



# Outdoor and Sustainability Education: How to Link and Implement Them in Teacher Education? An Empirical Perspective

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## Abstract

This chapter explores the nexus between place, connection, and sustainability and how this can be addressed within teacher education. It starts by identifying (a) a set of characteristics for transformative outdoor education (TOE) that has the potential to contribute to sustainability education (SE) and (b) the related competences that teachers might need. It then shows how these competences are developed in two courses provided by the largest teacher education institution in French-speaking Switzerland. The analysis of empirical data offers an overview of competences that students appear to have developed within these modules and how, according to them, this relates to sustainability education. The discussion concludes with a reflection on features that can be supportive when working on teachers' competences in TOE so that it contributes to SE.

## Keywords

Outdoor education · Teacher competences · Transformative sustainability education · Pedagogical setting

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## Introduction

The increasingly perceptible impacts of climate change, the COVID pandemic, and other challenges related to the Anthropocene question the human-nature relationship anew and return the sustainability debate to the forefront. Outdoor education (OE) has long been considered a meaningful approach for working on this human-nature relationship within the context of sustainability; indeed, Lozano et al. (see Chap. 17) confirm that place-based environmental education can foster various competences in sustainability education (SE).

However, not any type of OE can be considered meaningful within the context of sustainability. As Hill (2012) mentions, activities such as those based on adventure pursuit and personal development require further development to contribute to sustainability education (SE). This is not new, as “calls for transformative approaches to outdoor education which embrace human/nature relationships, concepts of sustainability and critical perspectives on gender and class issues, have appeared in the literature since the 1990s” (Hill 2012, p. 18). Based on this, Hill and Brown (2014) have explored ways to combine transformative, outdoor, and sustainability education, working on the “nexus between place, connection and sustainability” (p. 229).

This chapter looks specifically at how this nexus can be addressed within teacher education.

It therefore reacts to Nicol et al. (2007) observation that OE intentions remain too ‘paper-based’ and that the quality of training offers in the field is difficult to assess (Nicol et al. 2007). It also addresses Hill and Brown (2014) belief that further investigation is needed regarding the “impacts on student learning, transformation, and actions” when studying this nexus (p. 229). This chapter starts therefore by identifying (a) a set of characteristics for a transformative outdoor education (TOE) that has the potential to contribute to SE and (b) the related competences<sup>1</sup> that teachers need. It then shows how these competences are developed in two courses provided by the University of Teacher Education Vaud (HEPVD), based in French-speaking Switzerland. The analysis of empirical data offers an overview of competences that students appear to have developed within these courses and how, according to them, this relates to SE. The discussion concludes with a reflection on features that can be supportive when working on teachers’ competences in TOE so that it contributes to SE.

### **Transformative Outdoor Education within the Frame of Sustainability: A Conceptual Framework**

Contemporary understandings of OE combine emancipatory educational traditions and current ecological issues while often still referring to Priest’s (1986) definition that claims OE, as a method:

...is in the tradition of experiential learning as advocated by Comenius, Rousseau, Pestalozzi or Dewey; is vital to learning; crosses cognitive, affective and motor domains; takes into account that reality is interdisciplinary in nature; and sees learning as the result of many interactions (pp. 13–14).

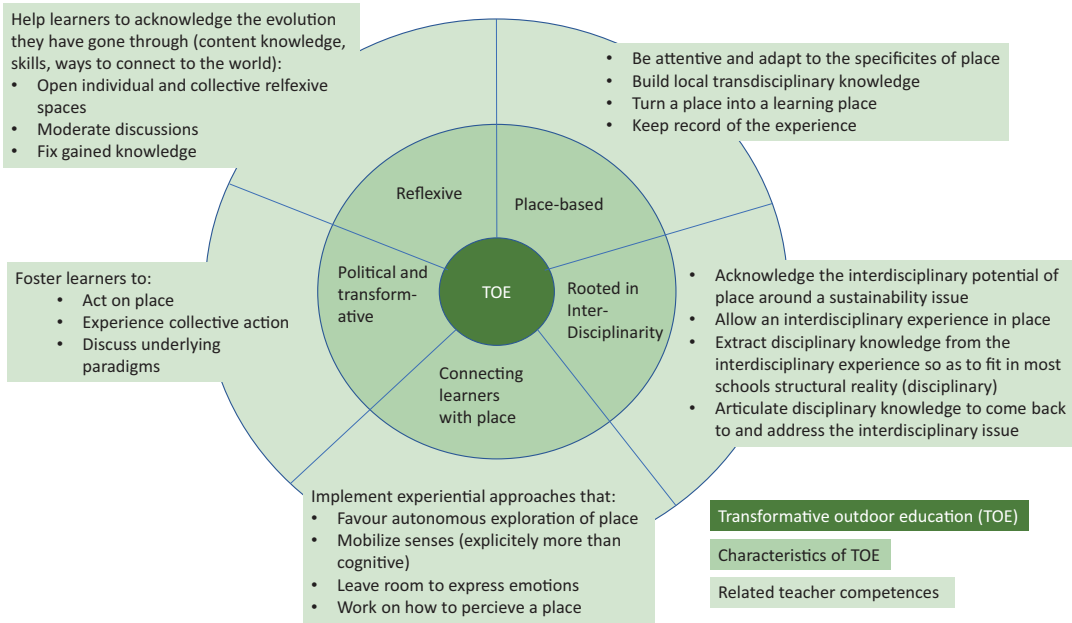
Within this broad framework, Lousselet and Zosso (forthcoming) have outlined a transforma-

tive outdoor education (TOE) within the frame of sustainability, in an attempt to enhance the potential for OE to contribute to SE. This is based on literature and the experience of working as teachers and teacher educators over years, making some elements of Priest’s definition more explicit, and adding a political dimension. It thus echoes Gruenewald’s (2008) idea of a critical pedagogy of place and Hill and Brown’s (2014) work on the need to combine transformative, outdoor and sustainability education in which sustainability is understood as a “socio-ecological approach (...) that necessarily includes the political” (p. 220). Related teacher competences were derived from these characteristics, taking into consideration teachers’ competences for a quality OE<sup>2</sup> identified by Bortolotti (2018). This framework leaves aside logistical aspects and focuses on pedagogical components, complementing Bortolotti’s work with a focus on ‘sensory fieldwork’ (Job et al. 1999) and an affective connection to place that “may assist in the development of an ethic of care” (Hill and Brown 2014, p. 228), both tending towards Rosa (2018) idea of ‘resonance’. It also underlines the importance of keeping record of the outdoor experience so as to mobilize it again indoors (Adamina 2010). While a more detailed account of this work is described in Lousselet and Zosso (forthcoming), it is summarized in Fig. 20.1.

This approach to OE works on an intimate relationship with place and articulates it with a collective transformative process, which makes it consistent with SE. The role of the teacher here is both central and in the background: central, because although the place is at the heart of the process, the teacher remains essential in creating the pedagogical repetition and in moderating the process; in the background because it requires adopting a non-transmissive posture leaving room for a real encounter between learner and

<sup>1</sup>We understand competencies as defined by Weinert (2001): the ability and motivation to mobilize content knowledge, skills, and attitude in order to solve a problem.

<sup>2</sup>Teachers must: (a) master the curriculum in order to match the outside world to the school’s general objectives; (b) master the logistics related to a different teaching environment; (c) be able to relate to actors in the field; (d) be able to adapt to changing contexts inherent in the outside world; (e) be able to use active, experiential and/or project-based teaching methods.



**Fig. 20.1** Characteristics of transformative outdoor education and related teacher competences

place. This demands a high level of professionalism which needs to be developed: turning any place into a learning place is not self-evident and must be learned. We now turn to a pedagogical setting that aims to empower student teachers in the operationalization of a TOE and thus in the development of related competences.

### Operationalizing Transformative OE: An Outdoor Project-Based Approach

Based on these considerations, we have elaborated a pedagogical setting for two similar outdoor education courses given at HEP Vaud, one for primary education and another for secondary education. It centers on the idea that competences, here related to TOE, cannot be taught but have to be developed by taking action and reflecting on it (Weinert 2001, see also Chap. 15). It thus takes the form of a project-based approach allowing student teachers (from here on ‘students’) to experience a collective process while elaborating, testing, and disseminating outdoor activities within the conceptual framework presented above. This approach echoes the necessity

to empower teachers to be SE project leaders within their schools, capable of working in collective and interdisciplinary dynamics, which implies that they have to be given the opportunity to participate in actual projects and receive reflective feedback during their training (Lange 2011). The aim is thus to develop “individual competences based on a common experience” (*ibid*, p. 74). The role of the teacher educators is to initiate and accompany a process in tension between learning and production, between structure and spaces of freedom, between a place-based experience and transferable knowledge, and between an individual and collective learning process (Lausselet and Zosso 2018). The whole training design seeks, “through exploratory and prospective work” to push “the existing limits,” to get out of “routines, traditions, and established customs” in order to contribute to the evolution of today’s school (Lange 2017, p. 355).

The courses are part of the interdisciplinary elective pre-service courses offered by the institution. The students are either generalists (primary school) or come from various disciplinary backgrounds (secondary school), most of them being trained in at least two disciplines. Their understanding of outdoor education is mostly

reduced to brief fieldtrips having a recreational dimension, or consisting of a visit based on transmissive information delivery (e.g., visit to a sewerage plant). The course's aim is to support students in operationalizing TOE that results in various outdoor activities being combined in a 'pedagogical pathway' (a real trail, for example in the Alps, in a vineyard or in a city, with maps to indicate the way and QR codes at different places along the path that can be scanned to access activities). This pathway will be tested by an actual class, edited and then made available to local teachers on an official platform.<sup>3</sup> The process happens in a safe learning space in which students can experiment, feel, take action, make mistakes, participate in and reflect on the process. The course starts with 2 days outdoors, allowing for exploration, questioning, and experiencing. The rest of the module alternates between outdoors and indoors, group work and collective work, as well as action and reflection. It links on the one hand with the conceptual framework presented earlier and on the other hand with the issues encountered when implementing the approach with pupils. At the end of the semester, explicit links are made with SE. Sustainability models and the Rounder Sense of Purpose (RSP) competence framework (Chap. 5) are explored and related to the students' outdoor activities. For the assessment, students deliver the outdoor activities they have been working on and participate in an oral discussion. For this, they individually imagine a new outdoor activity that they could implement in their class (transfer activity), and reflect on what they learned and how it relates to SE. The transfer activity aims at verifying whether what is declared as learned is actually mobilized in a concrete example. It thus tackles the gap identified by Preston (2016) between the discourse on outdoor education practices that increasingly *pretend* to be learner-centered, mobilizing a sensory and affective dimension, and *actual* practices that remain strongly teacher-led with relatively little autonomy for pupils and

which rarely focus consciously on the sensory and affective dimensions.

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### **Analysis of Students' Point of View and Transfer (or Implementation) Activity**

In order to have feedback on these courses and possible improvements to be made, we analyzed students' perspective through declarative elements in focus groups (Markova 2003; Gerrisen 2013) held towards the end of semester on the one hand, and examined the transfer activity, i.e., implementation in real classroom settings imagined for the assessment, on the other. All the students participated, implying a group of 18 students for primary (divided into 3 focus groups), and 12 for secondary (divided into 2 focus groups). In the focus groups, a first set of questions examined what students considered as significant learnings and in what ways these would influence their upcoming teaching activity. A second set of questions focused more specifically on the link with SE. In both cases, the questions were left quite open to let whatever seemed meaningful to the students to emerge. The discourses were then interpreted through content analysis (Paillé and Mucchielli 2010) based on our conceptual framework of TOE. In parallel, we evaluated the transfer activities through the double lens of this framework on the one hand and of the coherence with students' declarations in the focus-group discussions on the other. The following trends emerge from the data analysis:

### **Foster an Active Encounter with Place**

All the students considered themselves able to turn a place into a learning place, allowing an active encounter between the learner and a place before making related knowledge explicit; about a quarter of them mentioned that it made them reconsider the role of a teacher. Enough time to immerse themselves in the place, to reflect and to exchange ideas with others, as well as having the possibility to test the activities with learners,

<sup>3</sup>For an example in French, see <https://dfjc-files.sos-ch-gva-2.exo.io/s3fs-public/2021-01/SentierDesEquilibres.pdf>.

were deemed supportive elements. In the transfer tasks however, around a third of students focused on observation work strongly directed by the teacher, giving the learners a rather passive role that does not allow for a real interaction with place. Moreover, the emotional dimension and the importance to gain a good local knowledge only appeared occasionally in the transfer tasks.

Only a minority of students talked about the possibility of putting learners in a transformative posture by stimulating their imagination and actually experiencing their own impact on a place, and none integrated that transformative dimension in their transfer tasks.

### **Link Outdoor Experience and School Knowledge**

Students regularly mentioned the ability to articulate outdoor and indoor learning, thanks to the record kept of the outdoor experience or the discourse built around it that could then be mobilized in class. The acknowledgment that OE could contribute to the official curricula was considered as a strong motivational factor. This was reflected in the transfer tasks, which even broadened the reflection by including community knowledge through ways not specific to outdoors, e.g., by focusing on parent's knowledge to be worked on in class. The interdisciplinary potential of outdoor work also seemed clear to all but the transfer tasks were mostly rooted in a single discipline. Geography was most often mentioned at primary level, although interdisciplinarity would be easy to implement. For secondary, the link was logically made to the discipline the student was trained in, with possible links to one or two other disciplines. In addition to content knowledge, cross-curricular abilities such as 'cooperation' appeared to be covered by default but no one consciously taught these or made the related learning explicit.

### **Work with Collective Intelligence**

The project-based co-constructed learning process, allowing students to experience a collective

contribution to a product that would be useful to others, was seen by all students as a strikingly new perspective on education. Some felt that for the first time they had really learned to collaborate because they needed to contribute to a common and concrete objective by stimulating each other and by using the "power of our collective intelligence" (S1a-14:56). Working outdoors seems to have facilitated this collective dimension by relaxing the pedagogical relationship with the teacher trainers and amongst themselves. The students observed similar dynamics during the test phase with a class. However, quite a few students said that they would not be able to reproduce this kind of iterative collective work, either because they admitted their tendency to be more at ease with transmissive approaches and to want to immediately validate the learners' contribution, or because they did not feel capable of being sufficiently reactive and flexible to facilitate such open learning processes. This is reflected in most transfer tasks, where learners are not given an active, emancipatory role with a collective dimension.

### **Make an Explicit Link to SE**

The vast majority of students were able to make an explicit link to SE, and to evaluate in some ways the contribution, or absence of contribution, of their outdoor activity within SE. They connected to content knowledge around sustainability issues worked on through their activity (e.g., energy, biodiversity), to the idea of fostering a positive and caring bond with the environment or to the fact that OE allowed to realize and measure the impact of human activities on place. Interestingly, future secondary teachers, especially in science, tended to be more focused on content knowledge, whereas future primary teachers and those from secondary dealing with artistic approaches mentioned the caring bond more often. The explicit link to SE competences and to the RSP model was made only occasionally, with mentions of the competences 'systems', 'attentiveness', and 'transdisciplinarity',

all of which are part of the competence cluster ‘thinking holistically’.<sup>4</sup>

Most students claim to have become conscious of OE as a possibility for tackling SE and have considered this as a motivating factor for implementing the latter. At secondary level, possible ways to integrate SE through OE in language, mathematics, geography, or science were mentioned. At primary level, some students consider OE as an organizing approach allowing the articulation of various disciplines around a common sustainability issue, thus helping to tackle interdisciplinarity. The potential to confront school knowledge to “real-world knowledge” (and vice-versa) was also mentioned, which was considered especially important for SE regarding the complexity of the related issues. Following a similar idea, one student stressed the relevance of interacting with local stakeholders within OE in order to get to know various perspectives and thus tackle complexity. One person even considered that outdoor education, being closer to the children’s everyday life, was a powerful means to increase the impact of SE into children’s daily routines. Around half of the student teachers mentioned how OE was only one approach, to be combined with indoor approaches in order to contribute to SE.

Against this, some students provided only superficial statements, such as “it helps to sensitize children to sustainability issues” (BPb–6:23) while two students saw the collective action of the project-based approach as the biggest contribution to SE as it empowered learners to act, independently from OE.

In summary, all students claim to have evolved in their attitude and pedagogical know-how, as well as in their motivation, for place-based OE, which indicates that related competences seem to have evolved. They stated a will to combine indoor and outdoor learning, as well as more emancipatory approaches supporting collective learning. Even students returning from an

Erasmus semester in the Nordic countries, who have experienced OE regularly, appreciated this structured pedagogical approach that helped to implement OE. Various links to SE were made including the will to implement it through OE, but the political dimension only came up occasionally and was related in part to the project-based approach. Overall, the courses seem to have initiated a deeper reflection on education and the students’ role as teacher, at least for some of them, with one stating that:

I was impressed to see that it is possible to teach differently. I was complaining about the study plan and everything, and now I see that even within this frame, we can do things differently. (S1c-1:12)

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## Discussion

Firstly, to put these results into perspective, we should note that these were elective courses so the students were per se motivated by OE, thus resolving the question of ‘willingness’ addressed by Shephard (see Chap. 6). The focus groups also took place before the oral exams, which might imply that students wouldn’t dare say negative things, even if this exam didn’t count greatly compared to the work done during the semester. With this in mind, the following discussion links this research more specifically to competences in SE.

Prerequisites for a TOE, such as the ability to turn a place into a learning place, can be considered acquired by most students. The gap between the discourse and part of the transfer tasks remains for some students, in line with what Preston (2016) has observed, although conscious efforts were made to overcome it. This demonstrates the cumulative nature of competence acquisition: as such, more attention should be paid to transfer issues, with more exercises to imagine new tasks for various school contexts.

The political transformative aspects, central to TOE and SE, are nearly absent: the idea that it is possible to be a change agent within a place has not really come through despite examples being given. Various hypotheses could explain this:

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<sup>4</sup>The RSP competence framework is organized along three competence clusters: thinking holistically, envisioning change, achieving transformation, see Chap. 5 or <https://aroundsenseofpurpose.eu/>.

- the course hasn't focused enough on this point.
- the belief that teachers are supposed to be 'neutral', as stipulated in the school regulations, plays a hindering role.
- sustainability is not always understood as something political.
- perceiving their pupils as change agents is so far from the students' usual conceptions that one course is not enough to make these conceptions evolve.
- working in a transformative perspective implies being at ease with open and iterative learning processes, which can be perceived as very destabilizing.

In all cases, a more explicit focus might usefully be put on the competences relating to 'envisioning change' and 'achieving transformation'. As these competences are unusual for teachers, a closer attention could also be paid to existing habits and ways to overcome them, as well as on ways to work on students' reactivity in open learning processes.

Nevertheless, even without the political dimension being mentioned, students did multiple links between TOE and SE. This echoes Curnier's (2017) perspective that OE gives the opportunity to work on a multiplicity of knowledges, skills, and attitudes, to tackle the link between knowledge, action, and impact in a concrete way, and to work on the bond between the learner and their environment so as to enhance personal involvement. Each student seems to take something different according to their preconceptions of OE, of SE, or of education more in general, and according to the type of outdoor activity they have developed. This multiplicity could be made more explicit, thus broadening the spectrum of possibilities for everyone. A more careful attention could also be paid on ways to articulate each SE competence specifically with a TOE, as only those relating to "thinking holistically" have been mentioned.

In brief, a TOE seems to be a good base for addressing the potential of OE for SE, but can be reinforced by tackling specific aspects of the latter more in detail on the one hand, and by work-

ing on the articulation between both approaches more systematically.

At a more general level, although the courses didn't seem to contribute to a 'transformational education' in itself, the motivation generated and questioning of the teacher's role may yet contribute to the 'transformation of education' that we need (Sterling 2001). A long-term follow-up would be needed to verify this assumption.

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## Conclusion

We have seen that the assumption that OE contributes to SE competences is easily asserted but not true per se. Even within a type of OE consciously framed within sustainability as presented here, it remains an ambitious task to empower student teachers to implement a TOE contributing to SE. It requires working on a double set of competences, one in TOE, the other in SE. Models addressing SE competences now exist and benefit from wide discussion but they naturally do not cover the specific competences of OE. Models of TOE competences are rarer and less stabilized. There is therefore work to be done on *which* competences contribute to better synergies between OE and SE at the level of teacher education. A conceptual framework such as the one designed here seems a path worth exploring further, as is Hill's model looking at changes needed in values, pedagogical practices, and institutional settings (Hill 2012).

In terms of *how* to develop these competences, more work is needed with students to explicitly articulate TOE and SE, to facilitate the transfer between what has been experienced on the course and what happens in a variety of classroom settings as well as the ability to facilitate open learning processes and to deconstruct existing conceptions of what learning and education means. This means differentiating, for example, between contexts such as those of a secondary science teacher and a primary teacher. Although these elements may seem evident and reflective of general considerations in teacher education, they are "hidden hindrances" not to be forgotten. Moreover, the whole process requires time and

requires learning over years, including courses for in-service teachers and post-support experience as stated by Brown (2010). This learning progression for teacher education echoes the learning progression for pupils, implying a “competency double decker”—an underdeveloped idea that is the subject of another article (Lausselet and Zosso forthcoming). Finally, the question of *how to assess* the mentioned competences remains a field that can benefit from further investigation.

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