21st century skills, individual competences, personal capabilities and mind-sets related to sustainability: a management and education perspective

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Abstract:

Aim: This editorial article provides a general introduction into the topic of this special issue. It highlights the attention given to, and the differences in interpretations of, 21st century skills, individual competences, personal capabilities and mind-sets related to sustainability, specifically in management and education contexts. Furthermore, the article gives an overview of the articles included in this special issue.

Design/Research methods: Recent developments in the field are presented, based on a literature review. Differences in interpretations between management and education perspectives, as well as differences and similarities in conceptualisations of these constructs are discussed.

Findings: The article describes current issues that are being discussed in the debate around 21st century skills, individual competences, personal capabilities and mind-sets related to sustainability. Although different concepts are presented in the literature, they also have basic assumptions and characteristics in common, mainly the combined (holistic) approach of skills, competences, attitudes and values. However, the discussion has become blurred due to mixing interpretations of business context and education context.

Originality/value of the article: The main value of this introductory article of the special issue, is that it outlines similarities and differences in interpretations of 21st century skills, individual competences, personal capabilities and mind-sets related to sustainability.

Keywords: 21st century skills, individual sustainability competences, capabilities, mind-sets, higher education for sustainable development, sustainable management

JEL: I20, I23, J24, Q01, Q56

1. Introduction

A diversity of viewpoints and perspectives is surrounding the concepts of "21st century skills" (e.g. WEF 2018), "competences" (e.g. Wiek et al. 2011), "capabilities" (e.g. Thomas, Day 2014), and "mind-sets" (e.g. Kassel et al. 2016) oriented towards sustainability. Different models, concepts and lists of skills and competences have been presented, both from an business/management and (higher) education perspective. However, business settings and educational settings have been elaborating on different interpretations and standpoints. In business settings, focus has been set on human resource perspectives and (economic) rankings of skills needed in the near future (e.g. by 2020). In educational settings, focus has been set on a more profound selection, definition and critical interpretation of sustainability competences (Rieckmann 2012; Wiek et al. 2011).

Rankings of skills and conceptions of individual sustainability competences provide future directions for management and education. However, different interpretations from business and educational backgrounds have become mixed and used interchangeably, without consideration of validity issues of such approaches. This situation has led to a blurry discussion and a problematic interpretation and integration of these skills and competences (Lambrechts, Van Petegem 2016). A diversity of perspectives enriches the debate, on the premise that contributions start from a clear conceptualisation and definition of the topic. In the context of sustainability, striving towards a generally accepted definition and interpretation of the concept of 21st century skills, competences and capabilities becomes difficult, if not impossible. Therefore, this special issue started from a broad call for papers inviting a plurality of contributions from different backgrounds and perspectives on the topic.

This introductory article is organised as follows: in section 2, focus is set on the contours of the current debate around 21st century skills, individual competences, personal capabilities and mind-sets for sustainability. This section provides an overview of the topics and their links and similarities. Section 3 provides an overview of the articles that are published in this special issue and shortly highlights the main findings of each article.

2. About skills, competences, capabilities and mind-sets

The debate around skills and competences is characterized by a multitude of interpretations, as well as differences in terminologies used to address (often comparable) constructs (Shephard et al. 2019). The term 21st century skills can be defined as "those skills and competencies young people will be required to have in order to be effective workers and citizens in the knowledge society of the 21st century" (Ananiadou, Claro 2009: 8). Depending on the focus and the timeframe, different skills appear in overviews and studies of 21st century skills, often labelled as "soft skills", such as critical thinking, creativity, and problem solving (e.g. WEF 2018). Critics point towards the business influence in these debates, and warn for overly managerial interpretations imposed on education, "according to which its main goal is to prepare workers for knowledge-intensive economies or even in some cases for particular firms" (Ananiadou, Claro 2009: 6). Others, like Rotherham and Willingham (2010), point to the fact that these skills are not newly developed in the 21st century, but already exist for centuries. Furthermore, the focus on 21st century skills may lead to a lack of attention to knowledge that is specific to different domains, as well as lack of profound integration of these skills: "without better curriculum, better teaching, and better tests, the emphasis on "21st-century skills" will be a superficial one that will sacrifice long-term gains for the appearance of short-term progress" (Rotherham, Willingham 2010: 20).

Within the educational context, Thomas and Day (2014: 209) found the terms "abilities", "attributes", "capabilities", "competences", and "skills" to be used to describe learning outcomes of higher education. These terms broadly cover comparable elements, such as knowledge, values, attitudes, etc. For example, competences (Rychen, Salganik 2003) as well as capabilities (Thomas, Day 2014) have been presented comprising knowledge, skills, attitudes and values. More recently, the debate is shifting towards sustainable mind-sets, that comprise values, knowledge, and actions or competences (Kassel et al. 2016). It is clear that, despite the differences in interpretations and terms used, all of these conceptualisations refer to a combined and holistic interpretation of knowledge, skills, values, attitudes,

behaviour, and action that are important in the future, and/or within the context of sustainability.

It is indeed true that corporate interpretations of competences and skills influenced the educational debate (Stoof et al. 2002), however the broad holistic competence concept was translated into extensive instrumental conceptions, in which knowledge and skills were integrated based on the ability to assess them. The lack of a holistic interpretation of competences has led to a problematic integration with a focus on instrumental assessment of knowledge and skills (Lambrechts, Van Petegem 2016), and with the risk of deleting values from the curriculum, as has been pointed out by Cheetham and Chivers (1996), Lambrechts et al. (2013) and more recently Dlouhá et al. (2019) as well. This evolution was also inclined by growing influence of business environments and the expectation of higher education to deliver students skilled to fulfil market demands, and leads to critical questions about the way competences are defined and integrated: "Current practices in competence based (higher) education start from an instrumental approach (whether or not influenced by neoliberal market discourse). As a result, values and virtues are left out because they simply do not fit into the instrumental approach of operationalizing and assessing competences" (Lambrechts et al. 2018b: 1296).

Framed within social constructivism, contemporary higher education embraced the competence concept (Van den Berg et al. 2006), commonly defined as the holistic approach to knowledge, skills, attitudes and values (Rychen, Salganik 2003). However, the concept became blurred, due to different interpretations and definitions in (human resource) management and educational context (Lambrechts, Van Petegem 2016), and the way competences were introduced in academic study programs was not (always) successful (Mochizuki, Fadeeva 2010). As pointed out by Mogensen and Schnack (2010), interpretations about competences in management context are characterized by the following: "the focus on knowledge and skills has almost vanished without a trace in favour of an emphasis on personal virtues like creativity, flexibility, adaptability, and so on, treated in a rather technical and individualistic manner with effectiveness as the main value" (Mogensen, Schnack 2010: 64).

The literature about Higher Education for Sustainable Development (HESD) has been focusing on the definition of competences for sustainable development (e.g. de Haan 2006; Rieckmann 2012; Wiek et al. 2011), resulting in different lists, models and sets of such competences. Depending on the author, lists between five and twelve competences have been drafted. Wiek et al. (2011) presented five key competences for sustainability: systems thinking, anticipatory thinking, normative competence, strategic competence, and interpersonal competence (Wiek et al. 2011). Rieckmann (2012) drafted comparable competences, and added critical thinking, acting fairly and ecologically, cooperation, participation, empathy, interdisciplinary work, communication, evaluation, ambiguity and frustration tolerance (Rieckmann 2012). Ploum et al. (2018) combined strategic competence and action competence (Ploum et al. 2018), while Blok et al. (2015) linked action competence to normative competence in a virtue ethics perspective (Blok et al. 2015). Salgado Perez et al. (2018) added further refinements to Wiek et al.'s (2011) framework, more specifically by focusing on intervention competence.

Furthermore, as discussed by Shephard et al. (2019), there is a difference between being competent (to act sustainable) and being willing to do so, thereby reemphasizing "the educational question that whether to be competent, or capable, to do something, one also needs to be willing to do it" (Shephard et al. 2019: 542). The competence debate has been focusing on an idealistic idea of developing or acquiring desired competences ("for" sustainable development), without necessarily taking into account differences in student attitudes and their willingness to act. A recent study by Lambrechts et al. (2018a) revealed different groups of students showing (sometimes subtle, yet important) differences in their perceptions of sustainability: the moderate problem solvers; the pessimistic non-believers; the optimistic realists; and the convinced individualists. Clearly, these differences are linked to differences in student perceptions (e.g. Platje et al. 2020), as well as their motivation to act sustainably (e.g. Biberhofer et al. 2019), hence a one-fit-for-all approach regarding integrating sustainability competences, as well as critical and interpretational competences is not feasible, nor desirable (Lambrechts et al. 2018a).

The literature shows a variety in approaches, in which the focus is set on competences, skills, abilities, attributes, capabilities, attitudes, actions, values, mindsets, or a combination of these. Holistic approaches, in which knowledge, skills, values and attitudes are closely interconnected, are mentioned, yet it remains a challenge to actually provide these holistic conceptions, certainly in educational context which is characterised by conservatism (Lambrechts et al. 2018b; Rotherham, Willingham 2010; Verhulst, Lambrechts 2015). Furthermore, the business perspective has inspired and influenced the educational debate. This is not necessarily problematic, although one should be aware of the influence of neoliberal markets and managerial approaches (Lambrechts et al. 2018b), with the risk of education becoming overly oriented towards market needs for specific skills (Ananiadou, Claro 2009). As pointed out by Lambrechts et al. (2018b), preparing for a job might be one of the main goals of higher education, but this should not constrain the development of competences (or capabilities) for a person to lead flourishing and active lives. Within the context of super wicked problems (cf. Levin et al. 2012), this also entails being able to cope with the complexity and uncertainty of future sustainability issues (Lambrechts, Van Petegem 2016). It might be expected that "frustration tolerance" (as identified by Rieckmann 2012) and "uncertainty competences" (Tauritz, 216) will become increasingly important in education and business contexts.

3. Special issue articles

Apart from this introductory editorial, seven articles have been accepted for publication in the special issue, each looking at the topic from a particular perspective.

Cebrian, Segalàs and Hernández (this issue) provide a review of existing theoretical frameworks in sustainability competences. Through a systematic literature review, evaluation strategies and instruments to assess these competences are identified. Different, mainly summative, assessment approaches are identified in the literature, yet there is still little evidence on the development, outcomes and

impact of courses that focus on developing sustainability competences. Therefore, the authors call for further research on the use of summative, formative and self-assessment tools for sustainability competences, as well as the design of specific tools that are in line with central constructs of Education for Sustainable Development, such as critical thinking, collaboration, teamwork and systems thinking.

Roorda and Rachelson (this issue, a) present the conceptual background of the RESFIA+D model, containing seven sustainability competences: Responsibility; Emotional intelligence; System orientation; Future orientation; personal Involvement; Action skills; Disciplinary competences. Based on a further conceptualisation of "competence" and the "competent professional", the model is explained, as well as further possibilities to (self) assess competences on an ordinal scale. The RESFIA+D model focuses on the role of individual professionals towards sustainability, rather than the roles of either entire organizations, or of individual civilians or consumers.

Roorda and Rachelson (this issue, b) builds upon the previous article in which the conceptual background of the RESFIA+D model is clarified. This article presents practical experiences with the model. First and foremost, the model facilitates an awareness process, thereby enabling organizations and individual professionals to understand their role, as well as strengths and weaknesses regarding their competences in relation to sustainable development. Companies, NGO's and other organizations may apply RESFIA+D as a structured tool for human resource development. (Higher) education institutions can use the instrument for education (re)development, where curricula and didactic approaches are derived from a systematically designed competence profile in which sustainable development is integrated.

Betour El Zoghbi and Lambrechts (this issue) focus on the perspective of the student and their future role in global sustainability issues, such as climate change. The findings of their article point towards the current inability of higher education to adequately prepare youngsters to cope with the uncertainty and complexity of such issues, thereby pointing towards the importance of building resilience and empowering academic and civic platforms that enhance young people's

competences to manage sustainability-oriented lifestyles and workplaces through critical, creative, and collaborative processes. In light of the global climate marches witnessed in 2019 (Vaughan 2019), and within the current "post-truth" timeframe, this is linked to further critical and interpretative competences (e.g. Lambrechts et al. 2018a).

Mitchell, Lemon and Fletcher (this issue) specifically focus on community-based development projects. Through a mixed method approach, the lessons learned by different stakeholders of a sustainability initiative are analysed. Data gathered though a survey and through focus groups were analysed using text mining, aiming to reveal concepts that are considered salient by the stakeholders. In addition, thematic analysis aims at providing a contextualised, richer meaning to the obtained quantitative results. The authors conclude that learning and knowledge acquired over the course of the sustainability initiative, can be regarded as a potential asset, linked with important future oriented skills, if lessons learned from previous experiences are meaningfully captured, codified and utilised.

Van Dam (this issue) provides a critical view on marketing education at the level of Master of Business Administration (MBA). Rather than introducing a single, "bolted-on" sustainability course, the author calls for an inclusive approach, in which sustainability and ethics are included throughout the curriculum. Given the characteristics of business education (e.g. market orientation), a continuous reflection on the role of marketing and its limitations is needed. The case presented in the article therefore is entrenched with critical reflection on, and critical assessment of, the (lack of) sustainability of contemporary business and of the theories by which this is legitimised.

Van Liedekerke (this issue) provides a reflective viewpoint on the commonalities between the origins of business ethics and corporate sustainability on the one hand, and Higher Education for Sustainable Development on the other hand. Although both fields developed independently, they share the same problems faced, as well as solutions sought for: focus on interdisciplinary studies, integrated thinking, and looking beyond the short term and local interests. The role of ethics in corporate and educational sustainability is often marginalised, yet of utmost

importance. Therefore, the author calls to strengthen the connection between both fields, based on the underlying ethical choice they have in common.

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