Senge 2003) enhances the actors' capacities to create new ideas.
- "Deutero learning" enables the members of an organisation to discover the learning system itself and to think of it as an object of reflection. This means identifying learning processes, styles and structures as well as discussing and reflecting on them. The actors diagnose the facilitating and limiting factors in a collaborative way which enables them to draw consequences for the re-structuring of learning processes.

Gender mainstreaming as an organisational development has to facilitate learning in all three senses. This is an arduous and demanding way in which the "espoused theories" of acting and the "theories-in-use" which are "tacit" and "incorporated" knowledge have to be made explicit. Most of the gender knowledge we use in daily life has been acquired and internalised during our primary socialisation and therefore seems legitimate. To question these deep-seated beliefs and values means creating an "irritation": contradictions and inconsistencies will appear and as a result resistance and conflicts will arise. However, without such an irritation learning seems impossible. In order to initiate such a process an organisation must put time and location at the actors' disposal. In this process the link between the individual and the organisation is the *group* in which such learning can take place by turning the other into a "mirror" for one's own reflections. A dialogue can start and become a "metalog" (Isaac 1999: 420) when assumptions and values are recognised and de-constructed, so that new patterns and options for reorientation are yielded.

Gender Mainstreaming in Teacher Education – The Vision

Having analyzed the process of gender mainstreaming let us now look at the contents asking: In which areas of teacher training colleges might a gender perspective be implemented?

- The *organisation* as a whole has to be examined for visible and "hidden" effects of gender, e.g., concerning positions, contracts of employment, financial support for research projects or presentations. A central element which needs to be considered in organisations is language as a medium for symbolic (in)equality norms and values. A gender sensitive language, therefore, is a must for referring to the different backgrounds, situations and possibilities of women and men.
- All *actors* (management, teacher trainers, administration staff) have to be involved and need to acquire gender related skills. That means (1) acquiring knowledge about gender theories, gender research and gender mainstreaming; (2) sharpening one's own perception of gender discrimination; (3) having a look at one's own biography, dominating values, norms and attitudes and (4) acquiring the ability for applying the knowledge (Schneider 2004).
- Teacher training colleges have to provide *programmes* and pedagogical concepts which take into account gender equality and gender democracy. The curriculum, lectures and courses as well as research projects have to be analysed as to whether or not they consider these aspects.

On the basis of these general aims the project leader formulated six objectives which although concrete were broad enough for negotiations among staff. To give an example: all actors have to acquire knowledge about gender and gender mainstreaming to be able to carry out this strategy actively in one's field of activity.

The Pilot Scheme "Gender Mainstreaming at Teacher Training Colleges"

The teacher training colleges in Austria served as the target groups for the pilot project. The colleges are primarily responsible for the pre-service teacher education in various areas of the Austrian school-system. They are situated at the third level of the education system, but are – by law – "post secondary schools". Therefore their organisation has more in common with schools than with universities. All 14 general teacher training colleges (responsible for the education of teachers in elementary, general secondary and special needs schools), four tech-

nical and vocational teacher training colleges and seven training colleges for religious education teachers (six run by the Catholic, one by the Protestant church) were involved in the pilot scheme. In 2002/03, 13.000 students were enrolled in these institutions. The entire teaching staff consists of 2.100 teacher trainers, whereby 40% are women, 60% are men and 70% are employed part-time.

After the overall goals were formulated by the responsible department in the Federal Ministry of Education, the colleges received an order to take part in this pilot scheme (autumn 2001) and to focus these goals on their own specific situations. This was typical of a hierarchical system and was well suited to the idea of gender mainstreaming as a top down-strategy. Furthermore, the principals were informed that they were to install so-called "gender mainstreaming representatives".[3] The GM representatives were to include both a woman *and* a man in accordance with the idea that this strategy is not just a programme for promoting women. In other words this was also aimed at getting men involved in caring about gender inequalities as well. For these GM representatives, two workshops were offered and paid for by the Federal Ministry of Education (spring 2002 and 2003). First drafts and concepts had to be sent to the project leader before May 2002 and the ideas were carried out during 2002/03. In December 2003 the final reports were written.

The pilot project was evaluated by Erika Hasenhüttl and myself. Both of us are working as lecturers in teacher training colleges. Within the on-going and final evaluation the following data were compiled: two interviews with the project leader, analyses of the concepts and final reports, observations at the workshops for the GM representatives and a written survey (with a questionnaire) to reach the teaching staff at the involved colleges (detailed information in Paseka/Hasenhüttl 2004, Paseka 2005, 2007). This paper discusses just some of the results emphasizing the organisational background.

Results

Results Concerning the General Goals

The general goals emphasized the increase of knowledge concerning gender theory, gender research results and equal opportunity policies (1), the implementation of gender mainstreaming into the curricula and lectures (2), the establishing of experts with competency in the area of gender (3), the promotion of gen-

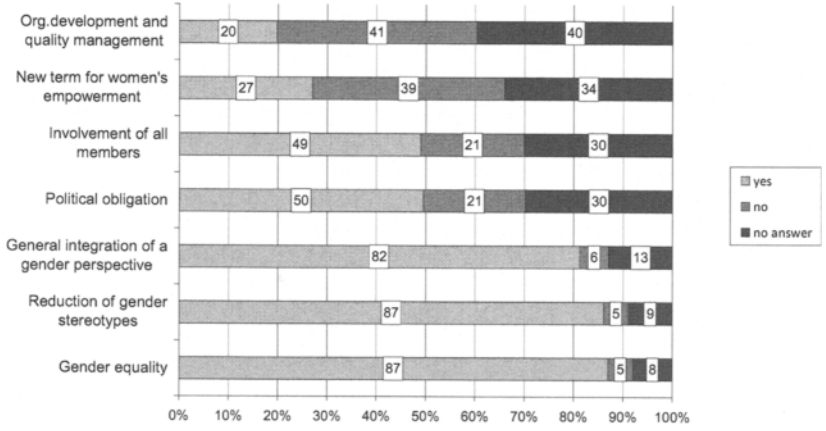
3 gender mainstreaming abbreviated in the following as GM

der research and the equal presence of women and men in research projects (4) as well as at all levels of the organisation and in committees (5), and the appliance of gender-sensitive language (6).

1. The papers made evident that many different activities took place at the colleges (e.g., workshops or guest lectures). At the end of the pilot scheme it was clearly evident that the teacher trainers had enlarged their knowledge compared with former evaluations: 97% were familiar with the concept of gender mainstreaming and 91% judged themselves as being able to explain the term. However, deficiencies became obvious when they were asked for details (see Figure 1): The teacher trainers were highly aware that GM is associated with gender equality, the reduction of gender stereotypes and the integration of a gender perspective into an organisation, however, only half of the persons asked were aware that gender mainstreaming is a political duty and that all persons of an organisation have to be involved. Just 20% connected the concept with organisational development and quality management whereas, 27% still thought gender mainstreaming is a new term for women's empowerment programmes.

Figure 1: Knowledge about Gender Mainstreaming

Gender mainstreaming means … Note: n = 489



Additionally, some of the teacher trainers' attitudes were alarming: Only 34% of them fully accepted that gender is historically and socially constructed and therefore changeable. On the contrary, nearly 60% agreed at least partly that equal opportunities can hardly be attained due to biological differences between women and men. The data indicated that among teacher trainers, the dominating attitude includes very traditional ideas about gender. This of course raises the question of whether it is in general possible to carry out the objectives of gender mainstreaming. The underlying assumptions seem to be very deeply incorporated and resistance to gender mainstreaming, therefore, inevitable. In order to change such internalized values, more than information on a cognitive level is necessary.

2. With regards to implementing gender mainstreaming in curricula and lectures the data indicates ambivalent results: On the one hand nearly 60% of the teacher trainers reported taking into account a gender perspective in teaching. On the other hand local examinations at two colleges show that this positive self-assertion contrasts with the opinion of students asked (Feurstein-Zerlauth 2004, Hahn 2006). In the majority of the reports very vague information about the curricula is given (e.g., "some of the curricula have been revised" or "the curricula were controlled") and only 17% of the teacher trainers are sure that a gender perspective is already taken into consideration in the curricula.
3. In most cases when asked to name experts competent in the area of gender, only the two GM representatives were noted by the principals. It is obvious that from their point of view there is still a lack of knowledge about gender theories and gender research.
4. It is a pity to say that there is hardly any gender research at teacher training colleges in Austria. However, the number of women carrying out research projects is as high as that of men (respective to their proportion in the teaching staff).
5. Difficulties become quite clear concerning the aim to have equal representation of women and men at all levels and in all committees. About 60% of the teacher trainers asked think that by filling committees gender equality is already taken into consideration. More men than women agree significantly with this opinion. However, this result is amazing when one takes a look at the distribution of women and men in the official figures with regards to the hierarchy of teacher training colleges: The higher the position and the qualification the less women can be found. It becomes obvious that there is no or little awareness of the necessity of such a goal. The assessment in the reports written by the management and/or the GM representatives also demonstrate that they are neither aware of such existing inequalities nor do they

question them. Instead, they judge them as a result of individual and democratic decisions.

6. Concerning the implementation of a gender-sensitive language some success becomes evident: All stake holder groups (management, teacher trainers, GM representatives, project leader) agree that this goal should be met in written documents (e.g., homepage, curricula, local journals, letters and announcements). With regards to oral language use, no assessment can be given.

To sum up the results: The teacher trainers know the gender mainstreaming strategy, they can partly explain the term and a gender-sensitive language in written documents is ensured. There is evidence that the staff has at least some will to incorporate a gender perspective into their teaching. However, the data show that the majority of the teacher trainers still agree with traditional attitudes which cannot be assessed as helpful for implementing gender mainstreaming. The described success is based mainly on the efforts of the GM representatives, whereas, the principals have been not only less active but have even counteracted the initiatives by ignoring existing inequalities. With regards to implementing gender mainstreaming into the organisational structure (e.g., into the curricula or decision-making processes), the results are quite ambivalent.

About the Organisational Context and Actors

To be able to explain the described deficiencies we have to look at the organisational context in which the pilot scheme took place as well as the actors and their interests. In the following, these realities will be contrasted with the general ideas of gender mainstreaming.

Looking at the teacher training colleges they can be characterized as a flat hierarchy with a poor structure. A principal with one to three department heads, one for the courses of study and one/two for schools usually associated with the colleges, is responsible for the management. They are faced with a group of full and part-time lecturers who can be described as a structurally homogenous group without further hierarchy. However, there are professional groups which can advise management and formulate ideas or wishes, but which have no decision-making power or resources. These groups usually work side by side and are loosely coupled. Such a "cellular pattern" (Lortie 2002 14) inhibits formal communication and collective bargaining. In addition, the colleges are "professional bureaucracies" (Mintzberg 1983 cited in Krainz-Dürr 1999: 23), in which experts on special subjects work autonomously, more or less "alone" or sometimes in

groups formed informally depending on the occasion. This culture of organisation can be summed up as "autonomy-parity-pattern" (Lortie 2002, Altrichter 2005).

Some inconsistencies become evident when this structural background is compared with gender mainstreaming: The implementation of gender mainstreaming needs a structurally embedded steering committee with resources and decision-making competences. However, this would counteract the hierarchical authority of the management as well as the parity as a guiding principle for collegial life. Another problem arises looking at the tasks of these experts: They are primarily responsible (and paid) for teaching, but not for research or organisational work. Gender mainstreaming, however, needs collaborative bargaining and professional communities for research projects (especially evaluations) *in addition to* the teaching load. There should be a forum for information exchange, negotiation and learning processes in the regular operation of the organisation. Looking at the teacher training colleges it has to be conceded that such a structure does not exist.

When one considers the teacher trainers and their professional ethos it is obvious that they are interested in preserving their autonomy and individualistic orientation which has always been supported by the organisational structure. Within the frame of the curriculum they are used to choosing their topics and goals according to their own capacities and interests. It seems that a common vision is not necessary among the teaching staff. They have – in most cases – a stake in autonomy and would therefore resist conditions that would force them to change their attitudes. Cooperation within this structure has always and in most cases been voluntary and is based on individual autonomy (Lortie 2002).

In contrast, gender mainstreaming needs all members of an organisation to be involved: General objectives have to be negotiated and carried out together. That means breaking with separation, making one's own goals, contents and teaching methods public – and oneself vulnerable. Furthermore, it must be taken into consideration that most teachers have a minimal level of competency with regards to gender (see above). From this point of view it has to be expected that there will be reluctance to the implementation process as well as to the contents.

Effects on the Implementation of Gender Mainstreaming

The culture of the organisation and the individual interests have to be taken into account as background for the pilot project and can – at least partly – explain the behaviour of the crucial groups.[4]

The management considered the pilot scheme as "threatening": Steering committees would have been an alien element in the organisational structure and would be able to question the traditional hierarchy and decision-making processes. The superiors were interested in keeping the GM representatives structurally weak. Some chose staff members which were in a precarious situation: They only had a reduced teaching load at the college and hoped to have a chance to "get on board" by accepting. Still others chose persons which were specialists in other topics. It could thus be assumed that they would have little interest in becoming involved in the pilot scheme. In addition, most of the GM representatives were not allotted time resources for this task, nor a task profile or power to make decisions. Furthermore, as a top-down strategy gender mainstreaming would have been in need of the management's active support and participation as "change leader". According to the data though, it is evident that with the exception of a few their commitment has to be assessed as minimal. They delegated the responsibility to the GM representatives and "just let them do it".

Most of the GM representatives on the other side – and this was really astonishing – did not demand a task profile or decision-making power from their principals, only a few requested time resources. Instead they started numerous activities with considerable effort and creativity, using informal contacts for carrying out their activities. By doing so they depended on the "good will" of their superiors and colleagues and demonstrated little organisational awareness (which is in fact a key issue in carrying out gender mainstreaming). By accepting the situation as it was they reaffirmed the traditional structure instead of challenging it. It is not surprising that their effort decreased and at the end of the pilot scheme they were tired, partly disappointed but also annoyed. However, it was not before the end of the pilot period that the GM representatives requested a task profile for their position and realized their function as agents of change. Discussing their experiences they formulated some key points and handed them over to the project leader during a third workshop in spring 2004.

The teacher trainers, their commitment and attitudes, competences and interaction patterns are the third crucial group. They took note of the pilot scheme and realised that lots of activities happened. Comparing the results of the current

4 For further aspects of the analysis, like architecture of the project, political implications, initiative-taking, empowerment, pressure and support, professionality, monitoring and evaluation, see Paseka (2007).

evaluation with former data (Hahn/Paseka 2000) an increase of knowledge took place: The integral educational principle "education to equality between women and men" is much better known as well as the current folders and materials produced by the Federal Ministry of Education, Science and Culture. The gender mainstreaming strategy is well-known, many can explain it to some degree but often are unable to go into detail. However, the teacher trainers' attitudes towards gender have to be assessed as, at least partly, traditional. There is evidence that they have minimal organisational awareness and a readiness for individual learning can only be taken for granted to a limited extent.

Summary and Implications for Implementing Gender Mainstreaming

The results of the external evaluation document that the teacher training colleges were stimulated to implement a gender equality perspective. Although some positive effects could be recognised, mainly due to the explicit political will and the efforts of the GM representatives, it could not be implemented to its full extent because essential aspects such as structural change or involving all of the actors have only been partially if at all reached. For the most part, learning processes, as described above, could not take place. The observations and the statements during the workshops made it clear that the GeM-representatives experienced single-loop learning by carrying out activities. They received immediate personal feedback from their colleagues and to some degree from their superiors. Moreover, during the on-going and final evaluation they also received feedback from the evaluators to which they responded very positively. However, their learning was just "individual" and further loops did not happen. They were "single fighters" for gender mainstreaming and could hardly organise a professional community around them to take part in this process and help incorporate the strategy into the system.

Just looking at the organisation and its members as active actors some consequences can be drawn from the experiences in this pilot scheme for future projects:

- Gender mainstreaming needs adequate structures and patterns of acting for carrying out the strategy: Working in teams, negotiating and discussing visions and objectives, adaptive and generative learning processes, monitoring and evaluation of results etc. are all part of the concept's philosophy. In the Austrian teacher training colleges these structures did not exist nor did adequate attitudes toward this concept. The culture in these organisations simi-

lar to in schools in general (Lortie 2002) counteracts with the idea of gender mainstreaming.

- In order to be implemented, gender mainstreaming needs pre-established support structures and an appropriate environment for beginning the transformation. If they do not already exist the efforts of the actors run idle. The GM representatives have been very active using informal channels, but by not obtaining a formal position they were petitioners and not designers in this process. As a result they were not able to take the responsibility for the change management. However, such a formal position could not be provided because the concept of the organisation as a whole, did not allow for such a designated position.
- Subtle reluctance and resistance have to be taken into account. There was hardly a place nor time to do so. The superiors as well as the teaching staff accepted the pilot project because a strong political will was felt and made visible in the background, however, gender mainstreaming – with some exceptions – has never become "their" project. Low emotional involvement as well as the existing organisational structure supported the persistence of traditional attitudes and patterns. These experiences coincide with other school development projects which often leave behind disappointment because of a refusal to look at reluctant and resistant belief systems and structural arrangements (Rahm/Schley 2005).
- Organisational development needs time. Whereas the architecture of the pilot project granted just two years to carry out the frame objectives, several years need to be taken into account i.e., from initiating till institutionalizing a new idea into an existing system.

The pilot scheme finished in December 2003, however, the results of the evaluation were already being used for the restructuring of the universities' colleges of education which have started on 1st of October 2007. The project leader and head of the department for gender-specific education and gender mainstreaming in the Federal Ministry was aware of the necessity of implementing transformational structures in advance. She has thus succeeded in making the installation of an "Arbeitskreis für Gleichbehandlungsfragen" ("bureau for equality affairs") a legal requirement. One of its tasks will be to implement gender mainstreaming. Only the future will show whether the representatives will take the chance to implement gender mainstreaming by applying the evaluation results of this pilot scheme.

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Promoting Women Researchers through Mentoring Eument-Net as a Basis for a European Network of Mentoring Programmes for Women in Academia and Research

Helene Füger, Nikolina Sretenova, Christine Brunn, Dagmar Höppel, Evi Genetti, Sabine Lask

In the last decades, mentoring programmes have established themselves among the most prominent instruments implemented in European countries for promoting women in higher education. However, a closer look reveals that in many cases academic mentoring programmes are not (yet) secured on a long-term basis and their position inside the academic institutions often remains precarious. Moreover, in many EU countries, mentoring programmes for the promotion of women in academy and research are altogether nonexistent.

In the context of the evolving "European Research Area" it is therefore important to consider a couple of questions with regard to academic mentoring programmes. First, how can existing mentoring programmes adapt to this changing context and integrate these new dynamics? Second, how can mentoring programmes participate in structuring the European Research Area and promote mentoring as a tool for effectively addressing and strengthening the position of women in academy and research in Europe, especially in countries where mentoring is still scarce, such as in southern and eastern Europe?

These questions become all the more relevant when one considers the ambitious goals defined by the European Union in Lisbon: 1) to become the most competitive and dynamic knowledge-based economy in the world, 2) for European societies to develop the ability to use and fulfil their potential, and 3) to establish themselves in a positive and sustainable way. Each of these are dependent on effectively promoting equal opportunities and adequately integrating women in decision making positions within research and science.

Supported by the 6th Framework Programme and starting in January 2006, the eument-net project aims to promote the advancement of women's careers and their position in academy and research in Europe by developing a European network of mentoring programmes. Eument-net endeavours to address the above mentioned questions by

- fostering the exchange of experience and best practice among mentoring programmes;
- highlighting the role of mentoring as a tool for the promotion of women and gender equality in academia and research, and promoting the transfer of knowledge and expertise especially in countries where mentoring programmes for women in academia and research are still scarce;
- facilitating cooperation among programmes and the promotion of new mentoring services and activities;
- helping to put mentoring for women in academia and research on national and European science policy agendas.

The eument-net project has been initiated by four mentoring programmes for women in their early careers in academia and research in Austria, Germany and Switzerland[1] as well as the Institute for Philosophical Research from the Bulgarian Academy of Science. The eument-net initial project phase started in January 2007 and will run for 21 months until September 2008.

Aims and Activities of the Eument-Net Project Phase

During the project phase the activities of the eument-net consortium are organised along four main lines.

1. Assessment of experiences in implementing mentoring programmes, institutionalisation strategies and knowledge transfer taking into account the impact of the specific contexts.

During the project phase, the partners of the eument-net consortium proceeded to an intensive phase, assessing and comparing their experiences while implement-

1 The four mentoring programmes are the Réseau romand de mentoring pour femmes, University of Fribourg, Switzerland (Coordinator); Mentoring Deutschschweiz, University of Berne, Switzerland; MuT-Mentoring und Training, Landeskonferenz der Gleichstellungsbeauftragten an den wissenschaftlichen Hochschulen Baden-Württembergs; and muv – Mentoring Programme for Women Researchers, University of Vienna, Austria.

ing their mentoring programmes and elaborating a strategy of institutionalisation. The situation of the consortium's Bulgarian partner was discussed in contrast to these experiences, highlighting specific needs and dimensions in order to accommodate knowledge transfer. This first line of action will result in an eument-net manual for implementing mentoring programmes for women in academia and research.

Within the context of this first line of action, the Bulgarian partner also conducted in-depth research among early career researchers in Bulgaria, as part of the efforts to prepare the ground for implementing future mentoring schemes for women researchers with high potential.

2. Definition of sustainable cooperation structures among mentoring programmes on a European level.

Mentoring programmes which promote women in their early career in academia and research have to consider the increasing internationalisation of the academic landscape and labour market for research. The European science policy is an important contributor shaping this labour market and its rules. The second line of action of the eument-net project phase was concerned with elaborating legal structures for the eument-net network, reuniting mentoring programmes in Europe around common goals and a set of international collaborative activities. In order to assess the landscape of mentoring programmes in Europe and evaluate the expectations towards and the interest in a European network of mentoring programmes, the partners of the eument-net consortium conducted two surveys among European stakeholders and coordinators of mentoring programmes and elaborated minimum quality standards for mentoring programmes.

3. Organising debates and discussions between mentoring programmes and stakeholders in the promotion of women's position in academia and research.

Findings and results of the eument-net project phase will be discussed and debated with representatives of other mentoring programmes and stakeholders in the promotion of women's careers in academia and research in two regional conferences as well as on the European level. In order to pursue the goals of eument-net and develop it as a European network of mentoring programmes fostering women's position in academia and research in Europe, organizing conferences, debates and workshops for coordinators and researchers involved in

mentoring programmes and other stakeholders should be an important field of activity.

4. Creation of an electronic platform and a European database of mentoring programmes as a tool for disseminating knowledge and experience.

One of the activities during the eument-net project phase will be the elaboration of the eument-net database and platform of mentoring programmes. The platform with its database is designed to become the virtual home of the European network of mentoring programmes and an effective and dynamic tool for the exchange, dissemination and transfer of knowledge.

Relevant Context-factors and Definition of Strategies for Implementing and Institutionalizing Mentoring Programmes

The first stage of the eument-net project phase has been dedicated to the discussion of similarities and differences between the involved mentoring programmes with regards to the eument-net consortium partner's experiences or questions concerning the implementation of mentoring programmes. These discussions took place against the backdrop of each partner's specific institutional and national science policy context.

This activity lead the eument-net consortium partners to depict a series of *supporting* and *hindering* "context-factors" for the development and implementation of mentoring programmes, discussed and classified according to different "levels" of regulation and application of science policy.[2] Included among these are: a) the level of the European Union, b) the level of the national or federal government and administration, c) the level of the local state government and administration, d) the level of the specific academic and research institution or organisation, e) the level of the "agents" and stakeholders, and f) the level of the beneficiaries of mentoring.

a. On the level of the European Union, the main supporting factors considered in the eument-net discussions are the EU's recommendations for gender

2 For a more exhaustive presentation and discussion of these supporting and hindering context-factors see Nöbauer, Herta/Genetti, Evi (Ed.) (2008): Establishing Mentoring in Europe. Strategies for the Promotion of Women Academics and Researchers. A guideline manunal editetd by eument-net. Fribourg: University of Fribourg. Free copies of the manual can be requested via info@eument-net.eu.

mainstreaming and affirmative action for promoting gender equality through its science policy. Starting with the 5th Framework Programme, the EU has supported a range of initiatives in its women and science policy which provide arguments and support to mentoring as a tool for promoting gender equality in higher education and research. Unequal access to funding, and the diverse impact of EU recommendations in different member countries have been discussed as impeding factors.

b. The impact of European policies and recommendations in member and associate countries is linked to the specific regulations and even policies regarding the promotion of gender equality in higher education on the level of the national governments and administrations. Legal regulations or filter mechanisms on the level of the national government may be effective hindering context-factors for the development of mentoring programmes to promote women in academia and research. Already the lack of explicit national regulations and science policy measures for promoting gender equality and support mentoring for women can be an impeding factor. On the other hand, the existence of a an explicit legal framework and clear gender equality policy and action plans, as well as the presence of institutionalised control mechanisms on gender equality in the higher education (HE) sector are relevant supporting factors for the development of mentoring programmes.

c. On the organisational or institutional level, the development and implementation of mentoring programmes is facilitated by clear internal regulations and/or a policy on gender equality with adequate funding, and by the existence of organisational infrastructures such as gender equality offices. Another important supporting factor has been identified in the form of an "institutional culture open to change and innovation". Such an organisational culture is considered a relevant factor for the attractiveness of the mentoring programme and its perception as being a reward and distinction of excellence, rather than a form of "help for the needy".

d. The development and implementation of effective mentoring programmes will depend on the presence of "supportive factors" on the level of individual "agents". That is, persons that will have the ability to assume a central role in the development of mentoring programmes. On the one hand these supportive agents are probably to be looked for in the administrative field, willing to assume a managing function. On the other hand, these "supportive agents" will be "sponsors" for the mentoring programmes; that is, high positioned persons, probably from the academic and scientific body, with competency in gender related issues and a feminist sensibility, willing to

use their personal network and expertise of the academic system for the mentoring programme.

e. The eument-net partners have also identified supporting or hindering factors on the level of the beneficiaries, or target populations. A critical mass of mentors and role models as well as the possibility to provide material or symbolic reward for mentors have been identified as supporting factors, whereas the absence of a networking culture and information on mentoring have been identified as factors which hinder developing and implementing mentoring programmes.

Preparing the Ground for the Implementation of a Mentoring Programme Promoting Women in Academia and Research: The Bulgarian Experience

The Bulgarian partner is the only one in the eument-net project consortium who does not run a mentoring programme and who comes from a country and research/HE sector, where such initiatives are practically nonexistent. In the frame of the eument-net project phase, the specific aim of the Bulgarian partner was therefore to prepare the ground for the implementation of mentoring programmes promoting women and gender equality in academy and research.

In a first step, the team surrounding Nikolina Sretenova has taken to analysing the situation in Bulgaria, conducting empirical research focused on the receptivity of mentoring among the potential target groups. In order to do so, the Bulgarian team has conducted two focus group (interview) sessions with women PhD candidates in 'soft' and 'hard' sciences, and early career women academics and researchers employed in the Bulgarian governments research and higher education sectors.[3]

Through these focus group sessions, the Bulgarian partner wanted to gain insight into the obstacles and gaps related to the advancement of academic careers, and to assess to what extent the expected benefits of a mentoring program might address, minimize or even eliminate some barriers faced by early career women researchers in Bulgaria. The focus groups sessions also aimed at allowing advantages and disadvantages of different kind of mentoring programs, i.e. face-to-face mentoring, group-mentoring, peer-mentoring, etc. to be estimated with regard to the defined needs and expectations. Furthermore, one of the objectives was to identify potential *supporting* and *hindering* context-factors which

3 The focus group sessions were conducted on May 9th and 30th 2007, video-recorded and transcribed. The information collected through the focus group interviews has been completed by a short questionnaire, distributed to persons on the "waiting list" for the focus group interviews.

might facilitate or impede the implementation of academic mentoring programmes in Bulgaria.

The focus group sessions were structured through open questions addressing the following issues: relevant factors for the medium term career development (with exclusion of the financial issue); gender issues related to work-life-balance and dual career issues, as well as international mobility, and women's perception of their position in male-dominated environments; the image of "successful women" in the participants scientific field and the availability of role models; and their participation and inclusion in networks for women in academy and research.

Among the first results[4], the findings of these focus group sessions indicate that future mentoring schemes in Bulgaria have to pay particular attention to the role of the disciplinary field and the existence or nonexistence of a critical mass of PhD students and/or early career academics in a given institution, as well as the impact of the particular institution's status (elite/non-elite).

Concerning the role of the disciplinary field, the focus group sessions also made it possible to identify a clear divide between the academic career planning, expectations, trajectory, deficiencies and gaps between the respondents from the social sciences and humanities and those from the natural sciences and engineering. According to the expressed expectations, 'face-to-face' mentoring and to some extent 'peer' mentoring seem to be relevant for the early career researchers in social sciences and humanities, while the 'group' mentoring is well suited to the natural sciences and engineering representatives.

The empirical results also suggest that the existence or nonexistence of a 'critical mass' of at least 15 PhD students and/or early career academics and researchers at a given institution explains the practice of an informal, unnamed kind of mentoring: Institutions not meeting this critical mass of PhD students or early career academics seem not to exhibit it.

Among the *hindering* context-factors for implementing a pilot mentoring program in Bulgaria, the team lead by Nikolina Sretenova has identified in particular the lack of organisational infrastructure, the lack of available funding for formal mentoring schemes and the absence of a networking culture.

4 The results are published on the eument-net web-page. See: www.eument-net.eu.

Expectations and Interest for a European Network of Mentoring Programmes

The conclusions drawn by the Bulgarian partner with regard to the supporting and hindering factors for the implementation of mentoring programmes are consistent with the results of the survey conducted within the frame of the eument-net project. Within the context of this survey, a questionnaire was sent to 770 stakeholders from 37 European and associate countries, with a return rate of 21%, from 30 countries. A second questionnaire was addressed to 109 coordinators of mentoring programmes in 15 countries, with a return rate of 36%. The survey was conducted during June and July 2007.

The objectives for the first, broader questionnaire were two-fold:

- To assess the situation and attitude in different European countries with regard to mentoring programmes for women in academia and research, and the perception of the utility of a European network in order to set the basis for further information and dissemination activities on the eument-net project, and
- to obtain information about mentoring programmes which the eument-net partner might not yet have.[5]

The aim of the second, more detailed questionnaire was to gather detailed information on existing mentoring programmes in Europe in order to build the European platform of mentoring programmes, and to collect information on expectations concerning a European network of mentoring programmes.[6]

Due to the heterogeneity of the addressees and limited return rate, the results do not claim statistical representativity, but have to be considered as indicators of tendencies regarding the targeted situation. They make it possible to raise important issues and questions which need to be addressed regarding the promotion of women in academia and research in Europe in general and through mentoring in particular.

In order to interpret the results, the countries have been gathered alternatively in two different sets of clusters. The first series of clusters

5 This questionnaire was directed at policy and decision-makers in Higher Education and Research & Development, relevant NGOs, associations for women in science, etc., and gender experts including equal opportunities officers, and gender studies in those countries with first tentative gender equality structures.

6 The target group of the second questionnaire were coordinators and facilitators personally involved in mentoring programmes for women in their early careers in academia and research.

('Old'/'New'/'Other') contain groups of countries that have been members of the EU before 2006 ('Old'), countries that joined the EU in 2006 and 2007 ('New') and a group with all residual countries ('Other'). The second series of clusters ('South'/'North'/'East'/'Middle') contains four groups of countries, depending on the geographical position of each.

The initial results of the surveys[7] can be summarized as follows:

There is an unequal distribution of knowledge about programmes for gender equality between middle and northern European countries on the one side, and eastern and southern European countries on the other side. This unequal distribution is accentuated with regard to gender equality measures in higher education and research.

The unequal distribution also applies to knowledge about mentoring programmes. Almost 100% of stakeholders in gender equality in middle and northern Europe who responded to the questionnaire knew about mentoring programmes, this was the case for less than 40% of those in southern and eastern European countries.

Whereas the need to address gender equality in higher education and the potential of mentoring programmes is considered very high by a large majority of respondents, the main reasons for the lack of mentoring programmes identified by respondents from countries where there are no such programmes yet are mainly structural. Examples of these are: the lack of governmental support; lack of funding; lack of support from the higher education and research institutions; lack of institutional structures (on different levels); and the novelty of mentoring (62.5% : "strongly agree", or "agree").

These first results provide evidence that additional efforts are needed in Europe for implementing effective instruments for gender equality in higher education and research, and that mentoring programmes hold an important potential for addressing this issue. According to these results, in order for mentoring to deploy its potential, a considerable effort is needed not only to foster structural and financial supports by governments, research and higher education institutions and the European Commission, but also to promote and disseminate knowledge about mentoring. The unequal distribution of mentoring programmes and knowledge about mentoring in Europe illustrates that the science policy of the European Union plays a particularly important role in addressing these issues.

7 More detailed results are available on the eument-net web-page. See: www.eument-net.eu

The results of the survey also provide quite some evidence for the interest, among stakeholders and coordinators of mentoring programmes alike, for building a network and increasing the exchange and cooperation among mentoring programmes on a European level. More than 88% of respondents stated such an interest.

According to the respondents, such a network should deal with: exchange of best practice, sharing guidelines and standards, developing cooperation between mentoring programmes, strengthening women's impact on science policy and decision making, widening a mentee's network, promoting mentee's mobility and organising trans-national meetings and seminars.

These issues were considered important or very important by more than 85% of respondents, whereas, the issues of turning brain drain into brain circulation and getting financial support for local mentoring programmes were rated as such by between 70% and 85% of respondents in both questionnaires.

Conclusions: A Case for a European Network of Mentoring

Mentoring as a tool for strengthening the position of women in higher education and research appears to be an equality measure that still has an important potential for development. However, strategies for the transfer of knowledge and best practice examples must take into account the specificity of each context. The eument-net initiative is designed to facilitate the exchange of experiences, the transfer of knowledge and the cooperation among mentoring programmes and stakeholders in gender equality in higher education and research, across Europe.

Where is the Key to Success? A Comparative Evaluation of Mentoring Programmes for Outstanding Female Scientists in Natural Science, Engineering, Social Sciences and Medicine

Carmen Leicht-Scholten

During the last 10 years German universities have focused on mentoring programmes in order to increase the number of women in academia. This paper discusses the results of a comparative evaluation of mentoring schemes in Germany.

The project is based on a survey of eight mentoring programmes for scholars with high potential in the natural sciences, engineering, social sciences and medicine. It is the first of its kind in Germany evaluating mentoring schemes that work within a comparable frameset with regard to the conception of the programmes. All eight programmes have a disciplinary focus, thus not only the results and successes of mentoring schemes can be discussed through this evaluation, but also the influence of the scientific culture of the different disciplines on the scientific career of the participants. The investigation aims to identify whether disciplinary cultures generate specific modes of gender relations or gender imbalances with regard to the recruitment of academic professions. Looking at the various disciplines, the question is whether or not there are differences in the respective groups of mentees and their demands. This evaluation can also reveal differences in the acceptance and success of the programmes taking into account their various instruments (trainings, networking, mentoring).

State of the Art – Starting Position

Although a slow, albeit steady, increase of women undertaking science and technology degrees is being observed, women are to a large extent underrepresented in related job fields, especially in scientific careers. While the proportion of female graduates has increased in recent years, there is still a lack of women in higher scientific positions. Although there is considerable diversity among Euro-

pean countries in terms of scientific infrastructure or equality measures, the common factor is that there are fewer women to be found as one ascends the hierarchy. Female scientists are lost in the so-called "leaky pipeline" or do not break through the glass ceiling to reach the top positions in science (Osborn et al. 2000). Gender studies of women in science over the last ten years have an enhanced understanding of the complex process of gendering science and scientific excellence. They have revealed the use of patronage and nepotism in appointment procedures as well as the mechanisms used by scientific elite bodies that exclude women (Zimmer 2004).

In this context, there are also studies which have concentrated on the importance of mentoring within a scientific career. According to Schliesselberger et al. (1998), there are considerable differences between men and women concerning their experiences with professional support and mentoring relations. On the basis of 30 interviews with female and male professors, researchers were able to note continuous relations between teachers and pupils regarding the key steps in developing a scientific career for male professors. However, no similar structures were found for female professors. Jutta Allmendinger et al. (2000) describe mentoring as important for professional careers. According to their study, "scientific careers are fundamentally based on informal structures, which are provided and conveyed by the scientific leaders as male and female mentors" (Allmendinger 2000: 37).

At the Max Planck Society, for example, researchers have studied the role of the society's directors and investigate whether there are any gender differences in its structure. Their findings show that there are no differences between male and female researchers at the beginning of their careers and that they hardly feel any differences concerning the role of their mentors, but that women accumulate disadvantages during their career. The results of the study demonstrate that:

- "Women get less support compared to men in important situations relating to their careers",
- women have less access to professional networks, and,
- that women can hardly find any female role models in science (Allmendinger 2000: 45).

In her complete inventory count among male and female professors in Germany, Annette Zimmer points out gender differences in the development of scientific careers. According to her study, women feel less incorporated into informal networks than their male colleagues (Zimmer 2003).

All studies mention the importance of mentoring relationships for a scientific career. Nonetheless, there is a lack of systematic evaluation of mentoring schemes. The main reason for this lack of research lies in the fact that up to now there have been no general quality standards for mentoring. Within the last few years, many programmes have been initiated with a number of great differences, e.g., target groups and concepts. Due to the various institutional, personnel and financial structures, a comparative study is hardly possible. In Germany, the coordinators of mentoring schemes at universities have established a working group on the national level in order to establish standards for mentoring schemes at universities.[1]

However, up until now there are no studies that examine whether the lack of "natural mentoring relationships" can be substituted by "mentoring projects" (Löther 2003, Leicht-Scholten 2006a). There are also no studies evaluating the chances, risks or limits of mentoring programmes in the different scientific fields.

Theoretical Background

In accordance with the philosophy of science this question can be addressed taking into account a variety of studies that deal with the questions of how science works as a social field and how women can position themselves in this field (Krais 2000, Zimmermann 2000, Engler 2001).

These approaches are broader than that of the sociology of organisations as they not only regard science in its specific structure as an organisation, but also as a social field with a special social practice corresponding to Bourdieu's approach. Referring to the recent studies of Beaufays and Heintz this project intends to reveal the mutual constitution of gender and sciences in the disciplinary context with regard to mentoring programmes in different disciplinary fields. By doing so, the possibilities and limitations of mentoring programmes in sciences may also be revealed.

Taking into consideration the latest research in the sociology based "meaning of sciences" field and based on the theory of Bourdieu, different conditions and factors can be identified in the various scientific disciplines, which constitute behaviour in the individual disciplines. This applies also in relation to gender issues. If it is not possible to generalise the processes of gendering in the different disciplines (Heintz 2004) and if there is also a great variety of cultural attri-

1 See http://www.forum-mentoring.uni-hannover.de/wir.htm

butions and interpretation, then it can be assumed that the heterogeneity is also reflected in the implementation and effectiveness of mentoring programmes.

The comparative study of the surveys of female scientists participating in mentoring programmes also shows whether singular elements of the programmes (training, mentoring or networking) are seen as supportive in the various disciplines and whether the diverse fields have different needs. It can be assumed that the range of cultural attributions are reflected in the scientists' requirements. Moreover, this information can also hint at gender-specific attributions which are effective in the various disciplines. In doing so, they may reveal mechanisms of exclusion within the diverse disciplines.

The study combines methodology from both philosophy of science and sociology of organisation (Heintz 2004). In this way the study can not only foster the conceptual development of mentoring programmes in different disciplines, but can also support the discussion of gender attributions in various scientific fields.

Empirical Basis

The basis for the comparative evaluations of the surveys are six mentoring programmes for female scientists in science, engineering, social sciences and medicine. The target groups of all the programmes are females with high potential in the special fields. Due to the unique construction of the programmes which have been developed in mutual agreements (see table below), they have various important criteria in common.

1. All programmes have the combination of three instruments of "human resource development" i.e., mentoring, training and networking.
2. The concepts of the programmes were established after having been discussed and confirmed in mutual agreements between the participating organisations.
3. The general conditions of the programmes are similar. The criteria of the selection of the mentees, the structure and quality of the training programme, the selection process of the mentees as well as the organisation of the networking events is realized within a comparable frame.
4. And finally all programmes have been established within strong institutional structures.

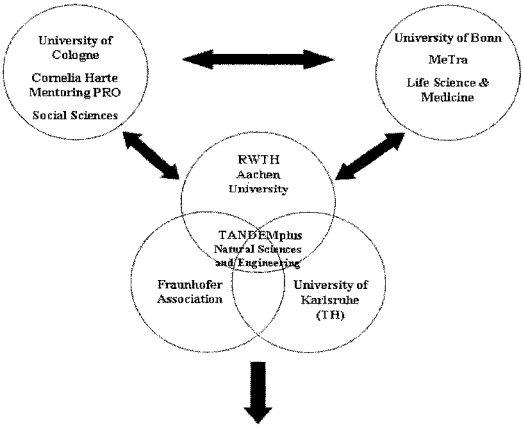
In this way for the first time in Germany there was the possibility to compare mentoring programmes with reference to different disciplines.

The Programmes

Mentoring Programmes for Scientists having a PhD

In 2004 three mentoring programmes were developed for scientists having a PhD. Each of the three programmes had a special focus on a scientific field: The programme of the University of Cologne focused on social sciences, whereas, the University of Bonn concentrated on life science and medicine, and the University of Aachen (RWTH Aachen) on natural science and engineering. The three programmes were supported by the Ministry for Science and Research in North Rhine Westphalia who at the same time funded the comparative research of the programmes.

Figure 1: Mentoring Programmes for Scientists having a PhD



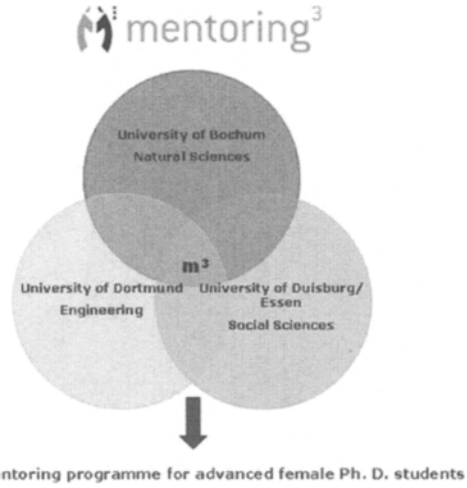
The technical university of RWTH Aachen added a further cooperation: According to the university's profile it cooperated with the Technical University of Karlsruhe and the Fraunhofer Society in Munich, both of which also focus on science and engineering. Thus the mentoring project for postdoctoral students contains the development of a mentoring network for women researchers from the natural and technical science subject areas not only on the regional, but also

on the national and, since 2007 also on the international level[2] (for more programme details see Leicht-Scholten in Welpe 2007).

Mentoring Programme for Advanced Female PhD Students

The University of Bochum, the University of Dortmund and the University Duisburg-Essen have developed the mentoring programme *mentoring³* for advanced female PhD students. In a common structure the universities have equivalent mentoring programmes for different disciplines. Whereas the focus of the University of Bochum lies on natural science, the focus of the programme in Dortmund is engineering and in Duisburg-Essen it is social sciences. The programmes recruit their mentees from all three universities.

Figure 2: Mentoring Programme for Advanced Female PhD. Students



2 TANDEMplusIDEA is the first mentoring programme between leading technical universities in Europe. The project funded by the 6th framework programme of the EU is a cooperation between the Imperial College London, the ETH Zürich, the Technical University of Delft and the RWTH Aachen.

The Evaluation

The target group of the evaluation is determined by the participation of the female scientists in the programmes mentioned above between 2004 and 2006. The evaluation itself is conducted in three steps. Participants are questioned via a written survey before the start of the scheme and after each stage. The first survey focuses on:

- their motivation,
- their expectations of the mentoring process and of mentoring partners,
- the individual support they hope to gain,
- their personal commitment to the process, and
- a self-assessment of the mentees' capabilities, career prospects, etc.

The questionnaire from the initial meeting aims to clarify the motivation of mentors and mentees alike as to why they are taking part in the programme. The interim questionnaire is directed especially at a detailed mapping and evaluation of the hitherto mentoring contacts of each individual, the number, length and form of the meetings, the preparation for meetings, and the learning experiences of both parties. The survey at the end endeavours to reflect the individual mentoring relationships and the project conception. Furthermore, it investigates if and how the mentees have changed their perceptions of their career opportunities.

As a whole 188 questionnaires have been submitted to the mentees of the programmes. With 67.8% the rate of return is higher than the average in such inquiries. The participants can be divided into four scientific fields with a prevalence of scholars from natural sciences and engineering. Interdisciplinarity is evidenced by medical and social scientists working together on common research areas with technical links.

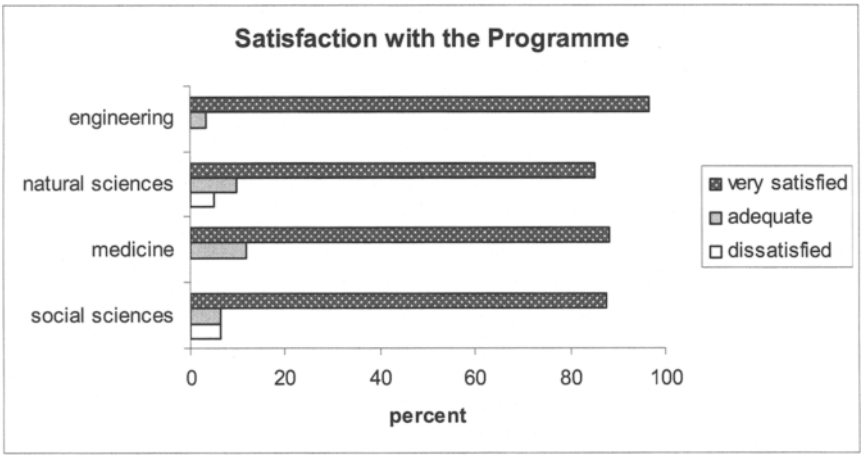
Figure 3: Participation in the Survey according to Disciplines

	Number of all mentees	**Participation in survey 1-3 (n)**	**Rate of return**
Engineering	59	42	71,2%
Natural Science	39	30	76,9%
Medicine	34	19	55,9%
Social Science	56	29	51,8%
Total number	**188**	**120**	**63,8%**

General Satisfaction with the Programme[3]

In general a high level of satisfaction with the programme can be mentioned: 89.9% of the mentees reported being very satisfied with the programme. Looking at the different disciplines the scientists in engineering were most satisfied, whereas the satisfaction of those in social sciences was the lowest (see Figure 4). The overall high satisfaction demonstrates that individual conceptions of the mentoring scheme seem to be on the right track.

Figure 4: Satisfaction with the Programme



Profit from the Different Parts of the Programme

In asking about the profit[4] gained from the different parts of the programmes it can be seen that the instruments of mentoring (39.5%, median = 1.85) and training (39.5%, median = 1.87) have been evaluated more positively than networking (20.8%, median = 2.3) across all disciplines (see Figure 5). Having been asked from which instrument[5] they could profit most, mentoring was mentioned

3 In a Likert Scale from 1- not satisfied to 5- very satisfied
4 Ranking from 1= high ranking position to 3= low ranking position
5 The differences however are not significant, so we only can speak of a tendency.

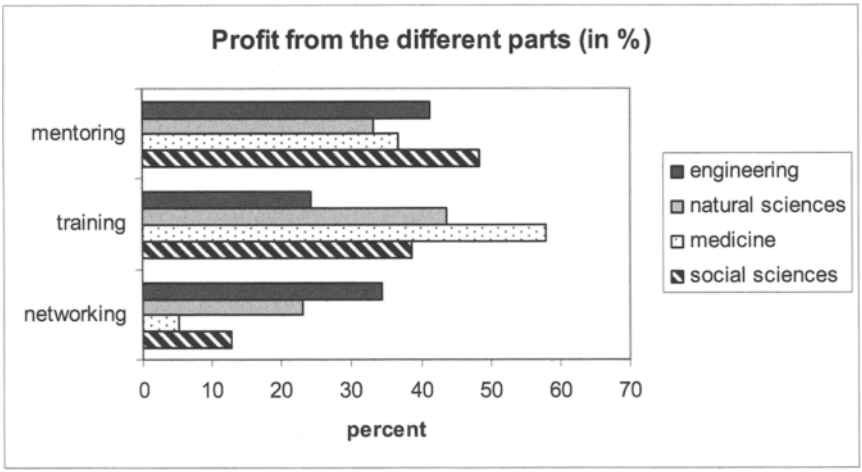
by 50% of the social sciences' mentees. In contrast, only 30% of the mentees of natural science ranked the mentoring relation as the most important instrument.

Referring to the trainings, the mentees from medicine considered them the most valuable (58%), whereas they benefited less from networking. For the mentees in engineering on the other hand, networking and mentoring were much more important than the trainings.

With regards to the age of the mentees the elder ones, i.e., those older than 35 years (51.6%, median = 1.7) were able to take greater advantage of the trainings than the younger ones whereas the younger ones could profit more form networking (25%, median = 2.2) than the older mentees (6.5%, median = 2.5).

However, the mentees who were not that satisfied with one of the instruments took much more advantage of the two others or especially one other instrument. Therefore, the combination of the three strategies of personal development actually adds more value to all participants than the single instruments could generate (Leicht-Scholten 2006d).

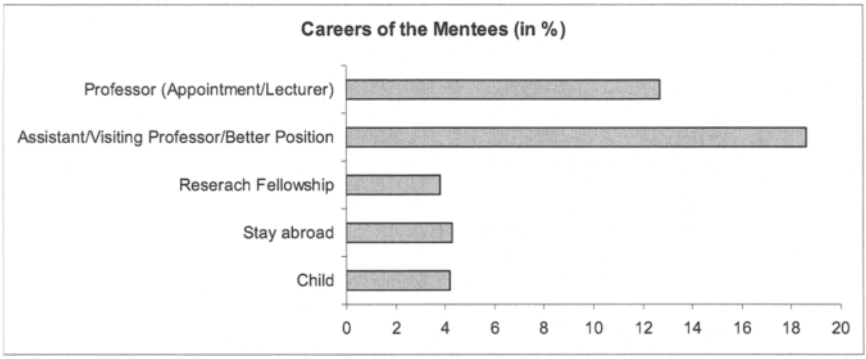
Figure 5: Profit from the Different Parts According to Disciplines



Careers of the Mentees

The success of such a precisely-tailored scheme can also be seen in the mentees' career advancement after participating in the programme. More than 40% of the mentees declared that they have continued on with and accelerated in scientific careers. Full professorships were obtained by 13% of the mentees and 18% were appointed assistant professors, visiting professors or were invited as professors to other institutes. In considering the different disciplines, the mentees of science and engineering benefited the most with regard to their careers. More than 50% of the mentees who gained full professorships or reached better positions came from these disciplines.

Figure 6: Careers of the Mentees



If the cultures unique to different disciplines are taken into account, then evaluation results support findings in gender studies research. Considering the low number of women in engineering, the mentees benefited from the networking meetings. Through these, participants often meet women for the first time who are working in similar scientific fields at equivalent professional levels. Due to the collaborative approach of the programme, female scientists also have the chance to contact others in very similar fields resulting in scientific cooperation or invitations from various universities.

On the whole, the high acceptance and strong evaluation results of the programmes demonstrate that it makes perfect sense to closely adapt mentoring programmes to specific scientific disciplines and relevant target groups. The results show that there are differences concerning the needs of the mentees re-

lated to the scientific fields. Mentees of the various disciplines profit differently from the three instruments implemented in the mentoring programmes. Furthermore, the results show that, due to personal support, women scientists are encouraged to apply for professorships at a time when they would not have dared to do so on their own. The experience with the programmes also illustrates that participants receive support in diverse ways, not only from networking with their mentors, but also from networking within their own peer group. Most of the participants stressed the extra benefit of their experience in working and exchanging ideas with others in similar situations. The scheme supports the development of a network of female scientists, which is vital to vibrant scientific communities (Helsinki Group 2002: 19).

Potential Impact to Change Scientific Culture

The promotion of women by the mentoring programmes has various effects on scientific culture. The mentees often meet a female professor in their subject for the first time and became involved in international networks of women in science. Many mentees supported by the programmes remain in the network and continue meeting within their own group as well as with others from the programmes. Furthermore, scientists holding a professorship are supporting young female scientists as mentors (Leicht-Scholten 2007).

Mentoring schemes also have the potential to be an instrument of gender mainstreaming. If the programme's standards are of high quality, the mentors engaged in the programme not only support their mentees but also the strategy itself. Raising gender awareness and sensitivity among participating mentors changes their perceptions of the scientific profession. The evaluation of the mentoring process showed that the mentors also became more aware of gender differences in science (Leicht-Scholten).[6] Bridges between social and business research approaches and methods can be built in order to promote interdisciplinary gender equality research and to implement gender mainstreaming in science and technology.

With the project TANDEMplusIDEA, which is based on the TANDEMplus scheme of the RWTH Aachen, it will be possible to extend this research across Europe and to gain knowledge about the different needs of female scientists from participating countries. The scientific results should be incorporated into the

6 See: Leicht-Scholten, Carmen (2008): A success story: Resource Management in Higher Education: Mentoring Programmes as an instrument to foster gender equality in higher education.

quality development of the participating universities and, in doing so, ensure a slow but steady increase in the number of women across all levels of science.

Funded by the European Commission within the 6th Framework Programme, TANDEMplusIDEA will begin its international cooperation with three technical universities: the Technical University of Delft, the ETH Zürich and the Imperial College London. With the establishment of an international strategic development partnership between leading European technical universities and research institutions in natural science and engineering, the project aims to serve as a best practice model, generating further collaboration in Europe.

The current experiences in German universities demonstrate a high acceptance of mentoring schemes within scientific culture, resulting in more mentoring programmes being institutionalised. The high acceptance of mentoring programmes has also been confirmed by the results of a survey at the RWTH Aachen University, where more than 50% of the professors stated that mentoring is a successful strategy for achieving gender equality (see Leicht-Scholten 2007).

But is this real? Do mentoring programmes really help to change scientific culture? Or more exactly can such an individual approach change the system and so change the situation for women in science? Or are mentoring programmes nothing more than "nice to haves" for universities as they are not feared as being able to change culture?

Although the study has to be continued over a longer period of time, evaluating the development of the participating mentees in the future, I would make the case that mentoring programmes can change culture if:

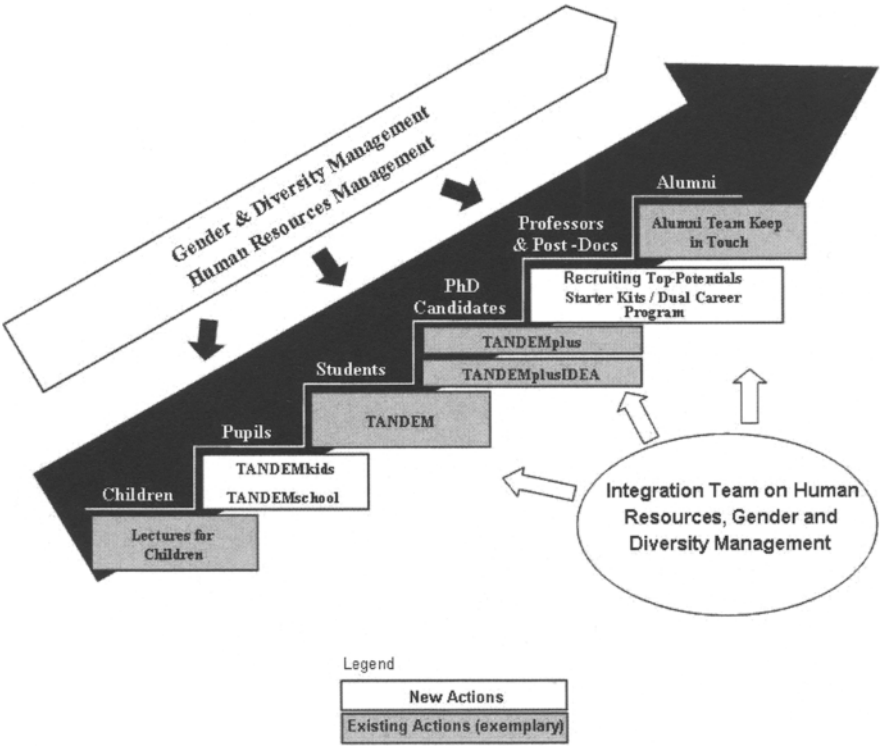
- there are strong target-orientated programmes within a strong institutional structure;
- mentoring is not only seen as nice to have but also as a powerful instrument for personal development fostering gender equality at the university, and
- it is embedded in personnel policies aimed at changing scientific culture.

RWTH Aachen has formulated this vision in the strategy paper of its university at RWTH Aachen (see figure 7).

An equal rights personnel policy should be developed on the basis of mentoring schemes as a personnel development strategy. Experiences with mentoring programmes enable universities to develop adequate gender personnel policy measures with an emphasis on soft skills such as communication, leadership aptitude, social competence and gender competence. Thus, universities will attract more international students and researchers and will also be capable of meeting global

challenges. Moreover, in gaining or keeping more women at different levels of science, universities will gain more excellence in research.

Figure 7: Mentoring as an Instrument of Personnel Development



Source: RWTH Aachen University RWTH 2020 Meeting Global Challenges. The Integrated Interdisciplinary University of Technology: 49

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Leading Women: The Positive Impact of Women and Leadership Programs

Lynette Browning

Women are in the majority as both students and staff in many universities worldwide but are still under-represented at the senior and management levels. Leadership development programs for women staff are in place in many universities with the aim of increasing the percentage of women in senior and decision-making positions. This statement was made in the 'Women and management in higher education: a good practice handbook', produced as a result of the United Nations Educational, Scientific and Cultural Organisation follow up to the World Congress in Higher Education in Paris in October 1998:

> "In the area of higher education, both in teaching and management, women are still a long way from participating on the same footing as men. Women have made some progress in achieving parity in teaching but are grossly under-represented in higher education management." (United Nations Educational, Scientific and Cultural Organisation 2002)

In Australia in 2005:

- 23% of vice chancellors were women;
- 40% of academic staff were women but only 17% of professors were women;
- 63% of non-academic staff were women but only 38% of those staff in senior managerial positions were women.

Increasing the percentage of women in senior positions is not only a matter of social and professional justice, but makes good business sense based on women's increasing participation in the labour market and as students, their increasing economic power, and competition for high quality staff.

Much has been written about gender equality programs, however little research has been undertaken to evaluate the impact of these programs, and even less has been published in scholarly journals.

Programs outside Australia for which evaluation information is readily available include:

- Room at the top Programme for Senior Women, UK, 1999;
- Women in Leadership Programme, University of Auckland, New Zealand, 2001;
- The Women's Leadership Program, University of Cincinnati, USA, 2003;
- Springboard, Oxford University, UK, 2006.

Many Australian universities have implemented leadership development programs for women staff progressively since 1992 but articles are only available on a few evaluations:

- Women Research 21, University of New South Wales, 2003;
- Academic Women in Leadership Program, University of Melbourne, 2004;
- Leadership Development for Women Programme, University of Western Australia, 2005;
- Flinders University Mentoring Scheme for Early Career Women Researchers, Flinders University 2005.

Affirmative action in Australia has been legislated for more than 20 years, and although some gains have been achieved, gender equity in higher education still remains an issue. Whether in support of the well-documented business case, or for social justice reasons, leadership development programs for women are not yet redundant, and continue to make a significant contribution to the development and enhancement of women's participation in the higher education sector.

Research was undertaken to evaluate the impact of the Women and Leadership Program at the University of South Australia and to determine whether it made a difference to the working lives of women who participated. The study found that program participants are more likely to remain employed at the University and women reported a number of positive changes in their working lives which they attribute to their involvement in the program. The evidence indicates the program is a key factor in women moving into senior and decision-making positions within the University.

A later evaluation of the Women in Leadership Program at Griffith University found that participants in the program are retained at a higher rate than other staff and academic women participants are more successful when they apply for promotion. Participants also report a number of positive changes in their working lives which they attribute to involvement in the program.

This paper outlines the findings of the studies undertaken of the Women and Leadership Program at the University of South Australia and the Women in Leadership Program at Griffith University.

Leading Women

Program Overview

The University of South Australia is the state's largest university with around 33,000 students and 3,000 staff. UniSA is a member of the Australian Technology Network, a group of five similar universities around the country. The Women and Leadership Program was implemented in 1996 in response to the under-representation of women staff at senior and decision-making levels.

The Women and Leadership Program has offered a range of professional development opportunities to academic and professional women staff and participants are asked to complete a feedback form at the completion of each activity. An in-depth evaluation of the program was completed in 2004 using data on promotion and retention plus the responses to a paper survey of participants. The study was undertaken to provide information on tangible outcomes for women and indicators of whether women attribute changes in their working lives to participation in the program.

In 1992 women comprised 48% of total staff and 17% of senior managers. The Women and Leadership Program is aimed at providing a cohesive and supportive environment for women to plan their professional development, to develop appropriate skills and experiences, and to develop their potential as leaders in the university environment. The program is open to all academic and professional women staff regardless of the basis of their employment and the continued growth in the level of participation clearly demonstrates the ongoing viability of the program as a resource for women staff.

Since 1996 more than a thousand women have participated in various aspects of the program which has offered the following elements: workshops and seminars which range from two-hour sessions to longer programs across a broad range of topics, mentoring, leading ideas seminars, formal qualifications in project management and business, an academic career progression program, career development for professional staff.

Methods

Evaluation of the program has been undertaken on a range of levels and feedback provided by participants has been very positive. However, the problem of establishing the impact of the program still raised some unanswered questions. Given the University of South Australia's commitment in providing both financial and resource support to the Women and Leadership Program over a number of years, the detailed evaluation of the program was timely. Had the program had an impact on the working lives of women staff, or is it just another affirmative action strategy with good intentions but no tangible outcomes?

In 2004 a detailed study was undertaken to find out if there was a link between participation in the Women and Leadership Program and positive changes to the working lives of women staff and to the organisation. The study was based on the evaluation undertaken of the University of Western Australia Leadership Development for Women Programme by Jen de Vries. Data on promotion and retention was collected from the human resources information system, and responses to a paper questionnaire which was sent to women who had participated in the program between 1996 and 2004. The response data was analysed using the Statistical Package for the Social Sciences (SPSS).

Findings

Analysis of the statistics of Women and Leadership Program participants by classification show that:

- With a retention rate of 89% academic women staff who participated in the program are 2% more likely to remain at the university than all women;
- With a retention rate of 91% non-academic women are 5% more likely to remain than all women;
- With a retention rate of 90% for all Women and Leadership Program participants they were 1% more likely to remain than all male staff.

Benchmarking all Women and Leadership Program participants against external groups nationally they are:

- 4% more likely to be retained than all staff at Australian Technology Network universities
- 7% more likely to be retained than staff in all industries within Australia, which have an average retention rate of 83%

Due to the different ways that staff can gain promotion it was not possible to compare promotion rates for groups other than academic staff promoted via the annual promotion process. Based on the data available academic women involved in the Women and Leadership Program were promoted at double the rate of all academic staff, indicating that Women and Leadership Program participants are more likely to be promoted than all other groups, although consideration needs to be given to the fact that these women may be more career minded and highly motivated as evidenced by their participation in the program.

The questionnaire was designed to encourage women to consider what changes have occurred in their working lives at the University of South Australia and whether those changes could be attributed to involvement in the program. A significant percentage of women attributed success in the following areas to participation in the program: gaining promotion, higher duties, special projects, secondments, networking opportunities.

60% of women reported differences in their working lives which they attribute to involvement in the Women and Leadership Program: greater confidence, increased networking, clarity around personal and professional goals, balancing work and family life, managing change, mentoring.

Women were not asked to specify in what way the program contributed to their success but some of the elements of the program offered are specifically targeted to promotion, for example workshops on applying for academic promotion, preparing a CV and being interviewed, plus a range of capability building programs and mentoring.

The mentoring component of the program appears to have been significant for many of the respondents – 53% have received mentoring support and 41% have provided mentoring support to others – as a result of involvement in the program. There is considerable literature available on mentoring and it is generally considered that women have not traditionally had the same level of access to informal mentoring as men, so it appears that the formal mentoring component of the Women and Leadership Program has been of benefit to many women. This was confirmed by a 2005 external review of the mentoring program.

Women were asked to indicate if there were any other differences which had occurred in their working lives which they would attribute to involvement in the program and 60% responded positively. Differences listed included greater confidence, clarity around personal and professional goals, balancing work and family life, and managing change.

Participation in the Women and Leadership Program has increased significantly over the years however comments made by some participants, both academic and general, indicate that is it not a lack of interest in the program which inhibits their participation, but work pressures and time constraints. A number of

women have commented that increasing workloads make it difficult to participate in aspects of the program, however there is an indication that the program has become more widely accepted by women staff and their managers,

> "I feel the program has become more accepted by managers as a proactive resource to utilise which seems to help staff obtaining permission to attend." (Academic survey respondent)

Many women took the time to provide comments about their involvement in the program and here is one example:

> "I feel more familiar with the University working environment. My confidence has increased – I now have contact with women from a much wider cross section of the University. This would not have occurred without attending the Women and Leadership Program workshops." (Women and Leadership Program participant)

There have been significant achievements for women at the University of South Australia since 1992. In 2007 women comprise:

- 58% of the total staff
- 67% of professional staff and 41% of senior administrative managers are women
- 48% of academic staff and 27% of associate professors and professors are women

Statistics show that the percentage of women achieving academic promotion by the end of 2006 was 52% which slightly outweighed that of men. The percentage of women in senior positions has increased to 29% in 2007. The percentage of women in the Senior Management Group has increased from 20% in 2003 to 40% in 2007. The table below illustrates the increases since 1992.

Percentage of women	**1992**	**2007**
Total staff	48%	58%
Senior management positions	17%	29%

The Women and Leadership Program has contributed to the University of South Australia winning a number of national awards which are competitive and open to all industries in Australia, not just the higher education sector:

- Equal Opportunity for Women in the Workplace Employer of Choice for Women Award annually since 2003
- Gold Award as the 2005 Employer of the Year at the Australian Chamber of Commerce and Industry and Business Council of Australia National Work and Family Awards
- Diversity@work Employment and Inclusion Award for Work/Life Balance in 2006.

Listening to the Leaders

Program Overview

Griffith University is a member of Innovative Research Universities Australia and has been recognised as an Employer of Choice for Women annually since 2001. Equality of opportunity is central to Griffith University's mission and it actively seeks to nurture talent and provide staff and students with opportunities to reach their full potential so they can make valuable contributions to the professions and the community.

The participation rate of women staff at Griffith University has increased significantly since 1999. Women now comprise 66% of all staff at Griffith University – 42% of academic and 68% of general staff. The percentage of academic women associate professors and professors has increased from 17% in 1999 to 28% in 2006, and for women staff in senior administrative management positions the increase has been from 30% in 1999 to 41% in 2006. The percentage of women in senior academic roles has increased over time, with women occupying 43% of Heads of School/Department positions, however women hold only 19% of Research Director positions.

Launched in December 2003 the Women in Leadership program commenced in 2004 and 93 academic and general women staff have participated over the three years. Participation is by application and it is expected that potential participants will have reasonable autonomy in their positions and may be responsible for projects or new initiatives, managing teams or units, supervising others, or participating in strategic committees or working parties. The nominees' senior manager must support applications.

The program comes under the broad umbrella of the University's Leadership Development Program, and is specifically focussed on addressing the needs of women as leaders at Griffith University. The program is not skill based, but encourages participants to reflect on their individual situations and goals and to share their experiences.

The one-year program consists of both formal and informal components, some of which are open to the University community. The formal components include mentoring, an orientation day, and workshops on a range of topics which include: what do we mean by leadership at Griffith, handling difficult situations, negotiating the University structure, balancing different priorities.

Informal components include networking forums and visiting lectures by female speakers, open to women and men. The core workshop program is designed for women in academic and administrative positions who are focussing on developing and exercising leadership in broader areas. Potential participants are expected to have reasonable autonomy in their current roles and may be responsible for new projects or initiatives. The program has utilised an external facilitator.

Methods

While feedback is sought from participants during each program and in summative form at the end of each year, after three years it was timely to evaluate the impact and effectiveness of the program more formally.

The study was undertaken in 2006 based on the University of South Australia evaluation. Statistical data on promotion and retention was collected from the human resources information system and participants were asked to complete an online survey. In addition, two focus groups of participants were conducted and a number of individual face-to-face interviews were undertaken with senior staff and stakeholders, including the Vice Chancellor.

The purpose of this study was to address the following questions:

- Does the Women in Leadership Program at Griffith University meet its stated aims?
- How effective is the program in meeting its aims?
- What is the impact of the program for participants and for the University?
- What should be the future of the program?
- If the program should continue should it be in the same format or modified?

Findings

The study reported a number of positive outcomes for women who participated in the program. Program participants are retained at a higher rate than other staff:

- With a retention rate of 95% academic women staff who participated in the program are 4% more likely to remain at the university than all women;
- With a retention rate of 89% non-academic women are 2% more likely to remain than all women.

Benchmarking all Women in Leadership participants against external groups nationally, they are:

- 1% more likely to be retained than all staff at Innovative Research Universities;
- 11% more likely to be retained than staff in all industries within Australia.

Academic women participants apply for promotion at a similar rate to men but are more successful:

- In 2004 academic women participants were 21% more successful in gaining promotion to lecturer and senior lecturer;
- In 2005 academic women participants were 26% more successful in gaining promotion to associate professor and professor.

Both academic and non-academic participants who responded to the online survey indicated there were a number of changes to their working lives which they attribute to participation in the program: increased visibility, increased confidence, renegotiated workload, mentoring.

Of the women who responded to the survey, 59% of academic and 38% of general women staff have received mentoring support since Women in Leadership participation, with the majority indicating that participation in the program encouraged them to become a mentee.

75% of academic and 83% of general respondents have provided mentoring support to someone else and the majority of those (84%) indicated that Women in Leadership participation encouraged them to become mentors.

The women who participated in the focus groups also felt that the program sends a strong message that women are valued, and that it provides them with the motivation and support to tackle issues. Senior staff and stakeholders view the program as being successful and positive and were able to provide specific examples of enhanced leadership capabilities demonstrated by program participants.

One woman commented,

> "The women I met who also participated in WiL certainly increased my visibility at Griffith University. Knowing there are other women within the University who have done well gives me inspiration. Being in contact with these successful women, crossing paths with them occasionally with a friendly hello is a privilege that gives a lift to the day." (Academic respondent)

Another commented,

> "I am more confident with networking and actively encourage others to consider their career development opportunities. Whilst I know my own self worth I now feel more valued within the Griffith context." (General respondent)

There may be other factors which contribute to the outcomes for women who participate in the program as they may already have been highly motivated or career minded, however the evidence suggests that the program is a contributing factor to the promotion, retention, and changes to the working lives of women staff at Griffith University. These results are consistent with evaluations of leadership development programs for women undertaken at other universities.

Conclusions

The changing landscape of the higher education sector provides even more challenges for universities in 2007. A greater focus on industrial relations, research, and the ageing workforce has added to the challenges faced by universities on a daily basis. Government policy in the higher education sector has prompted increased competition, and attracting and retaining high quality staff has become a high priority.

Research undertaken into senior women and the cultures of management found that women in senior positions were seen to have had an impact on managerial cultures, however in applying for senior positions many women are reticent about their capabilities. Among the recommendations made in the report are that organisations should encourage special programs for women, and that women should be encouraged to develop appropriate and clearly stated career goals through staff and professional development programs (Chesterman/Ross-Smith/Peters 2004).

An investigation into promotions policies and practice in Australian universities was sponsored by the Australian Vice Chancellors Committee in response to its commitment to promote gender equity in Australian universities. The research found that in contrast to the mid-1990s when promotion for women was

constrained at senior lecturer level, it appears that moving from senior lecturer to associate professor is the new barrier to promotion for academic women.

> "With continued effort and greater success at promoting women at these levels in the short term, women will be very well placed to take up positions vacated through retirement." (Winchester/Lorenzo/Browning/Chesterman 2006: 216)

The report makes a number of recommendations, one of which is that universities implement special initiatives to encourage and assist women applicants. In general, the aims of the various leadership development programs for women examined are to:

- provide professional leadership development for women
- increase the pool of potential women leaders in higher education
- increase the representation of women in senior positions
- influence leadership styles in universities

Most of the programs examined contained some or all of these elements: workshops and seminars, mentoring, and group projects. Various methods have been used to evaluate leadership programs for women, including:

- collection of data on promotion and retention
- workshop feedback forms
- surveys of participants, in paper and online form
- surveys of managers
- focus groups
- interviews with individuals – participants, mentors, stakeholders, key senior staff, and group coordinators

These methods provide valuable information and different perspectives on leadership development programs for women. The results of the two evaluations described in this paper are consistent with information available on other programs. Leadership development programs for women provide:

- networking opportunities
- exposure to role models
- improved understanding of the organisation
- increased confidence, in particular about future career intentions
- support in gaining promotion.

For academic women some programs have also contributed to winning research funding and an increase in the number of refereed publications and conference papers. Some of the key elements of success of leadership development programs for women include: support from senior staff, women and men, including the CEO of the university; utilising role models; and adequate resourcing.

Devos, McLean and O'Hara argue that university-wide programs,

> "continue to play a critical role in supporting and resourcing women, in developing their networks, and in their symbolic and actual value as a site of challenge to institutional policies and practices." (Devos/McLean/O'Hara 2003: 8)

The evidence supports leadership development programs for women as a contributing factor to the promotion, retention, and positive changes to the working lives of women staff, and in turn, to the culture of universities.

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Balancing Career and Family in Higher Education – New Trends and Results

Inken Lind

There is general agreement that Germany currently offers only limited possibilities in the sciences for achieving the work-life-balance needed for compatibility of job and family. This manifests itself predominantly in the low numbers of female professors who have children. The situation of the coming generation of scientists, both male and female, has recently been receiving attention with respect to existing children and balancing a career in science and a family (Aufertkorte-Michaelis/Wergen et al. 2006). Meanwhile, a look across the borders demonstrates that the situation for balancing a scientific career with family looks completely different in other European countries where there is evidence of higher numbers of female scientists with children (European Commission 2006, Zimmer/Krimmer et al. 2007). Results obtained so far on this topic largely refer to the life and working situations of female scientists with children (Strehmel 1999) or focus on the number of female scientists pursuing careers with or without children (Dorbritz 2003, Zimmer/Krimmer et al., 2007). Very few findings exist on the determinants of scientific institutions responsible for scientists favouring a lifestyle without children.[1]

This paper offers an overview on the number of children of male and female scientists in Germany as well as in international comparison. This data is complemented by findings on the compatibility of having a family along with a career in the sciences for which we provide results from a soon to be published survey prepared by CEWS (CEWS 2006). In addition, we present the current CEWS study on Balancing of Science and Parenthood, which was intended to shed light on the research gaps which still exist. Before this though, the German

1 As a cause for this one assumes, among other things, that the long term insecure employment situation of those working at non-tenured scientific jobs is partly perceived as precarious and makes long-term life planning very difficult (see also Auferkorte-Michaelis/Wergen et al., 2006, Klecha 2008, Müller 2008).

discourse on the compatibility of career and family in the sciences shall be critically challenged.[2]

Discourse on Work-Life-Balance

A few of the issues in the debate on balancing science and parenthood can be shown to be untenable, and even counter-productive for the subject. Two points in particular from this discourse worth naming are: First, the topic is almost exclusively discussed in relation to women, and second, the discussion of the problem of work-life-balance serves as an explanation for the low proportion of women in high scientific positions in Germany. Both points are dysfunctional in our view, for the improvement of equal chances as well as for work-life-balance and science.

Largely ignoring men and fathers in the discussion is a problem and goes against current societal trends, while it also indicates that old role models and availability expectations for men in science remain unquestioned. At the same time, ignoring fathers does not do justice to those men who, whether in partnership or as a single parent are responsible for taking care of their children. Mentors in the sciences are only slowly becoming aware of the fact that even for men, work-life-balance becomes increasingly difficult in the course of new types of lifestyles and partnerships (Rusconi/Solga 2002, Wolf-Wendel/Twombly et al. 2003, Solga/Rusconi 2004). On the other hand, the problem of work-life-balance frequently serves as the major explanation for women's unequal career chances in science; occasionally the topics of the work-life-balance and of marginalization of women in science are equated with one another (Lind 2007). Two observations may be responsible for these being equated: The fact that there is a low proportion of women in higher scientific positions as well as the situation that female scientists have more rarely, and fewer children than their male counterparts. These two independent findings are melted into one assumption that the problem of work-life-balance is the central cause for the women's low career chances in science. As in Germany, the societal conditions for balancing career and family are still more disadvantageous than in other countries, this assumption appears to be at least intuitively plausible.

The undifferentiated equating of unequal opportunity and the problem of work-life-balance for women in science however, obscures the view on structural barriers germane to science, which, independent of existing children, generally

2 For a more in-depth critical analysis of the debate on balancing science and family as well as on the generally accepted assumptions on the causes of the comparatively low proportion of women in science in Germany, see Lind/Löther 2007.

limits women's career options. In reality, there is currently no evidence for a monocausal relationship between children and low career options for female scientists. There are neither average differences between mothers and childless female scientists with regard to time spans needed for their qualification phases (Lind 2004c) nor is there clear evidence for a low publication rate for mothers in science (Kiegelmann 2000, Leemann 2002, Lind 2004c, Allmendinger 2005).[3] On the contrary, already at the time prior to birth of the first child, a different career course for young and upcoming female scientists in comparison to their male counterparts can be observed (Lind 2007, Lind & Löther, 2007). All in all, in the end, even female scientists without children are seldom as successful compared to their male colleagues, independent of whether they have children or not (Wimbauer 1999, Stebut 2003, Allmendinger 2005). These, and similar findings show that motherhood is not the only obstacle for women's university careers.

The phenomenon of under-representation of women in science and the topic of balancing science and family are – in the sense of a constructive discourse – to be seen therefore as two separate – albeit interfering – phenomena (Lind 2007). Possibly, both phenomena – the low number of children female scientists have (increasingly male scientists as well) and the low career advancement probability of women are caused by specifics of the German science system which have an effect on reinforcing, or at least maintaining unequal chances and insufficient options for work-life-balance.[4]

Current Results

Number of Children of Female and Male Scientists

So far, findings on the number of children had by female and male professors in Germany can only be based on survey results, actual statistical data does not exist. A study by Zimmer/Krimmer et al. (2007) found the proportion of childless female professors to be 51%, and that of childless male professors to be

3 See also the findings from the USA on the scientific productivity of women, National Academy of Sciences, 2007. There are impressive results on the scientific productivity of women, which demonstrate the great influence of the position as well as reputation of the scientific institution on the number of publications. See also Xie/Shauman 1998, National Research Council 2001, Bordons 2003.

4 In our view, looking at the structural conditions and their effects on equal opportunity and work-life-balance holds a high potential for information. Particularly the assumed interactions between the individual level on behalf of the male and female scientists and the structural level of the scientific institutions are highly interesting and may yield information for sensible measures (see also Lind 2004a).

19%.[5] The proportions found of childless female professors in this survey however, varies in terms of the cohort considered: Data on the proportion of mothers among female professors of various different birth cohorts demonstrate that female mid-level faculty professors have more children compared to the first generation of female professors (Zimmer 2003, Zimmer & Krimmer et al., 2007).

Figure 1: Proportion of Female Professors with Children in %

Year of Birth	With children	Without children	N=
Up to 1935	22%	78%	9
1936 – 1940	49%	51%	63
1941 – 1945	54%	46%	126
1946 – 1950	55%	45%	141
1951 – 1955	61%	39%	170
1956 – 1960	36%	64%	145
1961 – 1965	32%	68%	71
Together			725

Source: Zimmer 2003

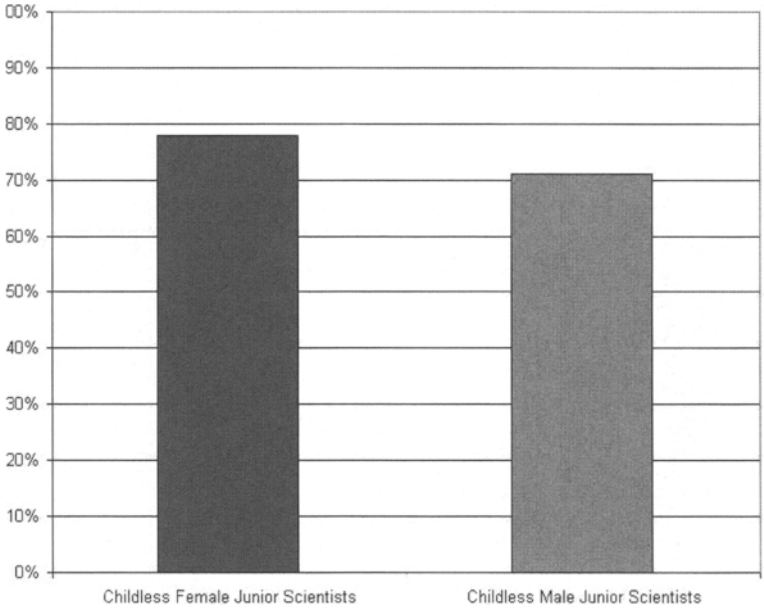
The Dortmund university based team of Prof. Metz-Göckel and Dr. Auferkorte-Michaelis has presented current data on the number of children had by mid-level non-tenured staff in North Rhine Westphalia (Auferkorte-Michaelis/Metz-Göckel et al. 2005, Auferkorte-Michaelis/Wergen et al. 2006). A comprehensive survey of the mid-level faculty at universities in North Rhine Westphalia using statistical secondary analysis established a proportion of childless female junior scientists of 78% and a proportion that has clearly risen over the past ten years of childless male junior scientists of 71%. These values represent a cross-section of all age groups. This means that ¾ of non-tenured staff at universities in NRW are childless or still childless. While the proportion of childless female scientists has remained consistently high over the past decade a clear increase in childlessness can be registered among the male junior scientists.[6] Age comparison also shows

5 The survey as part of the project "Wissenschaftskarriere" under the direction of Prof. Dr. Zimmer, University of Münster, took place in 2002/2003 as part of the Research and Training Network "Women in European Universities."

6 The high number of childless males in the mid-level faculty points to structural conditions such as long routes to qualification in conjunction with limited work contracts which work against establishing a family (see also Auferkorte-Michaelis/Wergen et al. 2006). A high proportion of childless male academics was also proven in other statistical analyses (see: Biedenkopf/Bertram et al. 2005, Schmitt 2004).

that female scientists postpone the birth of their first child more and more until the phase of life after they reach the age of 35 (Auferkorte-Michaelis/Metz-Göckel et al. 2005).

Figure 2: Childlessness among Female Junior Scientists and Childless among Male Junior Scientists in NRW



Source: Auferkorte-Michaelis/Metz-Göckel et al. 2005 – own illustration

The proportion of childless female and male scientists in NRW is clearly higher compared with the average of male and female academics without children in the total population.[7] The coming expansion of the study to other German federal

7 With respect to the number of children of male and female academics, population scientists point to the overly high numbers spread in open debates. There is currently a, partially, controversial discussion on this problem, particularly on the number of children of female academics (compare Schmitt/Winkelmann 2005, Hufnagel 2008). Definitive statistical data showing number of children and educational level are currently not yet available (Dorbritz 2003, Scharein/Unger 2005, Schmitt/Winkelmann 2005). A study on the current family situation in Germany demonstrated a proportion of 35.6% of 40-44 year old childless male academics in the old German federal states and 24.7% in the new German federal states in 2003. The propor-

states will soon make more visible data available concerning this issue amongst scientific personnel at German universities.[8]

Desire for Children

The actual numbers of children appear to not correspond with the desire for children expressed by female scientists. In a survey at the University of Mainz, only a small portion of female scientists reported having made a conscious decision at the beginning of their careers against having children (Kemkes-Grottenthaler 2003).[9] A discrepancy between the expressed desire for children and actual number of children was also evidenced in surveys by CEWS of among approximately 700 junior female scientists. These surveys demonstrated that, for these female scientists, it was particularly professional reasons that spoke against the realization of an existing desire to have a child (Lind/Löther 2006). Even female scientists who already held a junior professorship or C1 position reported that it was mostly professional reasons that kept them from having a, (or having another) child (CEWS 2006).

As it has thus far always been, the female scientists are still primarily solely or almost solely in charge of childcare (Strehmel 1999, Krimmer/Zimmer 2003, Buchholz 2004, Buchinger/Gödl et al. 2004, CEWS 2006, Lind 2006).[10] Both in terms of everyday division of labour and role models there is still an overall strong tendency towards a traditional distribution of tasks, which appears to be especially pronounced among West German male scientists (Hanson/Fuchs et al. 2004).

tion of childless female academics of the same age was 32.7% in the old German federal states and 12.5% in the new German federal states (Biedenkopf et al. 2006: 48-49).

8 Project, 'Wissen oder Elternschaft? Kinderlosigkeit und Beschäftigungsbedingungen an Hochschulen in Deutschland' (Science or Parenthood? Childlessness and employment conditions at German universities) under the direction of Prof. Dr. Metz-Göckel.

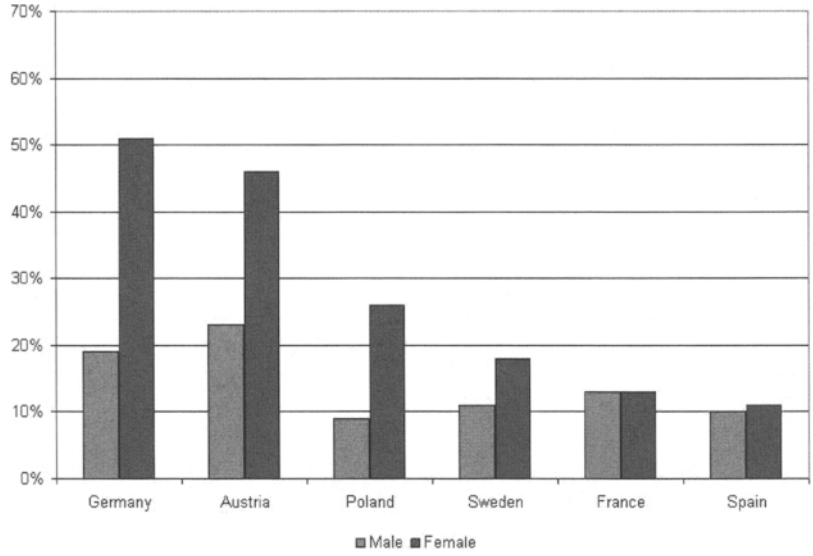
9 Contrary to that, Höhn et al. (2005) surveyed 10,000 Germans and found a remarkably low desire for children among women and men in the total population: German women's desire for children was expressed to the extent of 1.75 children; German men, only 1.59 children on average. The desire for children in Germany was found to be far below that in all other countries surveyed.

10 See also Mason/Goulden (2004) on the extent of responsibility for childcare among female scientists with children compared to male scientists with children in the USA.

European Perspective

Only a few studies are available for placing the German situation into a European context. The exception being the above cited project "Research and Training Network" (Zimmer/Krimmer et al. 2007).

Figure 3: Proportion of Childless Male and Female Professors in European Countries



Source: Krimmer/Stallmann et al. 2004, Majcher 2007 – own illustration.

In the course of this network project surveys on the career paths of female and male scientists were conducted in different European countries along with collecting sociodemographic data. The surveys showed that Germany – in comparison to other European countries – had the highest proportion of childless female professors with 51% (see Figure 2), unlike France, where no significant gender effect could be found and where an alignment between the genders settled at a low level of childlessness could already be seen.

Austria demonstrates great similarities with Germany, not just in terms of a high rate of childlessness (48% of the female professors) but also in terms of the institutional structures of the scientific system and the predominant gender roles. As far as Sweden and France are concerned, the low values of childlessness are not surprising given the well developed childcare systems and the largely well accepted non-traditional role models in their societies. A definite causal attribution is, nonetheless, difficult since basic societal conditions interfere with the rules of scientific careers and very different conditions for this exist in these individual countries.

Majcher (2007) has explored in greater detail the reasons for the differences when comparing Poland with Germany: The author points out that in Poland 74% of the female professors, and 91% of the male professors have children. Hence, while in Poland there is less childlessness, the majority of Polish female scientists have only one child. In contrast, most female professors in Germany, when having children, have more than one child. Majcher (2007) identifies additional factors such as a cultural hostility towards working mothers in Germany as well as an insufficient childcare infrastructure. Mostly however, the crucial factor seems to be the difference in the academic qualification path: The Polish scientific system offers relative job security while demanding little mobility, whereas the qualification course at German universities is distinguished by short-term situations, great planning insecurity and appears to follow a sort of "all or nothing" logic. Given this, starting a family in Germany is associated with much higher risks for a university career than in Poland (Majcher 2007).

Results on Balancing Science and Parenthood[11]

It has been well known for quite some time now that female scientists who have children struggle mostly with organizational problems which, in turn, have an unfavourable effect on their presence in everyday scientific academia and negatively influence the maintenance of networks and informal contacts (Drews 1996, Strehmel, 1999).[12] Above all, flexible working hours are an advantage for female scientists with children, whereas the amount of working hours has less of an effect on their work satisfaction or stress (Drews 1996, Strehmel 1999). They see their greatest problems as lying in conjunction with expectations regarding the amount of time they are expected to be available, as well as negative biases coming from their superiors and co-workers with respect to their achievements

11 For more detail see Lind 2004b.

12 See also the results on family burdens of scientists with children in the USA (Mason/Goulden 2004).

(Strehmel 1999, Krais 2000, see also Ostrow 2002). Having to balance both areas of life is considered a burden and a career obstacle by female scientists with children; male scientists, on the other hand, definitely experience fewer conflicts and find that fatherhood barely limits their career options (Buchholz 2004, CEWS 2006).

Neither private life situation nor relationship constellation are irrelevant: In contrast to their male colleagues with families, the female scientists are oftentimes in a relationship with a partner who is very busy professionally (Krimmer/Zimmer 2003, Buchholz 2004, Buchinger/Gödl et al. 2004, Lind/Löther 2006). The majority are, therefore, part of a dual career couple, if they are involved in a relationship at all, which is the case for far fewer female scientists in high positions compared with their male colleagues (Krimmer/Zimmer 2003, Buchholz 2004). For female scientists with children this means that they do not easily find relief from the burden of "reproduction work" as much as, or in the same manner as their male colleagues. On the contrary, female scientists report having to be in charge of organizing child care mostly themselves (Strehmel 1999, Macha/Klinkhammer et al. 2000, Solga/Wimbauer 2005).

In the meantime first results exist which may be interpreted as a tendency towards a slow dissolution of the traditional gender roles. The findings of the CEWS study (CEWS 2006) presented in the following, suggest this.

Current Results from CEWS

In a study of 138 junior professors and C1-assistants, both female and male scientists at universities in North Rhine-Westphalia were surveyed regarding career path to date, vocational situation, work-life-balance and private life situation (CEWS 2006). Average age in the total sample was 36, while the majority (over 80%) were part of a relationship, 54% of whom were married. The sample revealed no gender differences regarding relationship but there were differences with respect to dual career partnerships: Of the women, 43% had partners working in science as well, while the percentage for the men surveyed was only 28%. In comparison to their male colleagues female scientists were more frequently involved in long-distance relationships. The high rate of childlessness among the scientists of this sample, over 50%, is consistent with other studies (Allmendinger/Fuchs et al. 2001, Buchholz 2004, Zimmer/Krimmer et al. 2007). Over half of those with children had their first child after finishing their PhD and another quarter during their PhD program. In terms of gender roles, the study demonstrated a clear orientation towards traditional role patterns: Female scientists were more frequently in charge of childcare; children of male scientists were

largely cared for by their female partners. Partners sharing child care were rather rare in this sample (8%).

Noteworthy here is the significant number of female scientists (14%) living together with a partner who is the person responsible for household and child-care. Another result showed a total of 40% of the female scientists with children whose male partners did not work full-time. This evidence is rather atypical given that international comparison studies show a substantial surge back towards traditional roles in academic partnerships making the transition to parenthood (Blossfeld/Drobni 2001).

Examining the desire for children among female and male scientists was another objective of this study so those reporting an acute desire for children were further queried on what spoke against having children. The low proportion of childless scientists citing reasons for not having children is remarkable: Less than 5% did not wish to have any children.

There were clear gender differences with respect to the reasons against having children: Almost half of the childless women (48%) viewed professional reasons as an obstacle. In the total sample which included parents, the proportion of women citing professional reasons as an obstacle was even higher (55%). Only 30% of men surveyed thought that professional reasons were grounds not to have children. The most remarkable gender difference however is that 40% of the men did not see anything in the way of having a child while this opinion was shared by just under 4% of the women.

So this study of young successful female and male scientists also showed that the desire for children was higher than the actual existing number of children, while it was mostly women who – due to professional reasons – argued against parenthood or having larger numbers of children.

Female scientists with children reported negative effects of parenthood on their academic careers in that they have to plan their work in a very structures manner, frequently need the evening hours for working and are more dependent on set working hours than their male colleagues who have children. At the same time, mothers reported experiencing life with their children as more motivating and enriching for their own profession than did the fathers (CEWS 2006).

Among the desired measures geared towards a better work-life-balance, most of the scientists surveyed mentioned having child care possibilities available at universities. While men requested mostly institutionalized forms of care, women expressed a desire for more flexible working hours and work locations. Female scientists also often favoured part-time professorships where they see an advantage in terms of gaining time for child care or for a second child. Women were however, concerned that such an arrangement might more dramatically

limit their career possibilities than men, who more likely expected a decrease in work quality (CEWS 2006).

Open Questions

Overall, there is still a considerable lack of research findings on balancing a career in science with parenthood. To date, for instance, the real life and working situation of male and female scientists and how they view their career options still remains unclear. Furthermore, the question of how the determinants and institutional factors of science negatively impact family planning, thereby contributing to high rates of childlessness among junior female and male scientists in Germany has not been sufficiently examined. The reasons for giving up on a career as well as career stagnation in the conflict between scientific structures and models of work-life-balance should also be subject to more in-depth analysis. Finally, it is unclear how the conditions of different faculty cultures and types of organizations interact with generative decisions and mothers' and fathers' life situations in science. Additionally, little knowledge exists on the individual coping strategies as well as on basic institutional conditions with respect to a better balancing of work and job. One major gap that can be seen however, is the fact that men are severely neglected in the research on balancing science and family.

Current Research Project – Balancing Academia and Parenthood BAWIE

The project "Balancing Academia and Parenthood" (BAWIE) was developed with the intention of shedding light on the research gaps described above. It is financed through the Federal Ministry of Education and Research (BMBF) and conducted by Center of Excellence Women and Science – CEWS; the project began on July 1, 2007, running for a period of 24 months.

The overall goal of BAWIE is to study individual decision making processes and organizational structures at German Universities that benefit and/or hamper combining a scientific career with parenting. These analyses can be used for recommendations in creating action approaches for university policy. One important goal is the inclusion of male scientists into the study. The survey is independent of the number of children, in that both childless persons as well as mothers and fathers are surveyed. In order to get information on family planning in the course of the qualification process both male and female professors as well as junior scientists at the lower and mid-faculty level are included.

The methodical procedure is divided in a quantitative and qualitative part. In a first step, a large-scale online survey is conducted. About 40,000 female and male scientists from selected universities nationwide are contacted per e-mail and asked to participate in the survey. The quantitative survey results are then supplemented by more in-depth, qualitative telephone interviews using a smaller sample.[13]

Conclusion

The specific situation of female and male scientists seeking to combine the responsibility for children with their scientific career deserves increased special attention. The question of balancing career and family not only affects women, but increasingly also male scientists. Even if – just as in the past – traditional role models still prevail among scientists, there are, especially among junior scientists, tendencies towards a slow dissolution of these patterns and towards new role constellations in relationships. These tendencies require a redefinition of the, so far, unquestioned expectations of availability and a traditional familial division of labour among partners.

The high proportion of childless female and male scientists has to be interpreted as an indicator for the existence of great difficulties in the German science system for accommodating work-life-balance. This means that more intense discussion and targeted measures for the men and women involved is urgently needed. The long-term attractiveness of the occupational field "Science in Germany" will unquestionably be dependent on establishing adequate conditions for both sexes to balance family with a career in science.

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13 More in-depth information and the current status of the project can be found at the project homepage: www.bawie.de

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Gender Equality Programmes: Recommendations of the 5th European Conference on Gender Equality in Higher Education 2007 at Humboldt-Univesität zu Berlin

The following recommendations for gender equality programmes can be made based on the findings of the conference

- Crucial for the success of gender equality initiatives is strong commitment and support from university leadership, that the administration understands gender equality and diversity as being part of excellence, and that it communicates and signals this view both within and outside of the institution. In the United States this is expressed in demands for "strong top-down leadership", not only from top management but also from trustees, advisory board members, deans, and department chairs.

- The university management is responsible for transforming the institutional structure and culture so that targeted recruitment, retainment, and promotion of women are goals that are seriously pursued and have adequate instruments at their disposal.

- These instruments include:
  - the inclusion of gender equality issues and goals in key strategic documents, such as development plans,
  - the development of incentive programmes,
  - the targeted recruitment of women for particular positions,
  - the avoidance of too much specificity in job descriptions for professors,
  - the consideration of successes in the promotion of gender equality when distributing resources,
  - the monitoring of results,
  - gender and diversity awareness training for gate-keepers: the requirement for deans and department and search committee chairs to participate in leadership workshops that foster competence in gender and diversity issues and promote sensitivity to gender bias in the definition and application of qualitative evaluation criteria.

- National research-funding bodies must demonstrate that gender equality is important to them, as the National Science Foundation in the United States or the Swedish Research Council have done, for example. Convincing gender equality plans should be a criterion for awarding research funding. The fact that the "Excellence Competition" that took place among German universities between 2005 and 2007 required the participating institutions to give convincing evidence of gender equality measures and that the international referees were particularly concerned on this point had a positive effect on the importance given to gender equality by university administrators.

- Well-funded programmes aimed at the institutional transformation of universities as a whole have a positive effect on the gender-equality climate. The ADVANCE programme of the National Science Foundation (NSF) in the United States is an example of this.

- The successful implementation of gender-equality programmes in universities depends upon a) strong support from the administration up to the highest management levels, b) a definition of common goals, c) the necessary infrastructure, and d) sufficient resources.

- Programmes explicitly designed to prepare women for leadership positions have had positive results in different countries, such as the United States, Australia, the UK, and Sweden. These programmes focus on career advancement in systems that allow for promotion within the same university. They also focus on strengthening the participants' motivation and interest and preparing them for taking on real leadership responsibilities, from chairing a department to applying for positions in the university administration.

- Important factors for the acceptance and success of mentoring programmes are institutional integration, a support culture sympathetic to the significance of such forms of assistance, the necessary infrastructure, and of course sufficient funding.

- While there have been many positive experiences of bringing women from different disciplines together in the same mentoring programme, it is also important to take into consideration the different responses to the various elements of these programmes (face-to-face mentoring, peer mentoring, seminars, networking) from academics in different fields.

- When evaluating gender equality programmes and gender equity offices, the following should be taken into account:
  - knowledge of the methods of evaluation and the corresponding standards of quality,
  - transparency of the goals and purpose of the evaluation,
  - the criteria for the evaluation of the institutions and programmes corresponding to the goals of these programmes and institutions,
  - the inclusion of gender equity and equal opportunities officers at the institutions being evaluated,
  - the familiarity of the evaluators with the responsibilities and objectives of the programmes they evaluate,
  - the involvement of the evaluated institutions in selecting the evaluators,
  - the clear identification beforehand of the addressees of the evaluation. This includes identifying who is responsible for implementing any recommendations.
  - case studies, which can play an important role in the analysis of hidden gender structures.

- A successful gender equality policy requires that all levels and parts of an institution can be mobilized and motivated to work together to achieve real change. This calls for the support of the university leadership on all management levels, good gender equality programmes with action plans for the support and promotion of women, sufficient funding of these programmes, the adaptation of the programmes to the specific conditions of the institution, the adaptation of the institutional structures to the requirements of gender equality, as well as an overall transformation of the cultural climate of the institution.

- Finally, diversity and intersectionality issues must play a greater role in the higher education gender equality agenda than has been the case thus far in many European countries.

For recommendations of this conference on other topics see:
http://www2.hu-berlin.de/eq-berlin2007/documentation.htm.

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