

Developing and assessing systems thinking for sustainability in a competency-based extra-curricular course at a business school

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Abstract. Many sustainability challenges we face today are perceived as so-called “wicked problems”, because the elements that constitute them are so interconnected that it is impossible to identify single causes or solutions. To address such problems effectively, systems thinking has been considered highly relevant. However, the literature on how to design competence-oriented courses addressing systems thinking in management education is still scarce. Based on a widely applied framework of key competencies for sustainability and a typology for assessing such competencies, this paper examines how systems thinking for sustainability can be developed and assessed in business management education. We address this question through an exploratory case study of a voluntary and extra-curricular course at FHWien der WKW.

Keywords: systems thinking for sustainability, course development, single case study

1 EINLEITUNG

Many sustainability challenges we face today are perceived as “wicked problems” (Rittel und Webber 1974), because the elements that constitute them are so interconnected that it is impossible to identify single causes or solutions (Grewatsch et al. 2021). To address sustainability challenges effectively, systems thinking has been considered highly relevant (Buckler und Creech 2014; Wiek et al. 2011). Wiek et al. (2011) for example define systems thinking as “the ability to collectively analyze complex systems across different domains (society, environment, economy, etc.) and across different scales (local to global), thereby considering cascading effects, feedback loops, and other systemic features related to sustainability issues and sustainability problem-solving frameworks” (Wiek et al., 2011, p.207). By applying systems thinking to sustainability challenges, one can distinguish different intervention points and plan the most effective strategies for addressing these challenges, while avoiding unintended negative side effects. However, while there is wide acknowledgement of the relevance of systems thinking as a key competency for promoting sustainable development and, accordingly, a more sustainable business world, the literature on how this competency can be developed and assessed in business management education is still scarce. More specifically, there is a lack of evidence regarding recommendations for formulating clear learning objectives for systems thinking and operationalizing them in this context, as well as for selecting effective assessment tools.

Based on Wiek et al.’s (2011) widely applied framework of key competencies for sustainability (Brundiens et al. 2021) and Redman and Wiek’s (2021) typology for assessing such competencies, this paper examines how systems thinking for sustainability can be developed and assessed in business management education. We address this question through an exploratory case study of a voluntary and extra-curricular course at FH Wien der WKW. The course was designed in cooperation with an interdisciplinary advisory group of academic and practical sustainability experts and the aim of promoting the development of six key competencies for sustainability including systems thinking, anticipatory, strategic, normative, interpersonal and intrapersonal competencies (Brundiens et al., 2021; Wiek et al., 2011) – with a focus on systems thinking. The course was piloted in the winter semester 2022 with 20 students from diverse Bachelor and Master programs in the fields of management and communication and held in seven sessions. Drawing on the literature on education for sustainable development and transformative learning theory, the course equally addressed the cognitive, psychomotor and affective areas of learning and was organized according to the pedagogical approach suggested by Sipos et al. (2008). All competencies were explored and trained through theoretical lectures, real-live cases illustrated by practitioners, group discussions and activities, as well as personal reflections. Following the implementation of the course, the development of the competencies – with a focus on systems thinking – is currently evaluated with a combination of assessments.

2 METHODEN

Within our case study analysis, a mixed methods approach (Creswell und Plano Clark 2018)

was applied combining three different self-assessment tools based on the typology of assessment tools for sustainability competencies proposed by Redman and Wiek (2021). The tools include a pre- and post-course survey, reflective writing exercises and interviews with participating students. Using self-assessment based on various tools potentially allows us to capture a more comprehensive understanding of the students' views regarding their competency development and "link measured learning outcomes with the source of their attainment" (as suggested by Holdsworth et al. (2019), p.3). Following the data collection, we will analyze the data by means of qualitative and quantitative data analysis.

3 OUTLOOK

The expected result of the study is an evidence-based guide supporting educators in the development and implementation of a course with the aim of cultivating business students' systems thinking for sustainability as well as the selection of effective assessment tools. Further, we aim to extend existing literature regarding our field of study.

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