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# Are we on track with sustainability literacy?

## A viewpoint on the influence of sustainability and accounting education on future managers' processing of sustainability information

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### Abstract

**Purpose** – In this viewpoint, the authors aim to discuss sustainability issues in university education. Balancing what we call the “Accounting View” and the “Sustainability View”, the authors illuminate the status of value relevance of sustainability information and question the depth of business students’ processing of this information.

**Design/methodology/approach** – The discussion was triggered by an experimental study on sustainability disclosure which revealed interesting findings related to the participating students’ prior sustainability and accounting coursework. The authors start the viewpoint from these findings and contrast them with existing views on sustainability and accounting (education).

**Findings** – The amount of accounting coursework was positively related to the probability of including sustainability information in future stock value estimates, whereas this applied only marginally to sustainability coursework. However, students with more sophisticated sustainability knowledge seemed to scrutinize the given sustainability information more deeply, while students with “pure” accounting knowledge seemed more willing to simply accept the information.

**Practical implications** – The authors argue for advancements in the curriculum for business students that foster critical thinking and might prevent students (and thus potential future managers) from using sustainability information superficially. The authors caution against regarding sustainability issues as an “add-on” to existing courses and curricula and call for a combination of integrating sustainability issues in (core) business courses and offering standalone courses on sustainability management or CSR.

**Originality/value** – Triggered by findings from an experimental study, the authors contrast different opinions on sustainability education of business students and offer a new viewpoint on the (supposed) value relevance of sustainability information for future business leaders.

**Keywords** University, Sustainable development, Accounting, Management education, Information processing, Corporate responsibility

**Paper type** Viewpoint



### 1. Sustainability in management education: introduction

The UN Decade of Education for Sustainable Development is drawing to a close (UNESCO, 2005-2014) and sustainability is now increasingly regarded as a crucial issue in modern business and society. Several recent studies on business education

indicate that including sustainability as a topic in the curriculum of universities and business schools is becoming a trend (Alcaraz *et al.*, 2011; Rasche *et al.*, 2013; Singh *et al.*, 2011; Wu *et al.*, 2010). Along with this trend, there is a sustained call to include sustainability- and ethics-related issues[1] not only in elective courses but also in core business courses such as accounting or finance that were often regarded as being relatively “sustainability-free” before now (Blanthorne *et al.*, 2007; Dellaportas, 2006; Molyneaux, 2004). Approaches to include sustainability-related issues in university education are diverging. Several universities and business schools offer elective courses on sustainability-related issues, and the call to holistically integrate such topics throughout the curricula is increasing (Starik *et al.*, 2010). Wu *et al.* (2010) recently found that an elective-oriented approach at the graduate level is favored by many European schools whereas compulsory undergraduate courses are more common in American business schools (Rutherford *et al.*, 2012). Moreover, in some universities sustainability might still merely be a side issue that is not integrated into the curriculum at all (Thomas, 2005), and it seems as if even today business students are often (implicitly or explicitly) taught that profitability or shareholder value are all that matters (Giacalone and Thompson, 2006; Goshal, 2005). This is why we asked ourselves the question: how do (graduate) business students – our future managers – actually incorporate sustainability information into their judgment and decision-making?

Triggered by an experimental study on sustainability disclosure (Hahn and Lülfs, 2013) which revealed interesting findings related to the participating students’ prior sustainability and accounting coursework, we offer the present viewpoint, sharing our thoughts and interpretations on the (potential) effects of sustainability and accounting education on sustainability information processing. We posit that sustainability information nowadays is deemed value-relevant by graduate business students and we think this in itself is already an achievement in the quest for sustainable development. However, we also question whether these future managers indeed scrutinize the given information or whether they rather fall for a superficial faith that if something merely says “sustainability” it will probably be sustainable. In our opinion, these tendencies mirror two – at first glance opposing – views on corporate social responsibility (CSR) and sustainability that researchers and thus also scholars integrate into management education.

Economics, finance, and accounting researchers (Dhaliwal *et al.*, 2011; Shank *et al.*, 2005) typically argue from a shareholder value perspective. Major questions include the following: does engaging in socially responsible activities increase or decrease shareholder value? Do (voluntary) sustainability disclosures signal superior non-financial performance rewarded by investors? And – more normatively – in face of the respective results, should companies engage and invest in sustainability projects? There is, however, also a long history of alternative perspectives recognizing the responsibilities of business beyond a pure profitability perspective embedding companies more deeply in societal discussions (Bowen, 1953; Carroll, 1999). In the following, we call those two perspectives “The Accounting View” and “The Sustainability View”.

In highlighting and balancing these two “views” we aim to trigger a discussion on the impact that different aspects of education have on business students’ overall perception of sustainability. We furthermore aim at providing insights into and implications for whether and how sustainability topics should be included in university education.

## 2. The accounting view

The traditional accounting mindset is often framed by neoclassical micro-economics (Gordon, 1998, p. 33) and a shareholder value perspective (Moser and Martin, 2012). A “typical” accounting student thus is familiar with “value relevance” which is an integral part in any textbook on (financial) accounting (Alexander and Nobes, 2007; Libby and Short, 2010). An accounting (and any non-financial) measure is deemed value-relevant if it has a significant association with equity market value (Barth *et al.*, 2001). Most notably, in the conceptual accounting frameworks issued by the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB), which are an integral part of any accounting class, the value relevance of accounting information is (indirectly) linked to investment decisions (Staubus, 2000). Value relevance as defined above is not a stated criterion of the FASB or the IASB. Rather, value relevance is an empirical operationalization of the stated criteria of relevance and reliability. Information will be thus be value-relevant (i.e. have a predicted significant relation with share prices), if investors consider the information relevant for valuing the firm while at the same time reliable enough to be reflected in share prices (Barth *et al.*, 2001).

Relating to these issues, we observed some interesting effects in a recent experimental study (Hahn and Lülfs, 2013) involving graduate students in management which triggered our curiosity (and thus this viewpoint)[2]. The aim of the experiment was to shed light on the impact of sustainability reporting behavior (specifically negative incidents) by companies and independent third parties on investors’ stock-price evaluation. As part of our control questions, we asked participants whether they had incorporated sustainability information into their assessments at all, and the results are especially pronounced when looking at certain aspects of university education. Table I offers an overview with further explanations.

We found that participants’ education is an important factor in explaining their perceived relevance of sustainability information. Most notably, we found that the amount of accounting coursework is positively related to the probability of including sustainability information when estimating future stock values. Or, in a more provocative proposition, accounting coursework teaches students to consider sustainability information value-relevant! While this might seem surprising at first glance, there are indeed indications that issues related to sustainability have penetrated (research-based) accounting education, thus potentially changing what information a student considers value-relevant. Researchers have long sought to determine whether there is a positive association between sustainability (or CSR) and financial performance (e.g. through increased loyalty and motivation of employees, stronger brand value and customer reputation, improved investor relations, or better risk management). Although still widely discussed, preliminary agreement seems to be that this link exists (Carroll and Shabana, 2010; Dhaliwal *et al.*, 2012). Furthermore, scholars of traditional business disciplines such as accounting seem to have acknowledged the need to incorporate sustainability issues in the scope of their models (Moser and Martin, 2012). Surveys among accounting scholars also support the notion that educators’ willingness to include sustainability issues in the accounting curriculum has increased over time (compare Owen *et al.*, 1994 to Blanthorne *et al.*, 2007) alongside a growing interest for sustainability issues in the accounting profession (Ngwakwe, 2012).

Considering these trends in accounting research and education, it actually comes as no surprise – when taking a closer look – that the level of accounting education is related to

	Model 1 ( $\beta$ )	Model 2 ( $\beta$ )
Age (AGE)	-0.08	-0.10
Gender (GENDER)	-0.36	-0.53
Professional investment experience (INVEST)	-0.10	-0.50
Professional investment experience (WORK)	-0.14	-0.10
Group 1	-0.77	-0.74
Group 2	-0.54	-0.40
Group 3	0.69	0.80
Prior accounting coursework (ACC)		0.17**
Prior sustainability coursework (SUST)		0.23*
Model $\chi^2$	10.80	23.03
Significance	0.15	0.01
$R^2$ (Nagelkerke)	0.11	0.22
$n$	143	143

**Notes:** Significant at: \* $p < 0.1$ , \*\* $p < 0.05$  and \*\*\* $p < 0.001$ ; further explanations: participants reported they either had (coded as 1) or had not (coded as 0) incorporated sustainability information in their evaluation; we thus have a binary dependent variable; we used participants' prior coursework in accounting (ACC) and sustainability (SUST) as our two independent variables and further controlled for participants' age (AGE), gender (GENDER), investment experience in buying stock or mutual funds for their own account (INVEST), years of professional work experience and the experimental conditions; we used a  $2 \times 2$  between-subjects design, resulting in a total of four groups (no dummy variable for group 4 is integrated because it is a perfect linear combination of groups 1-3); half of the subjects received a sustainability report including no negative information on a company's sustainability activities whereas the other half received a balanced report that encompassed positive and negative information; the first model reports results only for our control variables, and the second model represents the final specification, adding our independent variables

**Table I.**  
Logistic regression

the probability of classifying information on sustainability issues as value-relevant. This can be regarded as good news when looking at finance and accounting education through a sustainability lens. What we do not know, however, is whether the "accounting experts" in our study critically reflect on the content of the sustainability information they obviously deemed value-relevant. This is where we have to look at everything more closely. The "accounting experts" in our experiment gave significantly higher stock price estimates upon receiving sustainability information than students with a distinct educational background in sustainability no matter if the given sustainability information was good news or bad news. Table II reports and compares the (mean) assessments of sustainability performance and stock price estimates for the two groups[3]. This is directionally the same for the sustainability performance assessment.

This suggests that the group of "accounting experts" not only acknowledged the value relevance of sustainability information but also considered any information of this kind as *per se* a positive signal. Providing sustainability information can indeed increase transparency. However, providing sustainability information is not equal to superior performance in any case. Specifically, our experimental setting also included reporting of negative incidents that might shed some doubt on the company's actual sustainability performance.

And this is where we want to get back to the issue of management education. We think that the "nature" of accounting education is one reason for our accounting experts' estimations. Accounting education has long been criticized for using

Variable	Accounting experts <sup>b</sup> ( <i>n</i> = 22)	Sustainability experts <sup>c</sup> ( <i>n</i> = 16)	Difference
Stock price estimate <sup>d</sup>	\$81.03	\$71.64	\$9.39***
Sustainability performance <sup>e</sup>	6.50	5.75	0.75**

**Notes:** Significant at: \* $p < 0.1$ , \*\* $p < 0.05$  and \*\*\* $p < 0.001$ ; <sup>a</sup>before splitting our sample, we had to reduce the initial sample to 109 participants because 34 participants did not provide an assessment of the company's sustainability performance; <sup>b</sup>to isolate "pure" accounting experts, we chose students with equal or more than eight accounting courses and that did not chose the elective on corporate environmental management; <sup>c</sup>to isolate "pure" sustainability experts, we used students that chose the elective on corporate environmental management while at the same time having less than eight prior courses in accounting; <sup>d</sup>stock price estimate is computed from the percent change in stock price assessment from an initial \$72 benchmark; <sup>e</sup>we asked participants to rate the company's sustainability performance on a 11-point-scale ranging from 0 (labeled "very weak") to 10 (labeled "very strong"); further explanations: we also computed (mean) assessments of sustainability performance and stock price estimates for the two remaining groups, i.e. students who had taken more than eight accounting courses and the elective module in sustainability ("mixed experts") and students who had taken fewer than eight accounting courses and no elective module in sustainability ("no experts"); however, we found no significant differences compared to the "expert" groups

**Table II.**  
Group comparisons<sup>a</sup>

"superficial learning strategies" (Gray *et al.*, 1994) by focusing on algorithmic exercises (Hazelton and Haigh, 2010) and routine knowledge, and thus (at least partly) failing to adequately develop in students the skills necessary for mastering ambiguous, unstructured problems (Kimmel, 1995). It thus only seems logical that some accounting educators explain their hesitancy to teach sustainability issues by not feeling qualified enough to do so (Fleischman and Schuele, 2006; Stevenson, 2002). The potentially insufficient qualifications of accounting scholars to teach sustainability-related issues combined with the "knowledge-based" nature of accounting courses might partly explain our findings. Therefore, we propose that the value relevance model has been expanded in accounting education to encompass sustainability issues but more in a technical than in a critical way.

### 3. The sustainability view

Not long ago, most managers regarded sustainability issues merely as a cost factor outweighing any potential benefits (Cordano *et al.*, 2003). Furthermore, or perhaps consequentially, business students were previously found to be less environmentally sensitive than students of other disciplines (Benton, 1994; Synodios, 1990). From a sustainability perspective, the finding that the value relevance of sustainability issues seems to no longer be contested among business students is welcome, even if these students do not have a distinct educational background in sustainability. Indeed, it seems that potential future managers now value sustainability information and do not discard sustainability activities as being a burden for a firm's financial viability. Empirical research indicates that heightened sensitivity results in increased support for sustainability-enhancing organizational processes (Cordano *et al.*, 2003; Sharma, 2000). One might be tempted to end the discussion at this point and test on the achievements of sustainability in university education. However, sensitivity or awareness of sustainability is only a necessary, and not a sufficient, condition for increasing the sustainability of a business. Critical reflection and sophisticated use of sustainability



information are another necessary condition. Springett (2005, p. 147) summarizes the point in this way: “education for sustainability is seen as having the power to guide people in reflection and action as they engage with the discourses of sustainability”, and Peoples (2009, p. 376) calls upon us to “prepare future leaders with the understanding and tools necessary to make key decisions based on more than ‘just the numbers’”. What needs to be questioned is the way in which the students (in our experiment and beyond) include information beyond the numbers. Especially students with more sophisticated sustainability knowledge seem to scrutinize any given non-financial information more deeply as can be seen from some of the students’ comments provided in our study (whereas no sustainability-related comments were given by the “accounting experts”, at all). Typical comments included:

My assessment of the sustainability performance follows the impression that the company concentrates solely on social aspects regarding their employees and neglects other social and ecological issues.

Average sustainability activities. Sustainability goals are partly questionable.

[Sustainability measures of the company] are a start but no particular achievements in sustainability.

Extant research suggests that self-serving disclosure by corporations is seen rather skeptically by the recipients (Mercer, 2004; Pomeroy and Dolnicar, 2009). We doubt, however, that this skepticism is shared by everybody. Based on a (fictitious) student’s testimony, Parkes and Blewitt (2011) recently titled an article “Ignorance was bliss, now I’m not ignorant and that is far more difficult”. This exactly underlines what we think can be observed in our experiment: only those students with an educational focus on sustainability seem to truly question the given information whereas others seem to be more willing to simply accept it.

We see two main issues related to the superficial use of sustainability information. First, an exaggerated focus on the value relevance of sustainability activities might cloak possibly existing trade-offs (Hahn *et al.*, 2010) and limits of the business case for sustainability (Dyllick and Hockerts, 2002). Whereas many examples of a positive relation between sustainability and financial performance exist, such a connection is not inevitable. An oversimplified use of value relevance logic might, in extreme cases, even endanger a company’s economic survival if the respective managers uncritically adopt any (seemingly) sustainability-related measure. In addition, pure business logic might not be enough to achieve sustainability on a societal scale (Hahn *et al.*, 2010; Kurucz *et al.*, 2008). Second, if sustainability education does not extend beyond a mere acknowledgment of the value relevance of the topic and does not cover a deeper understanding of systems, relations, activities, etc. it will be impossible for students to truly recognize the importance of different kinds of information, programs, and outcomes. Any published information relaying a sustainability impression could thus be treated equally no matter if it is just a PR paint job instead of true sustainable business conduct. The success of corporate greenwashing (i.e. a mere superficial statement of sustainability used as a fig leaf; Laufer, 2003; Ramus and Montiel, 2005) on a large-scale would directly degrade any incentive for true sustainable business conduct. In the end, superficial and uncritical handling of sustainability information by stakeholders could directly abet greenwashing, and there are indeed signs that companies, for example, convey mostly positive information

or disguise negative information in their sustainability reports which are being used as an impression management tool (Cho *et al.*, 2010; Hahn and Lülf, 2013). In an extreme scenario, Giacalone and Thompson (2006, p. 269) envision that if “students learn that if society wants them to act socially responsibly they can script performances that would make Hollywood proud.”

#### 4. Implications for future educational efforts

In the last several years, management education has increasingly embraced sustainability issues. However, to foster profound processing of sustainability information and to prevent the above mentioned consequences of an uncritical reception of sustainability information, more is needed than simply pointing at the value relevance and the business case for sustainability. Scholars have called for an education assisting in developing of natural and social scientific as well as managerial understanding, underlying values, and – not least – action skills to enable sustainable business conduct (Cordano *et al.*, 2003; Springett, 2005). Instead of solely presenting abstract theories, most notably in our case the value-relevance theorem in accounting, one might challenge students to critical thinking, which can be important with the sometimes vague, ambiguous, and extensively complex topic of sustainability (Kopnina, 2011; Tilbury and Ryan, 2011). Indeed, numerous scholars point to the paramount importance of critical thinking and the skills of questioning current approaches and conventional thinking (Kimmel, 1995; Parkes and Blewitt, 2011; Redding and Cato, 2011). Opportunities and hindrances, trade-offs and complementarities need to be taught. This, however, seems to be difficult if sustainability is regarded as an “add-on” to existing courses and curricula (Rasche *et al.*, 2013). To achieve a comprehensive approach to reflexivity and critical thinking, sophisticated teaching methods beyond ex-cathedra teaching are necessary (Kearins and Springett, 2003; Mather *et al.*, 2011; Melé, 2005; Springett, 2005; Wheeler *et al.*, 2005). This might also include breaking up traditional thinking and challenging conventional models still prevalent in core business courses such as accounting. Recognizing the (potential) value relevance of sustainability issues is a notable first step in this direction. Interestingly, the accounting profession often calls for a diversified set of skills beyond pure technical skills and model thinking (Fleischman and Schuele, 2006) and emphasizes critical thinking as a core competency (Kealey *et al.*, 2005; Mather *et al.*, 2011; Young and Warren, 2011). This includes sensitizing students to broad issues of sustainability and social responsibility (Gordon, 1998) that could be suitable for seeing beyond the numbers and embracing issues beyond the narrow limits of a single (sub-)discipline. This not only helps foster sustainability thinking with business students but could also invigorate traditional management education, which is facing the rapidly changing context of globalization, societal pressure, and diverse interests (Colwell and Joshi, 2013; González-Benito and González-Benito, 2010; Ravenscroft *et al.*, 2008).

Often, however, educators specialized in certain managerial sub-disciplines are reluctant to teach sustainability issues because the instructors do not feel qualified enough to do so (see for the accounting discipline, for example, Fleischman and Schuele, 2006; Stevenson, 2002). The results might be exactly what we discussed above: a general appreciation of sustainability among future managers which, at the same time, lack more profound knowledge and critical thinking. Numerous approaches could help overcome this posited shortcoming. Regarding accounting, Ravenscroft *et al.* (2008), for example, call for compulsory training of educators whereas Stout and West (2004) propose cross-disciplinary programs and Boyce *et al.* (2012) are in favor of a collegial team



teaching approach. Another extensive debate is on either integrating sustainability issues in (core) courses in business versus offering standalone courses on sustainability management or CSR as a cross-functional topic (Blanthorne *et al.*, 2007; Rasche *et al.*, 2013). Graham (2012), for example, finds that students prefer stand-alone ethics and/or sustainability courses over integrated teaching across the curriculum. Without delving deeper into this discussion we want to call for a combination of these two approaches in the face of our own recent experience in teaching and research: integrating sustainability into core courses emphasizes the overall managerial relevance and interdisciplinary nature of the topic while probably limiting the opportunities to offer sophisticated teaching measures and in-depth critical reflection. Here, (compulsory) standalone courses could help convey the necessary skills and critical approaches needed to overcome superficial coverage of the topic. An extreme approach of this standalone thinking would be to offer discrete courses covering sustainability issues within various sub-disciplines (see, e.g. Dellaportas, 2006, for accounting). Although certainly offering the opportunity for very pointed and extensive coverage of issues, this latter approach could, however, lead to an abundance of specialized courses (e.g. “accounting and sustainability,” “finance and sustainability,” or “marketing and sustainability”) congesting the existing curricula.

## 5. Conclusion

“Are business students buying it?” asks Thomas (2005) in the title of an article referring to the topic of sustainability. His critical assessment was that:

[...] even if sustainability concepts are included in business school curricula, there is no guarantee that students will be persuaded to incorporate them into their business decision-making models, either in school or on the job (p. 188).

Marshall *et al.* (2010, p. 478) more recently opposed this thought and find that “a paradigm shift is underway [...] that] incorporates a sustainability mandate, refuting clearly the old thinking of limitless resources, unbounded growth, and technologically derived solutions.”

We, however, suggest that business students’ reality is somewhere in between. We are cautiously optimistic that business students incorporate sustainability information in their decision making. However, we wonder whether students critically reflect on the content of the sustainability information. Recently, Rasche *et al.* (2013) warned of possible decoupling tendencies in ethics (and sustainability) education if business schools’ “upbeat rhetoric” about the importance of ethical (and sustainability-related) issues is not reflected in substantial changes in the curriculum. A mere superficial integration of sustainability issues in business students’ curriculum might indeed lead to the generation of superficial knowledge (such as a potential diffusion of an uncritical perception of value relevance of any sustainability-related information). Our observations suggest that especially students with more sophisticated sustainability knowledge seem to scrutinize the given information more deeply while students with “pure” accounting knowledge seem to be more willing to simply accept it.

As this behavior might cloak possibly existing trade-offs and limits of the business case for sustainability, we propose to advance education for business students (whether in Europe or in the USA) in several aspects. We caution against regarding sustainability issues as an “add-on” to existing courses and curricula.

Approaches exclusively aiming at integrating related topics in elective sustainability courses likely do not reach the majority of students. To truly make a difference, sustainability needs to reach into core managerial disciplines such as accounting and finance (similar Rasche *et al.*, 2013). Therefore, we call for a combination of integrating sustainability issues in (core) business courses and offering (if necessary compulsory) standalone courses on sustainability management or CSR. Specific further measures might for example encompass compulsory training of educators. This may contribute to fostering students' critical thinking – regarding sustainability issues and business in general.

### Notes

1. Sustainability is usually described as a normative-ethical principle of anthropogenic resource utilization (Doppelt, 2003) and as such is subject to a broad set of fundamental ethical reasoning (Hahn, 2011). Hence, we will frequently refer to sustainability and ethics throughout this essay as two parallel and often overlapping issues in business education.
2. For detailed information on the experimental study, see Hahn and Lülfs (2013).
3. We classified participants who ranked in the top quartile in prior accounting coursework (i.e. with eight or more than eight prior accounting courses) as accounting experts. Sustainability experts were participants who chose a specific (elective) module on sustainability management.

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