Experiential approaches to sustainability education: Towards learning landscapes

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Abstract

Purpose
This article critically reflects the current specialist discourse on experiential approaches to higher education for sustainable development (HESD). Limitations to the current discourse are identified and as a result an alternative approach to the study of experiential education within HESD is suggested.

Design / Methodology / Approach
Three research questions are addressed by analysing the literature on experiential education (EE) and experiential learning (EL) within HESD in specialist academic journals.

Findings
There is a consensus among authors regarding the appropriateness of experiential approaches to HESD. However, limitations to the current discourse suggest the need for an alternative approach to studying EE within HESD. Therefore, this paper proposes the application of the learning landscape metaphor in order to take a more student-centred and holistic perspective.

Originality/value
The learning landscape metaphor has previously not been applied to EE within HESD. This alternative conceptualisation foregrounds student perspectives to experiential initiatives within HESD. The holistic approach aims to understand the myriad influences on students learning, while allowing examination of how experiential approaches relates to other educational approaches within HESD.

Keywords: *Experiential Education, Experiential Learning, Learning Landscape, Higher Education for Sustainable Development, Education for Sustainable Development, Sustainability*

Type: Conceptual Paper

1. Introduction

Learning and education are considered important arenas in the transition towards sustainability (see eg. Barth and Michelsen 2013), therefore universities are seen to have a crucial role when educating for sustainable development (SD) (see for example Karatzoglou 2013; Stephens et al. 2008; Zilahy et al. 2009; Sibbel 2009). The initial purpose of the education system still dominant today, has mainly been to provide industry with skilled employees and thus promote economic growth (O'Brien and Howard 2016). Since this system was developed to meet very different societal needs and challenges than the ones currently faced (Ibid. 2016), it has been argued that a *new learning culture* is needed (Barth et al. 2007). Within the discourse on Education for Sustainable Development (ESD), experiential education (EE) is often presented as key pedagogy (see for example Caniglia et al. 2016; Roberts 2013). It is in this context that this paper examines the ways in which experiential approaches to Higher Education for Sustainable Development (HESD) are conceptualised within the specialist literature. The paper critically reflects on the current discourse, identifying the need for an alternative conceptualisation of experiential approaches.

The paper proposes that the concept of a *learning landscape* can improve analysis and application of experiential approaches to HESD. Building on Noyes (2004) and Greene's (1978) notion of this metaphor, the learning landscape approach emphasises the complex multitude of influences impacting each individual's learning process. The article suggests this holistic approach is suitable when studying learning related to the broad and multifaceted context of sustainability. *Learning landscape* is proposed as a conceptual model through which student's learning experiences can be examined, highlighting that no learning happens in the isolation of a single course or module, but rather is influenced by myriad factors. Each university student's unique learning landscape consists of numerous interrelated influences beyond the formal education they enjoy, including social relationships and experiences of places and spaces.

In this article, the concept of *education* is used in a broad sense, including formal, informal, and non-formal learning. It builds upon Alvarez and Rogers' (2006) framing of sustainability within education as a discourse. More specifically, ESD has been described as education that *"emphasizes aspects of learning that enhance the transition towards sustainability"* (Barth and Michelsen 2013, p. 10). In this paper, sustainability is understood as an evolving concept (Wals and Jickling 2002) that takes into account environmental, social and economic aspects; the terms SD and sustainability are used interchangeably. Expressions of EE discussed in this paper refer to education and learning that takes place outside of, or in addition to, traditional lecture-centered forms of education. There is no single consistent definition of EE, although typically it refers to non-traditional classroom centered learning informed by Kolb's (1984) learning cycle consisting of experience-reflection-action, where reflection on each experience guides further action.

The paper first considers how EE and Experiential Learning (EL) are conceptualised and defined in key literatures. Second, it critically examines the arguments presenting experiential education as a promising direction for HESD. Next, it assesses the challenges highlighted by authors engaged in such learning approaches and how these challenges could be tackled. Despite the limitations of experiential approaches within HESD, this paper argues that they have a significant role to play. However, this review reveals several gaps in the existing research, which point to the need for a more holistic, student-centred approach to EL initiatives. This article concludes by presenting the learning landscape as a conceptual model to approach EE within HESD in this way.

2. Method

This examination of experiential education within HESD is based on specialist literature, specifically, *International Journal of Sustainability in Higher Education*, *The Journal of Sustainability Education*[1] [1]and *Journal of Education for Sustainable Development* in the period 2007-2017. These academic journals were chosen due to their specific focus on sustainability and sustainable development in relation to education. Whilst experiential education has been widely discussed in relation to environmental and outdoor education, and sustainability science the focus here is the specialist literature on ESD.

Table 1. summarises the articles from each journal included in this literature review. The articles included used the terms *experiential education* or *experiential learning* in the keywords or in the title of the paper. Those papers which did not focus on HE were excluded. When searching for EL and EE, the search engines also displayed articles with *experience* in the keywords. A selection of these articles was included based on their relevance to experiential approaches within HESD.

Journal	Type of Articles	Amount	Location
Journal of Education for Sustainable Development	Pedagogical interventions: 1 Research: 1	2	China: 1 Norway: 1
International Journal of Sustainability in Higher Education	Research paper: 7 Case study: 3 Conceptual paper: 2	12	U.S.: 3 Canada: 2 UK: 2 China: 1 Malaysia: 1 Australia: 1 Spain: 1 Germany & U.S.: 1
Journal of Sustainability Education	Case study / Report: 20 Scholarly article: 6 Editorial: 2 Opinion / Poetic Essay / Personal and professional journeys: 5	33	U.S.: 19 Canada: 2 South-Africa: 1 Thailand: 1 Galapagos: 1 U.S. & Indonesia: 1 n/a: 8

Table 1. Overview of amount and type of articles included in this review. The type of article refers to the terms given in each journal. Location specifies where the initiative described took place.

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1   The first issue of The Journal of Sustainability Education was published in 2010.

The articles with a focus on experiential approaches to HESD from the three specialist journals, were reviewed with the intent to answer the three specific research questions:

1. How is experiential education and experiential learning defined?

2. Why is experiential education proposed as a promising direction within HESD?

3. What are the challenges faced when applying experiential approaches to HESD and what are potential ways to overcome them?

Addressing these research questions reveals gaps in the current literature and flaws in current conceptualisations of experiential learning in the context of HESD which are addressed through the proposed model of a learning landscape.

3. Findings

3. 1. How is experiential learning and education defined within the HESD literature reviewed?

The articles reviewed reveal a diverse field of experiential approaches, presenting an array of examples of how to apply EE within HESD, and a vast variety of contexts in which EL takes place. Forlich (2013) brings forth this diversity by referring to the *'many faces'* of experiential education, claiming that *'the power of experience'* is what brings the various expressions together. EL may, for instance, take place during site visits, internships and service learning in communities (Domask 2007). Other approaches to experiential education described within the articles are: place-based (see for example Hensley 2015; Hensley 2013; King 2013; Pyati and Moore 2013; Ritchie 2013); problem-based (see for example Hull et al. 2016; Yoder et al. 2013), project-based (see for example Shriberg and Macdonald 2013; Driza and Torres-Antonini 2013; Ramey 2013; Roberts 2013); and, field-experiences (Ritchie 2013; Vaugeois and Maher 2013). The learning approaches most frequently mentioned under the umbrella of experiential education are presented and described in table 2. It needs to be noted that certain case studies fit into several approaches, there are cases which are described as both place-based and service-learning (see for example Barnum and Illari 2016) or place-based and project-based learning (see for example King 2013). Furthermore certain cases could be classified as place-based or project-based but not referred to as such by the authors (Shay 2013; Withers and Burns 2013). The indication of amount of cases, refer to what is explicitly stated by the authors. Furthermore, there are articles where the approaches are mentioned or described outside the focus of a case study, these are listed separately.

Experiential approach	Description	Amount of cases	Described in articles
Project-based learning or Problem-based learning	Students collaborate with partners to create solutions to specific problems (Brundiers et al. 2010).	8	5
(Community) Service-learning or Community-based learning	Certain authors (for example Sipos et al. 2008) describe this as an approach where students collaborate with partners in a setting that benefits both parts and where both parts learn, while others (for example Brundiers et al. 2010) refer to it as an approach where students educate people outside academia.	7	3
Place-based learning	Educators use the surrounding places and communities as a platform within which to investigate a certain topic (Hensley 2015). This approach includes examining both the culture and ecology of the chosen location (Ritchie 2013).	3	5
Field trip or Field experience	Similar to place-based learning in that students learn by interacting with a specific location, but tends to refer to cases where learning takes place in an unfamiliar environment, for example during a field trip abroad (see for example Hull et al. 2016; Treaster 2013).	4	
Internship	Students assist in or work for a professional project to gain work experience (Brundiers et al. 2010).		1

Table 2. Overview and descriptions of learning approaches to experiential education most frequently presented in the articles reviewed.

As a way to highlight the importance of learning in the real context of the subject being studied, Brundiers et al. (2010) refer to various expressions of EE as *real-world learning opportunities*. EL happens in contexts where the educational approach is different from a traditional lecture-centred approach (Mercer et al. 2017; Otte 2016; Domask 2007) and where students move from having knowledge presented to them to actively co-producing knowledge through their own experiences (Barnum and Illari 2016; Hensley 2015; Otte 2016; Dobson and Tomkinson 2012). Some describe initiatives in which experiential learning takes place on campus (Driza and Torres-Antonini 2013), in a local learning garden (Withers and Burns 2013), through beekeeping (King 2013), during field trips abroad (Hull et al. 2016; Domask 2007; Treaster 2013; Lee and Schottenfeld 2012), by engaging with stakeholders in the students' local environment (Jiusto et al. 2013), as project work (Álvarez-Suárez et al. 2013) and roleplaying in the classroom (Perlstein et al. 2017). While going outside the classroom is thus not always a prerequisite for experiential learning to take place, all of the examples described rely on pedagogical approaches in which students are not passive learners, merely listening to a lecture. In

certain cases, experiential approaches are applied to complement lecture-centred teaching (Domask 2007) but always include a certain level of engagement from the students. The aim of achieving better learning outcomes by students' active involvement relates to constructivist theories, in which individuals' experiences are seen to have a vital role within the learning process (Caniglia et al. 2016; Mercer et al. 2017). Based on how EE initiatives are defined within the literature, this paper suggests EE can be understood in terms of *place*, *activity* and *outcome*. *Place* then refers to the type of setting in which the learning initiative is carried out, *activity* describes the nature of the initiative, more specifically what those involved are doing. *Outcome* illustrates the learning resulting from engaging in a certain initiative. The diversity of expressions of experiential education within the articles reviewed is presented in Table 3. In the case of The Ashland Apiary Project (King 2013) the campus and the multi-aged group involved in the initiative signifies *place* and beekeeping the *activity*. The *outcome* is described as social and environmental change, where learners acquire skills related to beekeeping, understanding of how human and natural systems interact and are, according to King (2013), engaged in transformational experiences.

Author	King (2013)	Pyati and Moore (2013)	Lee and Schottenfeld (2012)	Perlstein (2017)	Ha-Brookshire and Norum (2011)
Case	The Ashland Apiary Project	Houseboat excursion, studying in the field	Internationalising experiential learning for SD education	The Mekong Game	Sustainable Cotton Summit
Description	Beekeeping on campus of Southern Oregon University, USA. Student-led collaborative effort for a wide audience.	Students from University of North Florida, USA, are immersed with the St. Johns River's ecosystem and history. Sustainability considered from the perspective of the river system and everyday living on a houseboat.	Students from Michigan State University, USA visited World Expo 2010 in Shanghai, China. Experiential pedagogical intervention in the form of learning through exhibitions on sustainability.	A role-playing negotiation game, based on the Xayaburi Dam in Laos. The game highlights the complexities of environmental conservation.The goal is to reach stakeholder consensus.	Extra-curricular learning opportunity in the form of a two-day summit about cotton and sustainability.
Place	Campus (University)	St. Johns's River System	World Expo 2010, Shanghai, China	Classroom (University)	University
Activity	Beekeeping	-Field immersion; living on a house boat while exploring the area -Diverse projects related to the area	International informal experiential learning (Visit to World Expo 2010)	Role-playing game	Participation in Cotton-Summit followed by essay writing
Outcome	-Skills related to beekeeping, -Understanding of how human and natural systems interact -Transformational experiences	Transformative learning	Recognising the importance of: -Understanding cultural diversity -Holding a global perspective on SD	-Empathic understanding of stakeholders -Understanding the importance of personalities and communication styles -Systems perspective	Changes in knowledge, skills and attitudes related to sustainable cotton

Table 3. Examples of specific cases found within the articles. The cases were selected based on their key characteristics, to show the diversity of expressions of EE found within the literature.

Experiential education is often portrayed as a *'hands-on'* approach (Otte 2016; Roberts 2013; Brundiers et al. 2010; Lee and Schottenfeld 2012; King 2013; Ripple and Gilbert 2013), in which theory and practice are combined (Domask 2007; Mercer et al. 2017). Experiential approaches are most commonly applied as a way to test out in practice something that has first been dealt with in theory (Caniglia et al. 2016). Across the literature reviewed, while not always explicitly highlighted, this combination of theory and practice appears to be one of the key characteristics when applying experiential education within HESD. However, EL may take place also outside planned educational activities. According to Roberts (2013), experiential learning takes place all the time; it may take place as a result of burning oneself at a stove or during the experience of learning to ride a bike. Furthermore, EL and EE are often described as *'learning through experience'* (Dobson and Tomkinson 2012; Caniglia et al. 2016; Hull et al. 2016; Medrick 2013; Nixon and Salazar 2013) or *'learning by doing'* (Hull et al. 2016; Domask 2007; Mercer et al. 2017; Ritchie 2013; Ramey 2013). Roberts (2013), however, argues that there is a lack of clear consensus about the true essence of experiential education. Several authors draw on Kolb's (1984) experiential learning model in which reflection on action guides further action (Mercer et al. 2017; Hull et al. 2016; Ha-Brookshire and Norum 2011; Domask 2007). Others build upon Dewey's work (1938) which emphasises the importance of the individual's experiences within the learning process (Roberts 2013; Mercer et al. 2017; Sipos et al. 2008; Yoder et al. 2013). Domask (2007), on the other hand, relies on Cantor's (1995, p.1) definition of experiential learning as '*learning activities that engage the learner directly in the subject being studied'*.

Importantly, both Roberts (2013) and Domask (2007) point to the problem of distinguishing experiential learning from other forms of learning. If experiential learning is described solely as *'learning that involves experience'*, there is little distinction from other forms of learning as all forms of learning relate to experience to some degree (Roberts 2013). The description *'learning by doing'* creates a similar problem since sitting in class listening to a lecture can also be considered *'doing'* (Domask 2007). Domask (2007) suggests approaching the field of experiential education as a spectrum, acknowledging the different levels of experience involved in the various initiatives. Roberts (2013) also highlights the need to distinguish between EL and EE as these terms are often used interchangeably. Learning is something that happens continuously and can take place outside educational initiatives, whereas education describes a broader context within which learning may or may not take place (Roberts 2013). EE thus describes a consciously designed initiative aimed at EL.

EE within HESD is without doubt a diverse and broad field. While the examples and conceptualisations of experiential approaches hint at their key characterises, no definitive distinction between EE and other forms of education has been established. The understanding of EL within this paper builds upon Kolb's (1984) experiential learning model of action-reflection-action, where the personal experiences of the learner are seen as a vital component to the learning process. It is acknowledged that to some extent the fluidity of the EE field needs to be accepted. For in the same manner that SD is a contested and context specific concept, so is experiential education. Therefore, Domask's (2007) suggestion of viewing the field as a spectrum consisting of an array of approaches combining theory and practice is here considered helpful for encompassing the field's diversity. Furthermore, understanding EE as a spectrum highlights the various levels of involvement of the learners within different types of initiatives, where higher level of involvement is likely to initiate higher level of insightful experiences. The paper proposes expanding this spectrum by studying experiential approaches to HESD from the perspective of a learning landscape which will help clarify EE's distinctive characteristics whilst emphasising diverse modes and places of experiential learning. Taking a learning landscape approach when studying experiential approaches to HESD, can thus help clarify its three connected facets outlined earlier; place, activity and outcome.

3.2. Why is experiential education proposed as a promising direction within HESD?

So far this paper has demonstrated diverse definitions and applications of experiential approaches, but underlying this diversity is a strong consensus that such approaches are highly suited to educating for

sustainability. In the context of HESD, experiential approaches are said to have strong potential to promote desirable learning outcomes, skills development, and behavioral changes. This section critically reflects on the arguments supporting this view, by first discussing the transformative potential of EE, second it examines the idea that EE can help develop agency among the learners. Third, it identifies skills and competencies which have seen to be developed as a result of experiential approaches. It concludes with a reflection on the insufficient evidence for the positive outcomes described.

Within the ESD discourse the importance of generating mind-set shifts among learners is often highlighted (see eg. Sterling 2011; Wals 2010; Moore 2005). It has been argued that mind-set shifts happen when learning is transformative (Taylor 1998), and that experiential learning is such because it *'transforms knowledge through experience'* (as defined by Kolb 1984). Sipos et al. (2008) point to the importance of transformative learning when they identify perspective transformation as the key component of all sustainability related education. Several articles reviewed here emphasize individual experience as important for transformative education, arguing that experiential approaches have potential to generate perspective transformation (see eg. Dobson and Tomkinson 2012; Sipos et al. 2008; Lee and Schottenfeld 2012; Yoder et al. 2013; Hensley 2015; Pyati and Moore 2013; King 2013; Lassahn 2013) According to Lee and Schottenfeld (2012), perspective transformation is central because it can change values and actions. Because mind-set shifts are often considered a desirable result of HESD, the transformative potential of experiential approaches is one of the main arguments for the value of EE.

As mentioned above, experiential approaches tend to combine theory with practice. This is significant within ESD as the complexity of issues related to SD are difficult to grasp through abstract and theoretical knowledge alone (Ramey 2013; Ripple and Gilbert 2013; Vaugeois and Maher 2013; Ritchie 2013; Perlstein et al. 2017). The breadth and complexity of SD issues can cause student apathy, if they feel overwhelmed and, therefore incapable of acting (Álvarez-Suárez et al. 2013; Otte 2016; Savage et al. 2015). Dealing with complex issues through a combination of theory and practice has been found to develop a sense of agency among students (Hensley 2017). Students discover their ability to take action, while engaging with issues in their actual context or through project work in class (Ramey 2013). Fostering an ability to act is vital to ESD's desire to go beyond teaching *about* SD, to developing the capacity to *apply* knowledge and develop solutions (Brundiers et al. 2010; Lee and Schottenfeld 2012). By actively engaging with problems in their real context, students begin to understand the complexities and conflicts, such experience prepares them for challenges and contradictions they are likely to face after they graduate and become sustainability professionals (Jiusto et al. 2013). Experiential approaches to HESD can thus develop understanding of the complex nature of SD while empowering and generating agency among the learners (King 2013). These arguments suggest agency is developed as a result of EE, however the evidence presented to support this claim is insufficient. The lack of robust evidence presented to how students change as a result of engaging in EE initiatives will be returned to later.

In addition to its transformative potential and ability to foster a sense of agency, literature presents a variety of learning outcomes which suggest EE as a valuable aspect of HESD. Savage et al. (2015), Brundiers et al. (2010) and Caniglia et al. (2016) refer to key competencies for sustainability when justifying the use and appropriateness of experiential approaches within HESD. Based on student feedback Savage et al. (2015) conclude that their experiential, problem-based approach to leadership education, positively resulted in developing the five key competencies identified by Wiek et al. (2011): *systems-thinking, normative, anticipatory, strategic and interpersonal*. Additionally, *personal development* emerged through student feedback as a competence, which according to Savage et al. (2015) is important in supporting the development of the other key sustainability competencies. Along similar lines Caniglia et al. (2016) describe how by applying an experience-based learning framework, consisting of mapping and walking exercises, students developed *novice-level* sustainability competencies. Caniglia et al. (2016) draw upon both de Haan (2006) and Wiek et al. (2011) in outlining *systems thinking*, *normative* and *collaborative competencies* as primary learning objectives for their experiential approach. Brundiers et al. (2010) identify the three clusters of *strategic*, *practical* and

collaborative knowledge clusters, also derived from the discussion on key competencies for sustainability. Based on their experiences of a wide range of different experiential approaches, they consider EE suitable when aiming at developing sustainability competencies among students in HE. However, Brundiers et al. (2010) stress that not all types of experiential approaches are suitable within the context of sustainability as how the type of key competencies developed depends on the nature of experiential approaches applied (Brundiers et al. 2010).

Due to the nature of SD the skills developed through a project are often more relevant than the content knowledge, as different disciplines focus on different aspects and each issue is context specific (Dobson and Tomkinson 2012). It is therefore important to shift attention from what is being taught in terms of content knowledge to how ESD is being taught in terms of educational approach (Álvarez-Suárez et al. 2013). An overview of programs focusing on sustainability leadership found that experiential approaches was a common link among the programs, especially in the context of skills development (Shriberg and Macdonald 2013). The skills students learn through experiential approaches are both specific and transferable (Yoder et al. 2013; Mercer et al. 2017). In some cases, specific sustainability skills are linked to a certain location or a specific type of problem, whereas the transferable skills, such as creative problem solving or collaborative competencies, are relevant in many different circumstances, also beyond SD.

Authors widely report positive learning outcomes from applying experiential approaches to HESD. There is, however, a lack of clarity regarding how this verdict is reached and a lack of evidence to substantiate these claims. In certain cases, authors acknowledge their arguments are based on purely anecdotal evidence (Lassahn 2013; Vidra 2015; Perlstein et al. 2017). Some authors do refer to student feedback, but it is not always clear exactly how the feedback or survey data was gathered, or analysed. In cases in which students' opinions of their learning experiences have been gathered, the researchers and the educators are most often the same group of people. This raises questions as to what extent the researcher may unintentionally influence the content of data. It might not always be easy for students to give an accurate opinion of their learning experiences when those who are enquiring are the same persons who will be assessing the students. There is a lack of impartial research, in which the researcher studying student perceptions is not involved as an educator in the initiative being studied. Moreover, although gathering survey results both before and after an initiative might give a first impression of the learning outcomes and experiences of students, surveys might not give a very thorough insight. In order to better understand the impact and usefulness of experiential approaches, the lack of first hand student viewpoints needs to be addressed. This paper suggests applying the learning landscape metaphor in order to focus on the student perspective, and considering them in context amongst diverse influences shaping their learning for SD. By examining HESD from the student perspective the benefits of experiential approaches relative to other approaches might be clarified based on students' personal experiences. This perspective also allows interrogation of educators' claims for the centrality of changing student mind-set as a goal of HESD. It is questionable whether university students themselves perceive experiential learning experiences as transformative, or whether they even desire to engage in transformative learning as part of their formal education. Focusing on the student perspective can help clarify to what extent students consider their engagement in EE initiatives to result in transformative learning experiences, and enable exploration of other outcomes including those not foreseen by EE theory or educators.

3.3 What are the challenges faced and what are potential ways to overcome them?

As shown above, experiential approaches can be applied in many contexts and disciplines (Hull et al. 2016; Pyati and Moore 2013; Driza and Torres-Antonini 2013). Despite the positive outcomes and promising direction, there are several challenges when applying experiential approaches within HESD (Dobson and Tomkinson 2012; Roberts 2013; Driza and Torres-Antonini 2013). The challenges experienced among both educators and students, and potential ways to overcome these are discussed next. This section first addresses the importance of careful design and implementation of experiential

initiatives; it then considers the need for flexibility, and third discusses the time and effort required and issues related to assessment.

While some voices in the broader ESD discourse propose a complete re-design of education, (see for example Sterling 2011; Thomas 2009) the examples presented by the authors reviewed show how, despite certain limitations, experiential approaches can be implemented within current HE structures. Several authors outline frameworks intended to guide implementation of experiential approaches (see for example Domask 2007; Brundiers et al. 2010; Caniglia et al. 2016; Otte 2016). The design and implementation of EE initiatives largely determine the extent to which learning experiences result in experiential learning useful within HESD (Brundiers et al. 2010). Different experiential approaches lead to different learning outcomes and competencies, therefore both Brundiers et al. (2010) and Domask (2007) stress the importance of combining a variety of approaches when planning and organising HESD. Combining multiple approaches, where the degree of student involvement gradually increases, can be a way to overcome the challenges related to different level of preparedness to engage in real-world learning opportunities (Brundiers et al. 2010). Additionally, coordination among staff responsible for different modules is vital, to ensure a variety of different learning outcomes are obtained (Brundiers et al. 2010; Lee and Schottenfeld 2012).

In addition to the importance of planning and coordination, authors identified a need for flexibility in response to unforeseen events (Jiusto et al. 2013; Lee and Schottenfeld 2012; Brundiers et al. 2010). Engaging in experiential approaches requires the ability to deal with uncertainty among both students and staff (Ritchie 2013; Jiusto et al. 2013; Lee and Schottenfeld 2012). Going outside the classroom and engaging external actors particularly requires considerable flexibility, as there are always risks of last minute changes and some control over learning is given over to the students and other parties (Ritchie 2013). The relationship between educators and students changes with students expected to take a more active and responsible role in the learning process (Jiusto et al. 2013; Barnum and Illari 2016). In some cases, this generates feelings of unease among students (Driza and Torres-Antonini 2013), and the responsibility and freedom given to students has resulted in a quest for clarification and direction (Otte 2016). It is therefore important to find a balance between the level of responsibility and the amount of guidance given to students (Otte 2016). At the same time, as sustainability remains a nebulous and continuously changing concept (see for example Vaugeois and Maher 2013; Medrick 2013) dealing with uncertainty and the ability to adapt to changing circumstances are certainly useful to learn in this context.

Organising and engaging in experiential approaches is considerably more time consuming for both staff and students than traditional lecture-centred approaches (Hull et al. 2016; Domask 2007; Ritchie 2013). Engaging with external actors and building trust requires a significant amount of time and effort from the organiser (Brundiers et al. 2010; Hull et al. 2016; Ritchie 2013; Driza and Torres-Antonini 2013). Students who engage in these initiatives have their own agendas and responsibilities, and they might not always have the capacity to engage in an initiative to the extent required for it to be a useful learning experience (Ritchie 2013; Nixon and Salazar 2013). Due to the demanding nature of organising experiential education, incentives and creative ways to reward staff may ensure the presence of experiential approaches to HESD (Domask 2007; Brundiers et al. 2010). Furthermore, the type of skills and competencies developed as a result of experiential approaches are often difficult to assess in a system traditionally focused on assessing content knowledge (Caniglia et al. 2016; Dobson and Tomkinson 2012; Domask 2007). The difficulty in assessment poses problems both when grading students and when justifying an experiential approach to education when the learning outcomes are not easily measured (Shriberg and Macdonald 2013). What further complicates measuring the success of an initiative is the difficulty of knowing exactly what skills and competencies that were developed as a result of the experiential education initiative (Dobson and Tomkinson 2012). Additionally, there are factors outside the formal curriculum that influence students learning in the context of sustainability (Otte 2016).

Existing reflections on challenges are heavily focused on the educators' perspective. There is limited consideration of challenges students may experience in terms of increased workload, increased

responsibility for their learning process and varying level of capacity to engage in experiential initiatives. By shifting attention from educators to students, understanding of the nature of challenges and difficulties faced by students may increase. This paper suggests that the learning landscape approach has the potential to bring forth the student perspective, and can thus advance understanding of EE's potential and effectiveness. Although certain difficulties are inevitably linked to individual traits and circumstances of students, and may not be solved despite studying the student perspective, there are certainly challenges that can be addressed when the nature of these are properly examined and understood. By studying the students' learning experiences in-depth, the learning landscape perspective may also reveal what type of learning outcomes may be expected to follow as a result of a specific initiative.

4. Discussion

There is arguably a strong consensus in specialist literature regarding the suitability of experiential approaches to HESD. This article, however, has identified a number of gaps in the current discourse, centred on the fact that existing research is largely dependent on the opinions and experiences of educators implementing experiential initiatives. The student perspective is not sufficiently focused upon, nor is there thorough consideration on the diversity of influences impacting the ways in which students learn in the context of sustainability. A majority of studies focus on the impact of specific courses or modules, without considering other potential influences, including factors taking place outside the planned educational initiatives. Moreover, experiential approaches are predominantly studied without considering their relation to other forms of HESD. Although reflections made by educators are valuable in that they share direct experiences, including best practices and overcoming challenges, lack of impartial reference to student perspectives is highly limiting. Students are central to the outcomes of HESD as the sites and agents of the transformations sought for progressing SD. Without studying the student perspective in-depth it is difficult to know to what extent a single initiative has succeeded in influencing a university student's mind-set, sustainability competencies, behaviours or perceptions. It is possible that in some cases the educators might over-estimate the transformative power of a single initiative. Focusing on the student-perspective can increase understanding of the extent to which students themselves find experiential approaches to be transformative and whether the most significant learning experiences related to sustainability takes place within the formal curriculum or elsewhere. This paper stresses the importance of impartial research where students' individual experiences in the HESD field are studied in-depth, while not limited to single initiatives or modules, rather investigating the multitude of influences on their learning related to SD.

4.1 Implications for further research – Approaching HESD as a learning landscape

Based on the critique of the current discourse this paper suggests conceptualising HESD holistically, acknowledging diverse influences on how university students learn for sustainability. The metaphor of *learning landscape* can be developed as a conceptual model through which university students' individual learning experiences are understood. Learning landscape has previously been applied as a framework for various spaces within which learning takes place (Neary and Thody 2009), serving as a shared vocabulary for professionals involved when developing physical learning environments, namely; architects, designers and educators (Thody 2011; Neary et al. 2010). It has also been applied to illustrate the diversity of learning settings available, including physical and virtual learning spaces, and as a tool to create learning environments based on the users' needs (Dugdale 2009). Although the learning landscape concept has been applied as a way to shed light on the complexity of universities and the diverse spaces within which learning takes place, it has often been linked to the refurbishment of university buildings and as a tool to bring together a diverse set of stakeholders (see for example Dugdale 2009; Neary et al. 2010). Little attention has been given to the learning process and experiences

of students when discussing the learning contexts in the light of learning landscapes. Noyes (2004), on the other hand, introduced the metaphor as a way to highlight the complex nature of the learning process, questioning the way learning is often explored in the limited context of a formal education system. Greene (1978) introduces the idea of personal landscapes within the context of learning as a way to consider how each person's history and lived experiences reflect the way one constructs one's reality and thus has an impact on the individual learning process. The learning landscape metaphor, building upon Noyes (2004) and Greene's (1978) conceptualisation, allows for a holistic approach, taking into account a diverse range of influences affecting the learning process. Although Noyes (2004) describes the metaphor when attempting to explore the influences involved in learning processes of mathematics in the context of primary and secondary education, he notes that the metaphor is suitable in other contexts. The learning landscape is by no means unproblematic, but it can help conceptualise the complexity of the learning process, especially when considering sociocultural influences, such as classroom culture, political agendas, other students' attitudes and public perceptions (Noyes 2004).
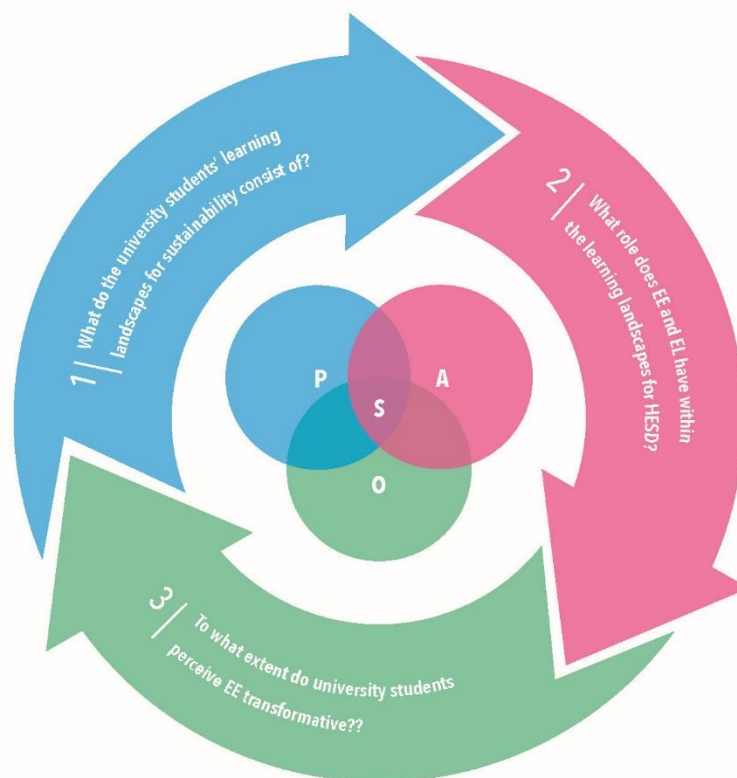

Figure 1. Exploring experiential approaches to HESD. A proposed conceptual model through which the role of experiential approaches within students' learning experiences for HESD can be explored, by applying the metaphor of learning landscape. S refers to student, P to place, A to Activity and O to Outcome. The student is placed at the centre, and is in constant interaction with the dynamic and constantly evolving learning landscape. Different types of learning take place in the intersection of the three components of place, activity and outcome.

This paper finds learning landscape advantageous for conceptualising the complexity of learning in the context of HESD, as it helps move beyond the narrow focus on impact of single modules or courses, and provides the opportunity to consider social and cultural influences on students' learning experiences. Figure 1. Illustrates the proposed conceptual model for studying EE within the context of HESD. The student is placed at the centre of learning and education, recognising students as fundamental to transformations in thinking and action which are sought by HESD. The learning landscape is here proposed to be considered from the perspective of the students, as their perspective is currently not brought sufficiently to attention within the HESD literature. In addition, Noyes (2004) describes how the learner is in constant interaction with the learning landscape, the landscape influences the learning process, while the learner constantly re-creates the landscape. The learning landscape

metaphor is adapted and developed by building on Noyes (2004) and Greene's (1987) conceptualisations, rather than constraining it to a set of physical spaces. This paper considers each university student's learning landscape for SD to be unique, and constantly evolving. Despite the uniqueness each landscape is expected to include common components. Further research is needed to better grasp the nature of university students' learning landscapes for SD. However, this paper proposes *place, activity* and *outcome,* are central when studying EE within the context of HESD. These components are seen to constantly interact, while influencing and being influenced by the learner, while the learner's worldview, values and previous experiences are considered to have a central role within the learning process. *Place*, *activity* and *outcome* were earlier identified as levels through which EE can be understood. *Place* includes the context within which learning occurs, and refers not only to the physical environment but socio-cultural influences shaping places, for instance other students and actors involved directly or indirectly in the initiative being studied. *Activity* refers to the type of actions taking place, and may include hands-on practices, having a discussion with a friend, reading a book, watching a documentary as well as sitting in class listening to a lecture. *Outcome* includes the knowledge, skills, competencies and changes in mind-sets that may occur among the learners as a result of an activity occurring in a specific place. The student is, as mentioned, at the centre, where different types of learning takes place, and where the components of place, activity and outcome interact to various degree. These components all play into the learning experiences of the students and can help organise the vast variety of influences present in a student's learning landscape. It is worth mentioning that social interaction plays an important role within EE and the authors consider the social aspect of learning integral to all three components - place, activity and outcome, as each learner recreates their constantly evolving learning landscapes in continual interaction with other learners and actors. The authors invite others to contribute to the evolution of this framework by applying it to various educational initiatives and student experiences in order to understand how best to further conceptualise the learning landscape when looking in particular on the role of EE within HESD.

5. Conclusion

This paper has demonstrated how discussion on the role of experiential approaches within HESD can benefit from shifting towards a student-centred perspective, and by exploring students learning experiences in-depth. The proposed conceptual framework organises the learning landscape into *place, activity* and *outcome* as these components are found relevant to studying experiential approaches within HESD. It is suggested social interaction is present within these components, where students' interaction among each other and with actors involved both directly and indirectly in the educational initiatives influences the learning process. Furthermore, this approach moves away from looking at each learning initiative individually and considers the role of experiential approaches within HESD from a broader perspective, acknowledging other approaches to learning and education present within the students' learning landscapes. Further research is needed to capture the various aspects shaping learning landscapes in order to better understand the role of experiential approaches within the learning landscapes of university students. A learning landscape approach can enhance understanding of the role of experiential approaches within HESD, and explore sustainability related learning experiences of university students from a broader, more realistic perspective.

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