

Research and Documentation of Outdoor-Based Teaching in Teacher Education—The EOT Project



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1 The Perspective of Outdoor Teaching

During the last two decades, a great number of studies showed that outdoor education programs could positively affect pupils' and teachers' attitudes, motivation and self-efficacy (see Clusters I–IV above). However, significantly fewer articles were published in this context on pre-service teachers and even fewer on teacher educators. Yet, this scarcity of research is surprising, given the twin facts that “learning is particularly successful if it is situated” (Karst & Dickhäuser, 2021, 23) and the empirical evidence that “greater expertise is favourable for the quality of teaching if the depth of processing and the degree of interconnectedness of the professional knowledge are high” (Wilhelm, 2021, 28). Given the potential positive impact of outdoor learning on pupils, teachers and teacher educators, exploring outdoor learning and teaching in teacher training seems very important.

The scientific literature on the subject gives us a more complex picture. On the one side, in-service teachers describe how outdoor learning with their classes contributes to their own sense of personal wellbeing and rejuvenate their sense of professional identity (Cosgriff, 2017; Marchant et al., 2019; see Barfod & Mygind: *Udeskole—Regular Teaching Outside the Classroom* in this volume). Marchant et al. (2019) concluded that taking pupils outdoors on a weekly basis increased teachers' job satisfaction. On the other side, literature shows us the challenges or barriers encountered by educators in the implementation of outdoor school-based activities. Besides the consideration of practical aspects regarding resources, planning

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and risk assessment (school culture), teachers' main barrier seems to be their confidence to teach outdoors (Scott et al., 2015). According to experiences and knowledge, teachers wish to have more method-related information to integrate outdoor activities (Torkos, 2018). Researchers examining outdoor teaching in teacher training have concluded that "teacher training should include outdoor learning and teaching". Researchers stress the importance of including outdoor learning and teaching into initial teacher training and to facilitate interdisciplinarity, use of local resources and outdoor learning environments for teacher training (Feille, 2017; Hursen & Islek, 2017; Kubat, 2017; Tuuling et al., 2019). So far, however, there is no record of the status quo of outdoor teaching in teacher training.

2 The Potential of Outdoor Teaching and Learning

Authors and researchers have pointed out the importance of outdoor education for the personal development of present and future generations, especially in terms of attitude and behaviour in their environment and community (Louv, 2005; Rickinson et al., 2004). However, training of teachers and pre-service teachers seems not to include the transfer from research into teaching practice. More precisely, teachers and teacher educators still discuss (a) the value of using the natural and cultural environment as a context for learning in all disciplines and (b) the integration of outdoor education into the curriculum for developing environmental consciousness and maintaining motivation and well-being in the educational environment (Torkos, 2018, 211).

Centuries ago, children grew up in and learned about the natural (real) world by studying their natural environment directly. Children who got educated by teachers learned to name the things around them and to understand its roles and functions in the world with all senses stimulated.

However, today children grow up and learn in two worlds, the real and the digital world and they can choose how much time of the day they like to spend in one world or the other. Children and adults connect to the real world through multiple and diverse experiences. However, what if only experiences in and knowledge about the real nature would enable us to move more confidently in the natural world? What does reducing the duration and intensity of natural primary experiences in the outdoors mean for children's personal development and self-confidence to act and interact in the real world?

Louv concluded in his book *Last child in the woods* (2005) that less time in nature increases the likelihood of developing what he called 'nature deficit disorder', which is associated with various mental and/or physical illnesses (Donovan et al., 2019; Yang et al., 2019). Research showed that children (0–8 years-olds) (Rideout, 2017; Rideout & Robb, 2020) and adolescents (Rideout et al., 2010) spend an increasing amount of time with screens and/or media use. This reduces the time they can spend building social, emotional, physical and mental health foundations (OECD, 2019, 46–57). Researchers correlated daily media use with increasing risks of poorer health

conditions (Mathers et al., 2009), poorer sleep efficiency (Fobian et al., 2016) or metabolic and cardiovascular diseases (Hardy et al., 2010; Martinez-Gomez et al., 2009, 2011). Those studies clearly suggest a reduction in screen time and online consumption as well as in sedentary behaviour for a large part of the day.

However, learning in the outdoors, with and about the outdoor environment can improve schoolchildren's social and health foundations and their environmental attitude and behaviour through outdoor learning (Becker et al., 2017). When, if not now, should we be thinking about how to connect schoolchildren with both the real natural world and the digital worlds?

Although there is quite a debate about how and when to introduce children and students to the digital world, we may be missing the opportunity to *first connect* children with the natural environment. The natural and cultural environment, including community and society, provides the adequate context for intra- and interdisciplinary learning. Children can build a connection to the environment and link their knowledge and curiosity to think about present and future problems as well as to imagine possible solutions. Without being connected to their natural and cultural environment, children might be unable to understand the complexity of the world and (self-) confidently act in it.

This is the great potential of outdoor learning and teaching. It supports students, especially young students, to connect to their natural learning environment through primary learning experiences with all senses. In the students' educational journey, these multi-sensory learning experiences form the basic framework for knowledge about their environment. These educational journeys are supported by teachers who can move flexibly and confidently within and between the natural and the digital worlds, and so provide opportunities for students to learn this flexibility and self-confidence themselves (Fig. 1).

Teacher education needs to provide pre-service teachers with knowledge and opportunities to practice outdoor teaching in different disciplines and on an interdisciplinary level. Regarding outdoor teaching, teachers themselves need to make their own outdoor learning experiences, if not during their own time at school as pupils, then at the latest during their teacher training.

3 Research and Development Project 'Enabling Outdoor-Based Teaching' (EOT) in Teacher Education in Switzerland

Why is it important to integrate and develop outdoor teaching in teacher education? For many years, educational research has provided us with numerous empirical data regarding the positive effects of teaching and learning in nature. But, do pre-service teachers acquire the necessary skills for interdisciplinary teaching in nature during their teacher training? The Institute for Science Teacher Education at St. Gallen University of Teacher Education is establishing a new research area on this topic.

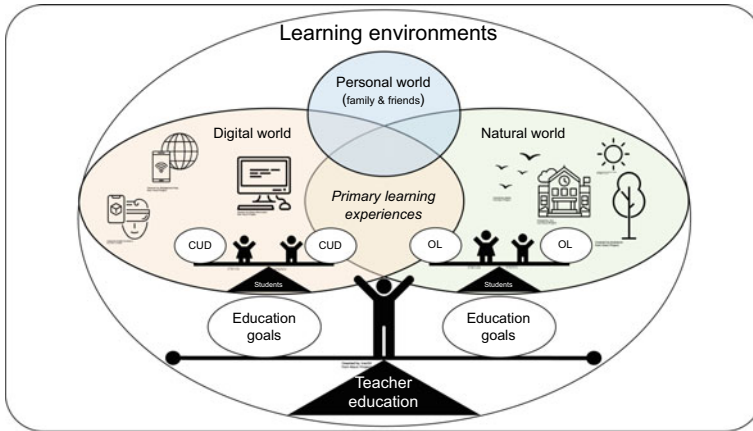


Fig. 1 The potential of outdoor learning and teaching. Regarding education, young students grow up with natural and digital world experiences. Outdoor learning (OL) supports students to connect to the natural world, especially through primary learning experiences with all senses. The confident use of digitalization (CUD) supports students to learn how to work in the digital world. The natural, the digital and the personal world, including family and friends, form learning environments. Outdoor learning and a confident use of digitalization are essential foundations for students' personal and academic development. The teacher has to find the right balance between the education goals for the natural and the digital learning environments. The professional skills of the teacher influence the natural and digital learning environments of students. Teacher education provides the foundation for developing teachers' professional skills in the digital *and* in the natural world. Icons are free downloads from <https://thenounproject.com>

In this context, we stress the importance to re-emphasise interdisciplinary teaching outside the classroom as one central aspect of teaching practice, and not to neglect it alongside the implementation of the new curricula and the initiatives on digitalisation. One would think that the training of future teachers in teaching outside the classroom and especially in nature would be self-evident, at least in cycles 1 and 2 (Kindergarten to 6th grade). Unfortunately, this is not the case. Together with the foundations Mercator Schweiz, Salvia and SILVIVA, the new research project enables us to investigate how pre-service teachers are trained to implement school-based outdoor learning and teaching.

The project 'Enabling outdoor-based teaching' (EOT) follows three main goals:

1. To document the current state of teaching practice on 'outdoor teaching' in teacher education at nursery and primary level (cycle 1 and 2, Kindergarten to 6th grade) in Switzerland
2. To transfer current didactical research findings into teacher education and
3. To support a community of teacher educators who share knowledge and experience about methods, skills, and issues that arise on the topic.

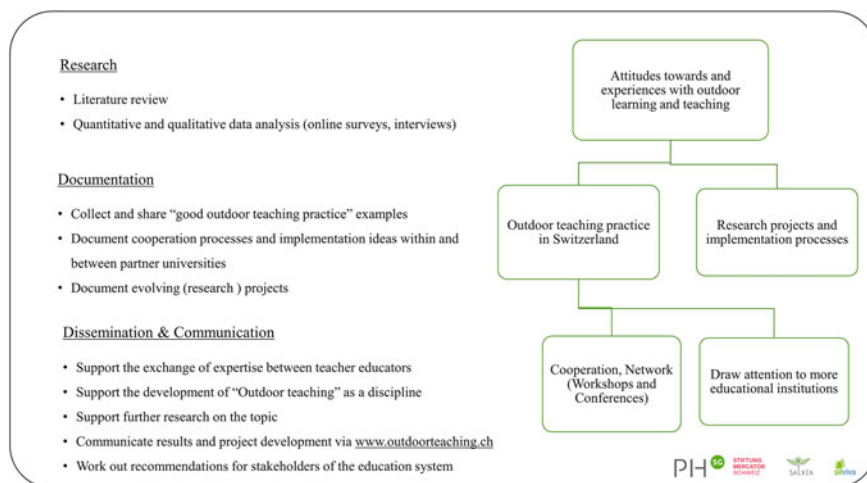


Fig. 2 The figure shows the main objectives of the EOT project (white squares) within their operational levels (research, documentation, dissemination and communication)

Started in November 2019, the project team strives to implement those three goals within five years. The EOT project operates on four levels: Research, Documentation, Dissemination and Communication (overview of the EOT project, see Fig. 2).

Research:

As a basis, a literature review shall reveal what we know from research about outdoor teaching in teacher education in general (see Wolf et al., submitted).

We examine attitudes about and experiences with outdoor teaching among pre-service teachers and teacher educators in Switzerland. We are interested in possible differences between the start and end of pre-service teachers’ training. What is common and what is different about outdoor teaching in different disciplines? How do we support interdisciplinary outdoor teaching within teacher training? We tackle these questions with surveys and interviews with pre-service teachers and teacher educators from the participating Universities of Teacher Education.

Data is collected from a representative number of Universities of Teacher Education, from the German, French and Italian speaking part of Switzerland (see Fig. 3).

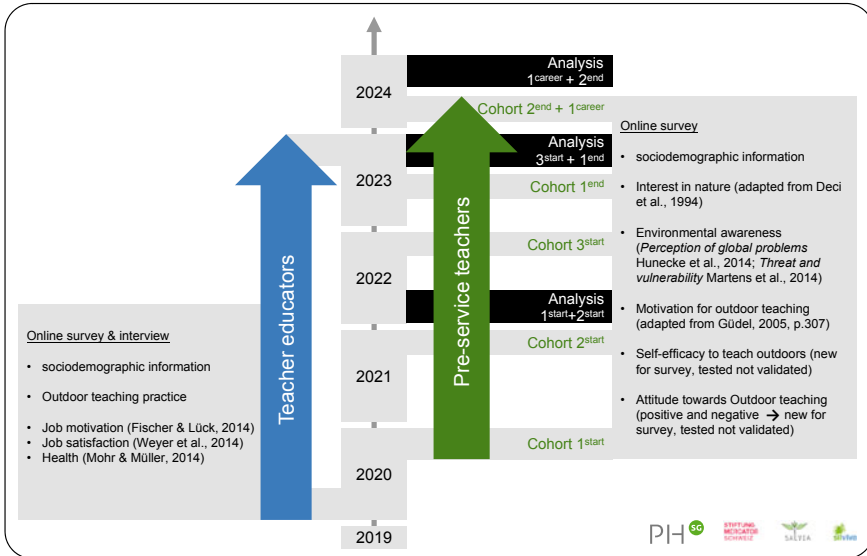


Fig. 3 Research design of the EOT project, which started in November 2019 and ends October 2024. We collect quantitative and qualitative data (online survey and interview) from volunteer teacher educators between 2020 and 2023. We survey attitudes and experiences from volunteer pre-service teachers at the start (cohorts 1, 2, 3) and end of their three-year training (cohorts 1, 2) and if possible at the start of their teaching career (cohort 1) (longitudinal study design).

Documentation:

Our research is part of a process, in which the critical and fruitful exchange of the participants’ experiences and thoughts leads to new ideas and suggestions for implementation and further research on outdoor learning and teaching, which gives the project a clear developmental character.

We document the teaching practice of participating teacher educators to put together a collection of ‘Good outdoor teaching practice’ examples, which can support the access and distribution of outdoor teaching in the several teacher education curricula in Switzerland (at cycle 1 and 2, Kindergarten to 6th grade). We further want to document as many collaboration processes as possible to develop a recommendation for a fundamental and holistic integration of outdoor teaching into teacher education.

The documentation process also reveals questions about the relevance of outdoor-based teaching as a discipline in teacher education.

Dissemination:

Teacher educators from partner universities can participate in workshops and conferences, which support and facilitate exchange of expertise and questioning on theory

and practice. This way, we try to support a sustainable integration of outdoor teaching into teacher education.

We support the establishment of a teacher educator community that shares outdoor learning and teaching ideas and material and creates collaborations between experts from different disciplines and between partner universities.

Communication

Examining the attitudes and experiences of pre-service teachers and teacher educators in the EOT project provides a basis for educational research to go deeper into the pedagogical and didactical, holistic method of outdoor teaching.

In the EOT project, we want to collect and document the know-how of experts and make it accessible to more teacher educators and thus also to more pre-service teachers. With that, we hope to encourage the distribution of available expertise.

One aim of the EOT project is to provide recommendations for the teacher education curriculum based on the results of the surveys and the collection of ‘good outdoor teaching practice’ examples. The EOT project draws attention to the *know-how* and *know-why* of outdoor learning and teaching and can inform stakeholders of the education system, especially school headmasters, Cantonal offices of education and Directorates of Education. With that, the EOT project supports the efforts and goals of SILVIVA, the national competence centre for nature-based learning, who is a core partner of the project.

Recommended Further Readings

1. Wolf, Ch., Kunz, P. & Robin, N. (forthcoming). Outdoor teaching in teacher education—A literature review. (submitted to the *Journal of Environmental Education*).
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