Education Outside the Classroom

Pedagogical Practices, Prevalence, and Potential

by

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Moving Landscape (“Ziehende Landschaft”)

One must be able to depart
and yet be like a tree:
roots firm in the ground,
as if the landscape were leaving while we stand still.
One must hold one’s breath
until the wind dies down
and unfamiliar air starts to flow around us,
and the play of light and shade,
of green and blue,
displays the old pattern,
and we are at home,
wherever that may be,
and can sit down and lean
as if on the grave
of our mother.

(poem by Hilde Domin, translated into English by Sarah Kafatou)

Summary

This article-based thesis comprises two sub-studies in the field of Education Outside the Classroom (EOtC) and investigates this teaching approach from different angles, using various methodologies and underlying theories to learn more about its pedagogical practices, prevalence and potential.

For the first study, I analysed data from an ethnographic case study I had generated at an elementary school in Germany in the schoolyear 2016/17. For the second study, I conducted a nation-wide survey in Norway in 2021/22, applying a combined email and phone approach.

The research questions for study 1, the ethnographic case study, are:

- RQ1: How can the established effects of EOtC on students' satisfaction of basic psychological needs be understood?

  Article 1: Lauterbach, G. (2023). "Building Roots" - Developing Agency, Competence, and a Sense of Belonging through Education Outside the Classroom. *Education Sciences*, *13*(1107).
- RQ2: What is the potential of EOtC for inclusion, specifically for students with immigrant backgrounds?

  Article 2: Lauterbach, G., Fandrem, H., & Dettweiler, U. (2023). Does "Out" Get You "In"? - Education Outside the Classroom as a Means of Inclusion for Students with Immigrant Backgrounds. *Education Sciences*, *13*(878).

The research question for study 2, the national survey, is:

- RQ3: What is the prevalence, provision and nature of uteskole in Norway?

  Article 3: Lauterbach, G., Bølling, M., & Dettweiler, U. (2023, November 20). Education Outside the Classroom

in Norway: The Prevalence, Provision, and Nature of Uteskole (accepted with minor revisions)

In the narrative (kappe) of this thesis, I elaborate on the rationale, the context, the theoretical perspectives, and the methodology and methods of the research project(s), including ethical considerations. Furthermore, I present the results and findings of the three articles and discuss their contribution to the research project as a whole. In article 1, I investigate how EOtC was used to support the students' basic psychological needs, i.e., their need for competence, autonomy and relatedness as described in Self-Determination Theory (SDT). In addition, I apply the framework of Ecological Psychology (EP) to explain how the EOtC teaching settings helped the students to become effective, agentic and connected. The findings show that this process was driven by their active engagement with environmental 'affordances' which facilitated embodied experiences. Moreover, the interplay between place and people specifically reinforced their satisfaction of relatedness and created a deepened sense of belonging to their community. It is concluded that to foster children's healthy psychological and physiological development in EOtC, teachers should make use of the affordances and 'invitations' of specific places as a starting point for their teaching to support the students to develop agency, competence and a sense of belonging.

In article 2, I look at the potential of EOtC to foster inclusion, specifically of students with immigrant backgrounds, using an ethnographic multiple-methods design, and present two cases that revealed factors that either prevented or facilitated experiences of inclusion during EOtC. The findings demonstrate that a lack of language proficiency and academic and social overburdening were among the main barriers to inclusion of immigrant students in school. An EOtC approach with a strong focus on place and culture responsiveness on the other hand, provides possibilities for the participation of all students and offers a promising way to develop more inclusive schools.

In the third article, I present data from a national survey on the prevalence, provision and nature of 'uteskole' ('outdoor schooling') in Norway and draw some comparisons with other Nordic countries. The results reveal a prevalence of 87.7% of uteskole practice in Norway in grades 1-10, with 68.7% of uteskole provision at least half a day every second week. Uteskole is taught across almost all subjects and is reported to be connected to the indoor teaching and is strongly influenced by the tradition of 'friluftsliv' ('outdoor-life'). This is also represented in the respective teacher qualifications, as specific uteskole competences are mainly acquired in physical education teacher training. It can be concluded that EOtC should become a mandatory element in teacher education across all subjects, in order to align the teachers' qualifications with the widespread uteskole practices.

Based on the findings of the three articles, I argue for the need to practice culturally and place-responsive teaching in EOtC to provide an uteskole for *all* students.

Prologue

As the second child of a missionary, I was born and spent the first seven years of my childhood in the Highlands of Papua New Guinea, which I considered at that time to be my home. Germany was the faraway place where my parents came from and where relatives lived that I only knew from photos and voice-recorded tapes that arrived once a year, usually around Christmas. All my friends were Papuans and we spent most of our time outside in the close surroundings of our small village, collecting fruit in the fields and woods, swimming in the rivers, climbing trees or building shelters in the bush, etc. Today I am very much aware that we led a privileged life but at that time, I did not perceive myself as much different from the other children and do not remember being treated as a foreigner in any way. I had a dark brown birthmark on my foot that was growing slightly each year. My friends told me this was my Papuan skin and one day my whole body would be the same color as theirs, something I looked forward to.

When we moved to Germany, I was not fully aware that this was a real parting from my first home. I was fascinated to experience my first snow, and to be part of a big family. And although we no longer lived in the middle of 'wild nature', we still lived in the country and I continued to spend most of my spare time outdoors, roaming the meadows, fields and woods with friends. Gradually, Germany became my second home. Unfortunately, I needed to have my birthmark removed when I was in 6th grade, which for me has always felt like losing a little part of my Papuan identity, and I also never ended up having the promised chocolate skin color.

As I grew up, time spent in nature always remained an important part of my life. I liked to experience the seasonal changes, going on long walks, and helping in the garden. This was what awed and delighted me, grounded me, and was my refuge whenever I felt sad or distressed. Nature also helped to put things - and humankind - into perspective for me

and that has not changed to this day. Being with nature is still my main way of connecting to new places and people. During my academic studies, I became more and more interested in the connection between nature and identity and wrote my master thesis on the construction of Native American identity in contemporary indigenous fiction, combining two things I really love: nature and literature.

When my two children were born, it was very important for me to convey this love and to enable them to closely connect with the world around them. About the same time, news about the condition of our natural world became darker and darker, with growing reports of mass extinction of species, climate change, loss of wilderness spaces, severe global geopolitical changes, together with a seemingly unchallenged rise of capitalism, the belief in continuous economic growth, and a world-wide shift to right-wing politics. This scares me as a parent and as a fellow being in this world, and I do believe that hope for a (more) sustainable and just future lies in how we educate the next generation.

I started working as a research assistant first at the University of Erlangen and then at the Technical University of Munich, where I was part of a team that developed one-week residential programs for school classes of all grade levels. The students went on research expeditions in the Berchtesgaden National Park, examining biological and geomorphological indicators of climate change in the German Alps. This provided them with an opportunity to experience and understand a global phenomenon locally. While attending the 5th International Outdoor Education Research Conference in Denmark in 2011, I learned about the Scandinavian teaching approach known as ‘uteskole’. I immediately recognised that focusing on practical, sensory and bodily activities and using nature, cultural or societal settings and institutions as a regular learning arena to supplement indoor classroom teaching could make an important contribution to tackling many of the challenges our society and schools are facing today. The Scandinavian model of uteskole and the exchange especially with colleagues from Denmark very much inspired our newly developed

study program in EOtC practices for pre-service teachers at the Technical University of Munich. We set out to make this teaching approach more popular in Germany, as it was not widely known at that time. This also meant finding teachers that were interested in this approach and supporting them to implement uteskole in their schools.

In addition, I also wanted my own children, who attended kindergarten and elementary school at that time, to be able to experience, explore and learn about nature together with others. As there was no such offer where we lived, my husband and I created our own weekly uteskole group. With 10 to 12 girls and boys between the ages of five to seven, we spent every Friday afternoon for the next four years outdoors and were thus able to gain first-hand experience with this learning approach. As we became more experienced, we offered our teacher students the possibility to gain practical experience of uteskole, which soon served as a model for similar groups that were established in the area (the first one by one of our students). The headmistress at the elementary school one of my children attended heard about us and invited us to explain more about this approach. She was excited by our practice and felt that uteskole was exactly what her students needed and what she had been looking for as a way to develop a unique school profile. We then spent the next two years supporting this school and its teaching staff by giving workshops for the teachers, arranging informative meetings both for staff and parents, connecting teachers with other teachers and our students who already had experience with this method, and providing literature, practical advice and teaching material. Subsequently, the school evaluated what parents and students thought about uteskole and received enthusiastic feedback.

The timing of this survey coincided with the European migrant crisis in 2015/16 and, like many other schools at that time, this school suddenly faced the challenge of how to include newly arrived refugee children into their school community. They all had very little or no knowledge of the German language, might have prior traumatic experiences due to the conditions of war and flight, and had to come to terms with living in a

foreign country. At that time schools, especially the ones in the countryside, had very little time to prepare themselves and had hardly any established support structures they could resort to. The headmistress, who knew I was keen to do a study on uteskole for a PhD project, asked me if I was interested in examining how this teaching approach might support the inclusion of students with immigrant backgrounds. I agreed immediately and accompanied two school classes over a full school year.

Shortly before my project started, my husband had applied for a position at the University of Stavanger and was accepted. For two years he travelled back and forth between Germany and Norway, while I completed my data collection. After my third one-year contract at the Technical University of Munich ended, I received an offer for a part-time position at the University of Stavanger, and our family finally decided to move to Norway. It was hard for us to leave a home we all loved, our families, and especially to uproot our two children at a sensitive age. Workwise, it proved to be a good decision as I was now able to work in a country with a long tradition of uteskole that is overall regarded as something positive and valuable. Back in Germany, when asked about my research topic, I always needed to explain what uteskole is. And the next question would be: "but do the children actually learn something?". In Norway, the reactions were quite different: "Oh, you are working with uteskole, that's fantastic!". And although we were of course not refugees, it was nevertheless a somehow strange reverse situation that my own children were now the foreigners who could not understand some of the customs and the language spoken at school. I was therefore excited to observe how my children would benefit from the rich Norwegian tradition of uteskole, as the primary and lower secondary schools they both attended offered regular uteskole sessions up to the 10th grade. Unfortunately, my children did not have good experiences with the way uteskole was used by their teachers. The focus was very much on friluftsliv activities and emphasized values like endurance and 'becoming tough' on long hikes and in rough weather. Instead of creating connections, it reinforced social structures from the classroom and my children developed lasting

negative associations with those places they visited regularly during uteskole. I believe that their teachers were not even aware of possible exclusive elements in their uteskole practice and how these might affect my children (and my children very much opposed my suggestion of bringing this up with their teachers). They just did what they had always done and what they probably had experienced themselves as students and thought of as a lot of fun. Their practice was different to what I had observed during my year of data collection in Germany regarding the potential of uteskole to support inclusion. When in 2020 the opportunity of a PhD stipend at the University of Stavanger arose, I seized the chance to perhaps finally be able to complete my dissertation project. The requirements of the stipend encompassed a survey to map the extent of uteskole in Norway, and another self-chosen project within the field of EOtC. I asked and received permission from the Technical University of Munich to work with the data from my German case study and received ethical approval to proceed in Norway.

Our world is not about to get less complex or less challenging and classrooms all around the world will become more and more diverse due to geopolitical changes and the resulting migration. If we actually take the positive effects of EOtC seriously, we need to make sure that *every* child feels safe and welcome and has the opportunity to contribute and participate with their unique identity – no matter where they come from, how they grew up, what languages they speak, what skin color, gender or sexual identity they have, what beliefs they share, or what sort of physical and mental abilities they bring with them. And if we want the next generation to care about this world, we need to ensure that they can actually connect with the place(s) around them, in order to develop feelings of stewardship. And hopefully this can help to create opportunities for them to build roots and establish a new home.

Table of Contents

List of Figures

List of Tables

1 Introduction

1.1 Education in times of global crises

We live in the most severe crisis humanity has experienced so far and the way we educate the next generation will play a decisive role in shaping the future of our common world. People across the globe are increasingly affected by the consequences of climate change, such as changing weather patterns that lead to more extreme precipitation with the danger of flooding, storms, or droughts (IPCC, 2023). Moreover, we are in the middle of a sixth mass extinction with daily losses of about 200 species and vastly dwindling biodiversity (Kolbert, 2014). And even though these are worldwide effects, they are unequally distributed between the global north and south, and those countries and people that are the most vulnerable are at the same time the least responsible for the situation but suffer the worst effects. This further widens the gap between the leading industrialized Western nations and the developing countries, between the rich and the poor (Waldron et al., 2019). Education therefore needs to create awareness of and find ways to deal with these injustices and their consequences.

There is a clear link between these human-made natural disasters and geopolitical conflicts, and as a result, the world is facing an unprecedented migration crisis. The World Migration Report declares that the number of international migrants has dramatically increased over the past five decades. The total estimated 281 million people living in a country other than their country of birth in 2020 constituted 128 million more than in 1990 and was over three times higher than in 1970 (McAuliffe & Triandafyllidou, 2021). According to the United Nations High Commission for Refugees (UNHCR), among those are about 26.6 million refugees, which means people who were forced to leave their home country due to war, violence, persecution or natural disaster. Over

half of them were under 18 years old (UNHCR, 2022) and thus of compulsory school age, leading to increasingly diverse classrooms. Although the challenge of integrating immigrants and refugees into education systems has been present for decades, the situation has become more demanding in recent years, "forcing systems to adopt large-scale ad-hoc measures and concepts for the educational integration of refugee children" (Koehler & Schneider, 2019). As such, the immigrant experience is characterized by constant transition, involving geographical, cultural, institutional and psychological shifts, which are even more pronounced for refugees (Singh et al., 2023).

Today about 20% of the population of Germany (i.e., 16.3 million people) have an immigrant background, with nearly two-thirds living in bigger cities, whereas the percentage is lower in rural areas. Around the time I conducted the ethnographic case study in 2016/17, 1.5 million people sought asylum in Germany. This was the largest inflow of refugees to the country since the Second World War (Brücker et al., 2022). Among those were about 125,000 children of compulsory school age (UNICEF, 2023).

Starting from a historically low level, Norway has also witnessed a notable surge in immigration. In 1990, only 3.5% of Norway's total population were immigrants. In 2016, the proportion of refugee arrivals within the total immigration number was as high as 30%, including about 30,000 children of compulsory school age (Corral-Granados et al., 2023). By the beginning of 2022, immigrants constituted around 15% of the overall Norwegian population, and by 2023 the number of refugee children of compulsory school age had risen to above 40,000 (Statistics Norway, 2023).

Education plays a pivotal role in addressing the evolving needs and future ambitions of immigrant children. Successful education in culturally diverse classrooms should aim to equip students with tolerance for uncertainty and transferable skills applicable across contexts. It necessitates

negotiating relationships with language, culture and identity, while fostering global citizenship (Singh et al., 2023).

1.1.1 Environmental education: from engagement to empowerment

There is a long tradition within education of addressing global environmental and climate crises. As far back as the Tbilisi Declaration in 1977, Environmental Education (EE) was defined as

> "a learning process that increases people's knowledge and awareness about the environment and its associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action" (Tbilisi Declaration, 1977).

EE serves as a broad umbrella term referring to organized efforts to teach how natural environments function and how a more sustainable future can be created with the help of education.

Two decades later, the concept of Education for Sustainable Development (ESD) was born from the need to address the growing and changing environmental challenges facing the planet and was adopted as an overarching educational framework by UNESCO at the 1997 International Conference on Environmental Education in Thessaloniki, Greece (Declaration of Thessaloniki, 1997). It was then promoted by the United Nations Decade of ESD from 2005-2014 and has since also been conceptualized in the framework of the so-called '21st century skills' (González-Salamanca et al., 2020). These aim to reorient education to empower individuals to make informed decisions about environmental integrity, social justice and economic viability for both present and future generations, whilst respecting cultural diversity.

A literature review from 2017 on teaching methods to promote sustainability education revealed that student-engaging methodologies and outdoor teaching/field work were the most prevalent approaches (Jeronen et al., 2016). Goldman and Alkaher (2023) describe Outdoor Environmental Education (OEE) as a "contemporary form of environmental education in which the outdoors provides a setting conductive for meaningful teaching and learning" (p. 11). This has also been shown by Dettweiler et al. (2022) who recently described how OEE creates meaningful experiences for students through autonomy-supportive teaching, which can foster 21st century skills. Similarly, in their survey on learning environments, Lemley et al. (2014) identify the students' autonomy support and perceived relevance of material, presentation, and teacher competence as critical for the students' motivation and learning attitude, connecting 21st century skills explicitly to Self-Determination Theory.

In SDT, three basic psychological needs, the need for competence, autonomy, and relatedness should be promoted to enable students to feel effective, agentic, and connected while they are presented with new ideas and learning content (Ryan & Deci, 2000). From school research it is well known that students learn better if they are comfortable, confident and enjoy what they are doing (Govorova et al., 2020), which in turn leads to higher motivation. As such, the concept of situational interest, i.e., interest that arises spontaneously (Schraw et al., 2001) and builds on novelty, challenge, attention demand, exploration intention, and instant enjoyment (Chen et al., 2001) becomes vital. Teachers play an important role in this, as they are actively responsible for the creation of school environments that support these basic psychological needs (Vansteenkiste et al., 2009), for example through the provision of appropriate structure (Sierens et al., 2009). Building on this, Darner (2009) proposed three educational means to effectively create a 21st century classroom in her guide to fostering environmental motivation. First, one needs to support the students' need for autonomy, for example via cur-

ricular activities that include sufficient opportunities for students to actively engage in solving environmental problems of their choosing. This will secondly foster the students' scientific understanding, which will satisfy their need for competence. And third, students should get a chance to experience the practical relevance of the teaching content, for example by being exposed to real-world problems and meeting people in their communities who deal with those problems. The 21st century classroom is hereby described as a flexible learning space that provides opportunities for interaction, networking and collaboration.

A recent literature review shows that this can for example be achieved through restoration activities when teachers collaborate with environmental organizations, government agencies or universities that provide curricula and technical support to facilitate students' engagement (Chawla, 2023). In those community-based educational approaches, places gain importance by providing inclusive, safe and stimulating spaces that encourage the participation of young people, fostering a sense of belonging and ownership (Derr et al., 2018). In such place-based or place-responsive pedagogies (PBE), the specific places become 'essential' and not only define what can be learned (Mannion & Lynch, 2015), but also foster personal connections with the more-than-human world (Stevenson et al., 2020). These deep connections in combination with the necessary knowledge can empower the students to become agents of change in their own communities.

1.1.2 Pedagogical policies and concepts to foster inclusion of immigrant students

As a consequence of, for instance, human-made natural disasters and geopolitical conflict, classrooms all around the world are increasingly challenged to include immigrant students who need to cope with a new culture, language and potential pre-arrival trauma (Gurer, 2019), as well as

possibly new academic expectations (Dryden-Peterson, 2015). As a result, there is a growing need for educators to adapt to cultural diversity and concomitant acculturation processes (Berry et al., 2006) and to find pedagogical solutions for more inclusive schools.

This has led to a broadening of the concept of inclusion in education policy in recent years. Whereas previously this focused mostly on special needs education, the term inclusion now increasingly encompasses immigrant students (Fandrem et al., 2021). More and more, inclusion is internationally seen as a principle that supports and welcomes diversity amongst all learners and views individual differences not as barriers, but as resources that enrich learning (Ainscow, 2020a).

While official national policies in Germany and Norway guarantee a right to inclusion and additional assistance (Grote, 2018; Riekkinen & Hanssen, 2023), research on inclusion of refugee children in particular indicates a practical gap in successful implementation (Smeplass et al., 2023). School systems do not sufficiently recognize students' diversity in general, and the ethnic diversity of students is often not reflected in the curriculum (Frenzel et al., 2016; Jortveit, 2015).

Based on a national survey, Will et al. (2022) reveal notable correlations between regional educational policies in Germany and dimensions of educational participation. Their study highlights that the assignment to a specific federal state significantly effects the time until school enrollment, age-appropriate grade placement, and attendance in newcomer classes. Moreover, inclusion practices for students with different sociocultural backgrounds may result in large differences between schools and classes depending on the level of awareness of each individual teacher and their knowledge, an issue Korntheuer (2016) identified for Bavaria during the timeframe I collected my data in this region. Local, regional and national regulation and policy strongly shape the likelihood of refugee students accessing higher education. Given the German edu-

cation system's low permeability, this has an impact on the further education and career trajectories of new immigrant students. In their meta-ethnographic study, Beach et al. (2019) show that formal education not only falls short of disrupting the mechanisms that perpetuate social segregation, poverty and territorial stigmatization, but is also subject to these very processes which affect especially immigrants.

With regard to Norway, Aarsæther's research (2021) indicates that schools have yet to effectively facilitate interactions between newcomers and their mainstream peers. Moreover, the enduring Norwegian concept of cultural homogeneity appears to exert additional pressure on immigrants to assimilate (Ringrose et al., 2023). This suggests a necessity for focused policies designed to support immigrant children who are at a higher risk of encountering educational challenges (Green & Iversen, 2022).

One important aspect of inclusion is participation, which is operationalized in the educational context as common engagement in tasks and learning together in a class community (Fandrem et al., 2021; Loreman, 2007; Skeie et al., 2022b). Community in this context is defined as a relational unit (McMillan & Chavis, 1986) whose members or "communities of practice" feel important to each other and who share collaborative activities. This "engagement in social practice is the fundamental process by which we learn and so become who we are" (Wenger, 1998, no page). Central to many definitions of community is the concept of belonging (Osterman, 2000), which is related to several positive behavioral, academic and psychological benefits, such as improved social skills, self-concept, motivation, academic achievement, lower rates of depression and social-emotional distress or social rejection (Kia-Keating & Ellis, 2007).

When it comes to the inclusion of immigrant children, the role of schools is central since they are the arenas where recently arrived children en-

counter their community, build trust (Veck & Wharton, 2019), relationships, and (hopefully) establish a sense of belonging to their new country (Due et al., 2018; Mace et al., 2014).

This has led to what has been called by Ainscow (2007) the 'inclusive turn': a shift towards the importance of place that focuses on developing the capacity of local neighborhood mainstream schools to move towards inclusion (Ainscow, 2020b). Among preschool children, Keles et al. (2021) have only found seven intervention studies promoting social inclusion of immigrant and ethnic minorities. They report that interventions are more effective if they aim at either a strength-based approach, rather than a deficit-based one; involve the family and the larger community; and facilitate cultural brokerage and intergroup contact to reduce prejudice, discrimination and improve social relations. In the school context, Nishina et al. (2019) reach similar conclusions in their conceptual analysis of ethnic diversity and inclusive school environments. They state that encouraging a positive ethnic identity for ethnic minority students, multicultural/diversity training and cooperative learning, as well as the promotion of social competence and prosocial behaviors, foster inclusion in classrooms.

One important resource for promoting inclusion in schools is culturally responsive teaching (CRT), which is defined by Gay (2010, p. 31) as "using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them". This is consistent with the above-mentioned findings from Keles et al. (2021). As a holistic approach, CRT also focuses on the importance of place and has been described as fostering student engagement, academic achievement, and strengthening the relationship with peers (Ikpeze, 2015). Numerous qualitative case studies have described how CRT can lead to inclusion

(Bottiani et al., 2018), for example by empowering students intellectually, socially, emotionally and politically, by using cultural referents to impart knowledge, skills and attitudes (Ladson-Billings, 2014).

1.2 Education Outside the Classroom

1.2.1 The research field of Education Outside the Classroom

In the past three decades, the educational approach internationally known as Education Outside the Classroom (Braund & Reiss, 2006; Lee et al., 2022) has gained prominence as an innovative teaching method (Mygind, 2020). EOtC can broadly be defined as the practice of relocating traditional classroom teaching to outdoor settings such as forests, parks, school gardens or museums as a supplement to indoor classroom teaching. In this way, EOtC facilitates enriched, experiential and context-based learning (Beames et al., 2012; Beames et al., 2023; Waite, 2017). Situated in the sociocultural educational tradition of Scandinavia, where the teachers enjoy significant autonomy in selecting teaching methods (Helgøy & Homme, 2016), the regular use of EOtC is termed in Norwegian "uteskole" (Jordet, 1998), in Danish "udeskole" (Bentsen et al., 2009), and in Swedish "utomhuspedagogik" (Dahlgren & Szczepanski, 1998) and specifically aims for a transfer of learning opportunities between the two contexts: inside - and outside of the classroom (Bærenholdt et al., 2022). In this research context, 'regularity' is often defined as a minimum threshold of at least half a day every second week (Barfod et al., 2021; Barfod et al., 2016; Bentsen et al., 2010; Bentsen et al., 2009).

Not least due to several major Danish studies on udeskole (Bølling et al., 2023; Mygind, 2005; Nielsen et al., 2016), this teaching approach has gained a lot of international attention (Mygind, 2020) and has inspired school practices in other parts of Europe, such as in the UK (Forest

School Association, 2023), Germany and Switzerland (Jucker & von Au, 2022).

Research on EOtC has so far focused mainly on physical activity and school motivation, revealing that children are physically more active during EOtC sessions (Bølling et al., 2021; Mygind, 2007, 2016; Schneller, Bentsen, et al., 2017), and that students' learning motivation is enhanced (Bølling et al., 2018; Dettweiler et al., 2015).

In addition, EOtC research has demonstrated positive effects on students' health, well-being and academic achievement (Becker et al., 2019; Dettweiler et al., 2017; L. Mygind et al., 2019; Otte et al., 2019; Winje & Løndal, 2021b), including better biological stress regulation, brain function and development (Dettweiler et al., 2023). In this context, two major theories, stress reduction/recovery theory (SRT) (Ulrich, 1983) and attention restoration theory (ART) (Kaplan & Kaplan, 1989) are mainly used to explain the restorative qualities of nature in EOtC. While SRT argues that contact with nature reduces stress and negative affect, ART claims that immersive experiences in nature restore cognitive abilities. Both make use of a biophilia argument that humans evolved in natural environments and therefore function best in natural surroundings.

EOtC has furthermore been found to improve student participation (Quay, 2003), to strengthen student-teacher relationships (E. Mygind, M. Bølling, & K. S. Barfod, 2019), and to have a positive effect on students' pro-social behaviour (Bølling, Niclasen, et al., 2019) and social relationships (Bølling, Pfister, et al., 2019), although the latter association is still inconclusive (Ellinger et al., 2023). Moreover, real-world settings in the local surroundings have been found to be important for developing and practicing environmental citizenship (Iversen & Jónsdóttir, 2018). A study conducted among fifth graders by Szczytko et al. (2018) reported that teachers observed significantly improved attention spans and reduced disruptive behaviours among students with emotional, cognitive and behavioural disabilities when engaged in outdoor learning activities.

A recent scoping review on research about EOtC in the Nordic countries shows that teachers' perspectives are most frequently investigated, followed by studies about good practice and the potential of outdoor education to affect well-being and cognitive learning. Fewer studies explored teaching and learning processes, digital resources and education for sustainability (Remmen & Iversen, 2022).

1.2.2 Education Outside the Classroom in the Nordic countries

EOtC in Scandinavia is a routine part of the school schedule, which aligns it to some extent with forest schools in the UK (Waite et al., 2016). In Scotland, for example, outdoor education and play experiences are integral components of Scotland's Curriculum for Excellence for children aged 3-18 (OECD, 2021). Outdoor learning is also incorporated into the Professional Standards for teachers set by the General Teaching Council for Scotland (General Teaching Council for Scotland, 2021). The provision of outdoor learning in Scotland has been mapped three times: in 2006, 2014 and 2022. On average, students in primary school spent seven minutes per week with outdoor learning in 2022. Out of the total time spent outdoors, 87% occurred within or near the school premises, as well as visits to woodlands and local greenspaces. The primary curricular themes outdoors encompassed health and well-being, science and mathematics, with a focus on practical activities, teamwork, nature and play (Mannion et al., 2023).

Despite its widespread use, the prevalence of EOtC in Scandinavian schools remains somewhat underexplored, especially in Norway and Sweden. In Denmark, however, systematic research on the prevalence and nature of udeskole has been conducted throughout the past 15 years and evidences an increase in EOtC. The results from the first Danish mapping in 2007 indicated that approximately 14% of all public schools

had one or more classes practicing udeskole on a regular basis (Bentsen et al., 2010). This number grew to 17.9% for public schools in the schoolyear 2013/2014 (Barfod et al., 2016) and remained at about that same level in the most recent mapping survey. However, the provision of udeskole was greater among special-needs schools (34%) than among public schools (19.5 %) in the 2019 investigation (Barfod et al., 2021).

1.2.3 Uteskole in Norway

In 2000, a nationwide school survey had been undertaken in Norway to assess the provision of school meals and level of physical activity in Norwegian primary schools. Therein, uteskole had been identified as one source of physical activity (Bjelland & Klepp, 2000). The survey revealed that more than 90% of first graders participated in uteskole activities for either half or a whole day each week. However, as students progressed through their schooling, there was a gradual decline in provision. By the time students reached the seventh grade, only 10% were engaged in regular uteskole activities once a week (reported in Bentsen et al., 2010; unfortunately, the original report could not be retrieved). Apart from this early survey on uteskole in Norway and two masters theses that focused on uteskole in different Norwegian regions (Limstrand, 2001; Vestøl, 2003), no recent data on the prevalence, provision, and nature of uteskole in Norway are available.

While the international concept of EOtC encompasses teaching activities both outdoors and indoors, such as in cultural institutions and companies, the practice of uteskole in Norway is particularly influenced by the concept of ‘friluftsliv’ and outdoor environments as a setting for personal development and learning (Winje & Løndal, 2021a). The Norwegian cultural heritage of valuing friluftsliv is grounded in a long tradition of outdoor activities (Tordsson, 2010). It has been argued that the concept of friluftsliv is connected to the formation of the (new) Norwegian national

identity after its independence in 1814 (Slagstad, 2008) under the influence of the national romantic movement (Faarlund et al., 2007). Friluftsliv has been used as a unifying element to evoke feelings of pride in Norwegian nature and was therefore considered to be an important topic in education (Skille et al., 2023). There has been a long-standing emphasis on friluftsliv in the curriculum for nearly eight decades. In the 'normalplanen' from 1939, the word 'friluftsliv' was mentioned for the first time in a Norwegian curriculum (Helle, 2017). With the curriculum reform in 1994, friluftsliv was integrated as a specification in upper secondary physical education in Norway. Three years later, guidelines for friluftsliv were developed for all school forms, which explicitly encouraged the use of the local community as an educational resource across all subjects. In the wake of these curriculum revisions, this form of teaching gained momentum and the term 'uteskole' was used to describe this practice (Jordet, 2007). Arne Jordet's case study from the early 2000s, based at Lutvann Primary School in south east Norway, provided insights into regular uteskole practices, where friluftsliv had been defined as an integral part of uteskole, among others (Jordet, 2002, 2009). In his influential book *The Classroom Outdoors*, (2010) Jordet argued that uteskole encourages active, sensory learning through personal experiences outside the classroom, bridging the gap between indoor and outdoor education. This continuity however, has been questioned in a recent study by Winje and Løndal (2021a) who found that the "connections between *friluftsliv activities* and *theoretical learning activities* are seldom emphasised" (p.133, italics in the original).

1.3 Study objectives

Although there is a long tradition of addressing the environmental and climate crises using outdoor education approaches, similar attempts have not yet been made within EOtC to respond to the migration crisis. There are however findings that suggest that EOtC can promote social interaction and well-being among students (Becker et al., 2017; Mall et al.,

2022). Many of these studies use Self-Determination Theory as a theoretical framework (Mann et al., 2022), since SDT describes psychological well-being as dependent on the fulfillment of three basic psychological needs, identified as competence, autonomy and relatedness. These needs are considered universal and intrinsic aspects of human nature, operating across gender, culture and time (Ryan & Deci, 2017).

Those studies in EOtC that apply SDT are mainly quantitative, and to my knowledge there have so far been none that investigate empirically how students' well-being and engagement is enhanced as a consequence of their participation in EOtC. There is a gap in the literature concerning how to explain these outcomes. And while the outdoor setting has been used to support the integration of adult immigrants (Johansson, 2015; Tedeschi et al., 2022), there is also a practical and theoretical gap in our understanding of how EOtC may address the growing diversity in classrooms worldwide and help to foster inclusion.

In study 1, I therefore explore the hypothesis that in EOtC, the affordances and invitations of the teaching environment have a unique potential to support students' experience of psychological needs satisfaction, and their development of agency, competence and a sense of belonging. Moreover, I examine how EOtC can foster inclusion, especially for children with immigrant backgrounds in a German elementary school applying the Scandinavian concept of uteskole to address the challenges of the refugee crisis at that time.

As EOtC, originally a grassroots movement, gains popularity (Passy et al., 2019), there is an increasing need for critical examination and assessment of what is actually being taught and how (Barfod & Daugbjerg, 2018). There are only a few studies to date, mainly in Scandinavia, that explicitly examine EOtC practices (Remmen & Iversen, 2022).

Based on the lack of comprehensive knowledge, study 2 addresses this gap with a national survey on the prevalence, provision and nature of uteskole in Norway, to find out more about the properties and conditions

of its practices. As the national curricula in Norway reflect more than a hundred years of tradition emphasizing the importance of student participation in the learning process and the use of the school's surroundings as an educational resource, it can be regarded as a forerunner of EOtC in Europe (Jordet, 2011).

Lastly, I will discuss the findings from the German ethnographic case study with the results from the national survey in Norway, to examine how lessons from an adopted practice can inform its referent. Such investigations into prevalence and provision, combined with positive outcomes can offer a more solid foundation for more effective, data-driven resource allocation for both national governments and local municipalities (Mandinach & Honey, 2008b).

Figure 1 illustrates the structure of this dissertation project.

1.4 Structure of the thesis

The introduction to this thesis began with a global perspective about the challenges confronting today's education systems, i.e., the environmental, climate and migration crises, and how these affect education systems at the local level. I followed with a brief overview of the field of EOtC generally and summarised the main effects that have been established in research. I then presented EOtC as an educational approach that offers ways to deal with the first two global challenges particularly viewed within the SDT framework and have argued that EOtC may also be used to address issues arising from the migration crisis, by fostering inclusion in increasingly diverse classes. In this regard, I have briefly introduced concepts and theories of inclusion, especially CRT. Based on this, I outlined the rationale for study 1, the ethnographic case study in Germany.

I then shifted the focus to EOtC in the Nordic countries and presented the objective for study 2, the national survey on the prevalence, provision, and nature of uteskole in Norway. Although EOtC/uteskole has a

long tradition in Norway, there is a lack of recent and reliable knowledge about its use.

In chapter 2, I present the theories that form the basis of my ontological and epistemological approaches for the thesis, followed by an introduction to Ecological Psychology (EP) as my overarching theoretical framework.

Chapter 3 describes both the meta-methodological considerations concerning the research design, as well as the ethical considerations and the individual methodologies used in the studies.

Chapters 4 and 5 provide the findings and discussions of the three scientific articles of this thesis and how they relate to each other. I decided to present those in detail within this synopsis so that the reader does not need to continually switch between the synopsis and the articles. This means that some sections are taken almost verbatim from the articles and are only slightly changed for better readability. Chapter 5 concludes with implications for pedagogical practice, prevalence, and potential of EOtC.

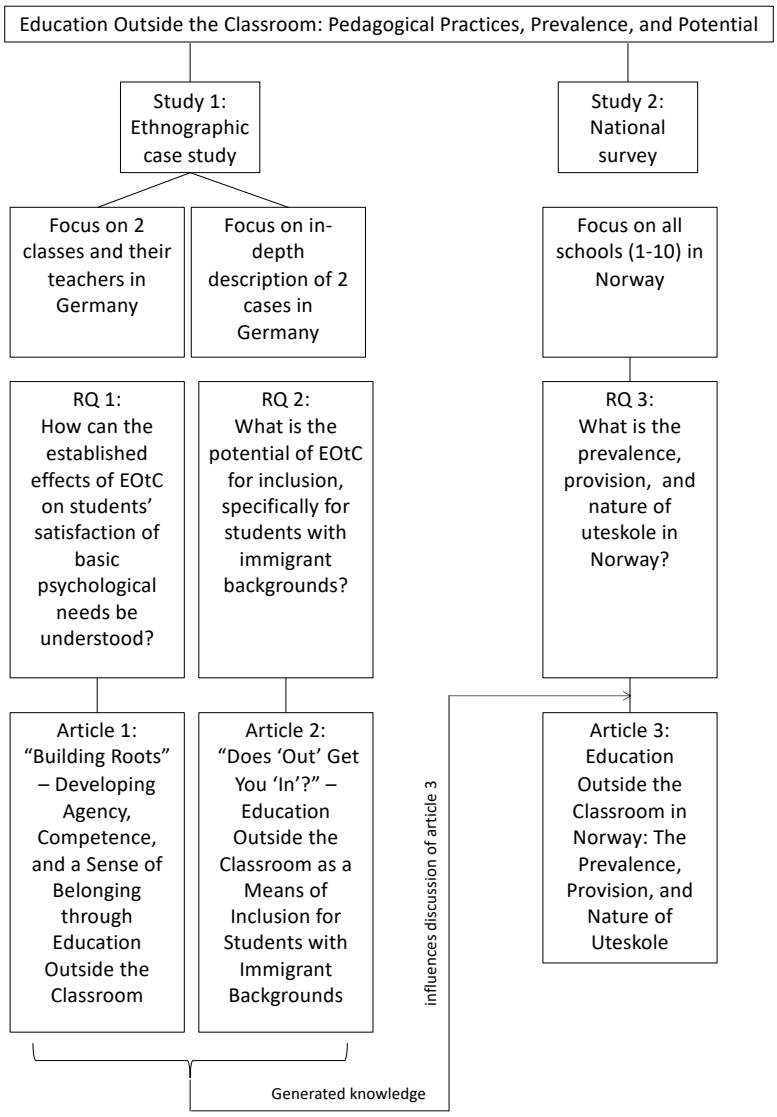

Figure 1: Visual representation of the underlying studies in this dissertation.

2 Meta-theoretical considerations

2.1 The ontological and epistemological stances: Historical Ontology and Dynamic Nominalism

Defining one's ontological stance poses a challenging task, as ontology, in the philosophical realm, delves into the fundamental question of "what is real." According to Heft (2021, p. 237), ontology concerns the intrinsic qualities that distinguish something as an entity. This involves a blend of personal beliefs and intuitions, which, in the context of academic research, must align with scientific practices, especially within a dissertation project.

Personally, I assert the reality of my existence, the tangible world surrounding me, the undeniable existence of the climate crisis, wars with real consequences for humans and more-than-humans, and the authenticity of the research field I have ventured into. This realist perspective extends to viewing the data I collect as genuine representations of the researched reality. However, acknowledging realism does not mark the end of the story and would be rather naïve without further reflection on the context. I also believe that my perceptions of 'reality' and the way I talk and write about them are shaped by a dynamic process that is influenced by social conventions and structures. And this naming of 'reality' might again alter what is considered to be real.

When I tried to solve those somehow contradictory intuitions, I found the work of the Canadian philosopher Ian Hacking very helpful. In his essay "The Social Construction of 'What'?", Hacking (1999) examines how societal influences contribute to shaping our understanding of reality and investigates social constructionism and its diverse applications across various fields of knowledge and aspects of reality. Hacking argues that social constructionism is not a uniform or one-size-fits-all framework. Rather, it encompasses a range of approaches that depend on the specific subject under examination, which Hacking denotes as "X" and

defines as follows "(0) In the present state of affairs, X is taken for granted; X appears to be inevitable" (p. 12). Hacking further argues that the researcher questioning X can take six nuanced forms of commitment within constructionism. The least demanding form is (1) *historical constructionism*, positing that X results from contingent historical events, without passing judgment on its inherent goodness or badness. Moving to the next level, (2) *ironic constructionism* adopts an attitude of irony towards X, recognizing its contingency but acknowledging its present existence as an integral part of our conceptual framework. Following this is (3) *reformist constructionism*, which acknowledges X as undesirable and seeks modifications within the existing paradigm. *Unmasking constructionism* (4) takes a critical turn, aiming to expose the extra-theoretical functions of X, undermining its appeal or authority. *Rebellious constructionism* (5) actively maintains that X is not inevitable, deems it bad, and strives for its elimination. The highest commitment is required by *revolutionary constructionism* (6), where activists go beyond mere ideas and actively seek to change the world concerning X (Hacking, 1999, pp. 19-21).

This progression reflects an evolving consciousness about a concept, such as, for example gender, the economy or inclusion. For instance, in understanding the economy, an ironic or unmasking social constructionist may reflect upon how the idea became entrenched and the ideologies underpinning it. Transitioning from irony to rebellion or even revolution might become necessary, particularly as activists face the challenges posed by the hegemony of the world system. Hacking emphasizes that the levels of commitment within constructionism offer a spectrum of engagement, from a historical perspective to active revolutionary endeavors, reflecting an individual or collective evolution in understanding and challenging prevailing concepts.

Hacking highlights that social constructionism is not merely an abstract philosophical exercise; it has tangible consequences. The categories and

concepts we construct or acknowledge through social processes can profoundly impact how we perceive and interact with the world. They can shape our identities, influence public policy and guide scientific research. For example, when applying concepts like 'inclusion' or 'agency' to identify phenomena in ethnographic observations, situations are reconstructed as such, and my interpretations are very much shaped by those concepts. In this thesis, I adopted a predominantly historical constructivist stance, while acknowledging reformist ambitions when it comes to analyzing and evaluating educational practices to include immigrant students in class communities.

Therefore, understanding the nuances of social constructionism is crucial for comprehending how societies construct and interpret reality. This is what Hacking later described as "historical ontology" (Hacking, 2002). While originally rooted in Michel Foucault's work, Hacking has embraced this concept to define a philosophical approach that engages with history to address philosophical issues. This is grounded in the belief that history has a transformative impact on all aspects it "touches" (Sugarman, 2009). Historical ontology operates on the premise that every existing entity undergoes a unique historical process in coming into existence. Historical ontology, concerned with the being of things, rejects the dichotomy between the real and the historical, asserting that things can be both ontologically emergent and historically contingent (Hacking, 2002). Hacking's approach involves a conceptual analysis that considers concepts and classifications as dynamic, evolving over time due to social, cultural and historical factors. Unlike traditional ontology, which assumes fixed and timeless categories, historical ontology recognizes the mutability of concepts. Hacking emphasizes that ontological investigation requires tracing the historical emergence and evolution of concepts, thereby challenging the notion of fixed and universal categories.

To operationalize this historized notion of ontology, Hacking introduces the concept of "dynamic nominalism" (Hacking, 2002). Classically,

nominalism asserts that particulars have real existence, while concepts, universals and classifications exist only in human minds or language. This philosophical stance originated with Epicurus (341-271 BC), gained prominence in the 14th century with Ockham and was later adopted by thinkers like Hobbes, Locke, Hume, Mill, Russell and Austin (Sugarman, 2009). This strict nominalism, however, is challenged by Hacking who identifies two problematic issues: the static nature of strict nominalism and its inadequacy in the social sciences. Unlike in the natural sciences, social and psychological phenomena involve dynamic reciprocal interactions between language and individuals and have an impact on both behavior and language. The act of naming or labeling is not a passive reflection of pre-existing categories. The way we name and classify things influences how we perceive and understand them and is not a one-way street where language simply reflects an external reality. Language and the entities it describes engage in an interactive relationship and this "looping effect" is crucial in understanding how social and psychological phenomena unfold.

Sugarman (2009) discusses the application of historical ontology and dynamic nominalism to psychological description, highlighting the unique human capacity for self-interpretation and self-determination in psychological terms. He advocates for an understanding of ontology that integrates historical and contextual considerations. Such an approach to ontology emphasizes that our understanding of the world is deeply embedded in historical and cultural contexts. Our categories and concepts have histories, and these histories matter because they shape our present understanding of reality.

2.2 Overarching theoretical frame: Ecological Psychology

In the following, I will present the overarching theoretical frame of my thesis, Ecological Psychology, and will discuss how it connects to the historical and cultural context of my project.

Ecological Psychology (EP) is grounded in the pioneering work of James J. Gibson (1979) who positioned his theory in relation to the legacy of William James (1976/1912). The latter had presented an alternative to dualism through his philosophy of radical empiricism. This viewpoint posited that the world is composed of primal material, manifesting to organisms as an unbroken flow of experience that they can directly perceive. In a similar vein, Gibson (1979) shared the notion that organisms have direct access to knowledge about the world. He asserted that each species has evolved alongside its habitat, developing perceptual systems finely tuned to identify resources crucial for health and survival. In contrast to the prevailing psychological theories of perception of his time, Gibson challenged the exclusive focus on internal mental processes and behaviorism's sole reliance on observable actions. Instead, Gibson argued for the importance of studying perception in real-world environments, emphasizing direct perception of information from the environment rather than relying on internal mental representations. This approach aligns with behaviorism in so far as it emphasizes observable behaviors, but transcends it by recognizing the active role of the perceiver in extracting information from the environment (Heft, 2016).

Gibson's work also finds resonance with Gestalt psychology and phenomenology. Gestalt psychology emphasizes the holistic nature of perception, considering the organization of stimuli as a whole rather than isolated parts. Gibson's ecological approach aligns with this holistic perspective by emphasizing the integration of environmental stimuli for perception. Furthermore, his incorporation of phenomenological principles, uniting the subjective experience of perception "and extreme objectivism in its notion of the world" (Merleau-Ponty, 1962, p. xix), is evident in his focus on the individual's direct engagement with the environment. Gibson's work, thus, serves as a bridge between the more holistic and experiential principles of Gestalt psychology and phenomenology and the empirically grounded ecological perspective of behaviorism he pioneered (Heft, 2016, pp. 116-123).

In EP, the meaningful action possibilities of environmental features are called "affordances". While affordances are inherent properties of the environment, their existence is contingent upon the abilities and intentions of an organism. This relational aspect of affordances suggests that objects and events possess inherent meaning and value that individuals perceive and comprehend in relation to their activities and objectives (Chawla, 2021; Gibson, 1979).

Today, EP is also explicitly adopted by researchers in the tradition of Merleau-Ponty (Withagen, 2022). Arguing from a phenomenological stance, Withagen has suggested that the concept of affordances needs to be complemented by the concept of "invitations". While affordances capture the ecological facts of a situation and determine the appropriateness of displayed behavior, invitations explain the behavior and capture "what the world does to the agent, what affective behavior it solicits, in whatever way" (Withagen, 2023, p. 103). Furthermore, the concept of "transaction" is significant, as it highlights "people's relations with physical artefacts, plants, animals, other humans, and features of the landscape" (Lerstrup et al., 2021, p. 58). This transactional perspective underscores the idea that cognition and behavior emerge from this embedded relationship, emphasizing the inseparable connection between an individual and their ecological context (Pyysiäinen, 2021). Within this transactional process, agents can relate to places and people and develop a sense of belonging.

When, for example, children actively engage with nature, they not only discover what they can do but also gain insights into the workings of nature itself. The diverse affordances and invitations present in nature allow them to find a suitable level of challenge. For instance, as Louise Chawla exemplifies, when a 10-year-old and a 4-year-old explore the woods together, both are likely to discover a tree to climb. However, the 10-year-old might climb to the upper branches, while the 4-year-old settles on a lower bough. In this shared experience, both children learn about the tree's characteristics—such as the texture of its bark, the shape

of its leaves, the fragrance of its sap, and the flexibility and strength of its branches. Additionally, they gain an understanding of their own capabilities in engaging with the environment. Activities like this, which provide opportunities for spontaneous action, foster autonomy, agency, a sense of competence, and a connection with nature (Chawla, 2021).

This framework is especially suitable for guiding the ethnographic fieldwork in study 1, where I examine how the established effects of EOtC on students' satisfaction of basic psychological needs can be understood and what potential for inclusion EOtC has, especially for students with immigrant backgrounds.

2.3 From ontology to perception: Connecting Ecological Psychology with Dynamic Nominalism

For the theoretical coherence of this thesis, it is essential to show how the ontological stance and the overarching theory, i.e., Historical Ontology/Dynamic Nominalism and EP, can complement each other. As I will show in the following, they particularly overlap in their views on perception, the role of language, the relationship between human agency and the interaction with the environment, as well as perceptual learning and development.

Perception and affordances: Gibson's ecological psychology emphasizes the concept of "affordances," which are the potential actions that the environment offers to an organism. These affordances are inherently relational and dependent on the organism's capabilities and needs. Hacking's Dynamic Nominalism, in a sense, aligns with this idea by emphasizing how categories and classifications dynamically interact with the phenomena they describe. In both cases, there is an acknowledgment of the active role of the perceiver or categorizer in shaping their perception and understanding of the world.

The role of language: Hacking's Dynamic Nominalism focuses on how language and classification systems influence our perception and understanding of reality ("looping"). Similarly, Gibson was critical of traditional psychological approaches that overly relied on linguistic and mentalistic explanations of perception. He argued for a more direct, non-representational account of perception that is grounded in the affordances of the environment. Both theories challenge the notion that language or internal mental representations are the primary drivers of perception.

Human agency and interaction with the environment: Both Dynamic Nominalism and Ecological Psychology underscore the active role of individuals in shaping their understanding of the world. In Dynamic Nominalism, individuals and institutions actively create and redefine categories, while in EP, individuals actively engage with and adapt to their environment based on affordances. Both perspectives emphasize the dynamic interplay between the individual and their surroundings.

Perceptual learning and development: Gibson's theory emphasizes how individuals learn to perceive and interact with their environment through direct experience. This notion of learning through ecological exploration aligns with Hacking's ideas about how categories can change and evolve through social practices and interactions. In both cases, there is a recognition of the dynamic and adaptive nature of perception and categorization.

While these connections exist, it is important to note that Hacking's work is primarily concerned with language, classification, and the social construction of categories, while Gibson's Ecological Psychology is more focused on perceptual processes and direct perception of the environment. Nonetheless, the two theories offer complementary insights into how humans engage with and make sense of the world around them, emphasizing dynamic and relational aspects of perception and cognition and are therefore suitable theories to frame this thesis.

2.4 Situating the specific theories and concepts for data collection and interpretation within the meta-theoretical frame

Having shown how EP can be understood in terms of Historical Ontology and Dynamic Nominalism, it is now important to situate the specific theories and concepts for data collection and interpretation, i.e., 1) Self-Determination Theory, 2) theories and concepts of inclusion, as well as 3) Culturally and place-responsive teaching, within the overarching theoretical framework.

The goal of EP is to explore the relationship between qualities of everyday environments and psychological well-being (Heft, 2021). According to Chawla, time spent in nature is vital for children since a transactional relationship with nature is understood as "an essential dimension of a fully realized human life" (Chawla, 2021, p. 155) and enables them to develop competence and agency. As such, children's development is promoted by embodied engagement with environmental affordances, as shown by Eleanor Gibson's research on infants within EP (Gibson, 1969). Those environmental affordances are site specific. Flat, relatively smooth surfaces, for example, afford for "walking, running, cycling, skating, or skateboarding," while relatively smooth slopes afford for "coasting down, rolling, sliding, or rolling objects down" (Heft, 2010, p. 21). With growing motor skills, children then discover new opportunities for movement and thus new affordances (Sääkslahti & Niemistö, 2021) and build the "capacity to understand and shape their everyday environment" (Chawla & Heft, 2002, p. 205).

Another aspect of EP is the importance of children's participation in communities, which promotes opportunities for the students "to exercise control over value spheres of life" (Chawla & Heft, 2002, p. 201) and to build closer connections to their immediate surroundings. This relates EP to Place-Based Education (PBE) as both approaches emphasize the

use of the local community and environment as a starting point for learning (Chawla & Derr, 2012). This links EP via PBE to the theories and concepts of inclusion, which I use in study 1, article 2. As mentioned earlier, I draw on three important aspects of inclusion: (1) participation (Fandrem et al., 2021; Loreman, 2007; Skeie et al., 2022b), (2) shared collaborative activities (Wenger, 1998), and (3) the concept of belonging (Osterman, 2000), which can be realized in a PBE approach to EOtC. Establishing a relationship to local places and people "helps students [to] develop stronger ties to their community, enhances students' appreciation for the natural world, and creates a heightened commitment to serving as active contributing citizens" (Sobel, 2013, p. 11). Such experiential, situated learning "provides a comprehensive theorization of learning as participation situated in the context of community practice" (Quay, 2003).

The relationship with nature and other people further explains how these experiences affect the students' general well-being (Chawla, 2021), which links EP and SDT with EOtC. Since the proportion of the world's population living in urban areas is growing annually, people are affected by reduced contact with nature. There is an abundance of literature that associates this with negative effects on human well-being and functioning (Jimenez et al., 2021). Recently, Ryan and Deci (2017, pp. 263-266) suggested that time spent in nature may make an important contribution because it promotes intrinsic motivation; catalyzes a sense of vitality and well-being; and encourages positive social relations, prosocial tendencies and community cohesion (Barrable et al., 2021; Baxter & Pelletier, 2019). Hereby, SDT refers to the capabilities approach to development as advocated by Sen (1999) and Nussbaum (2011) since both SDT and the capabilities approaches refer back to Aristotle's eudemonic view of happiness and emphasize the importance of autonomy, or free choice in action, as a basis for a flourishing human life (Chawla, 2022).

Empirically, it has been shown that SDT's basic psychological needs partially mediate the relationship between capabilities and indicators of

wellness (DeHaan et al., 2015), by "facilitating need satisfaction – that is, experiences of autonomy, competence, and relatedness – and by preventing the frustration of these needs" (Ryan & Deci, 2017, p. 614). This alignment of SDT with the capabilities approach again links SDT with EP, which becomes apparent in the role that the concepts of competence and relatedness have in each theory.

Nevertheless, while SDT so far only describes the benefits of nature *for* humans, Nussbaum underlines the reciprocal relationship between humans, more-than-humans and their shared world. Only through such a healthy and harmonious relationship can humans and other species flourish, which is a prerequisite for the persistence of life on this planet (Nussbaum, 2011, pp. 163-164).

In my opinion, the theories used in this thesis build a cohesive system and complement each other. In study 1, I adopted a predominantly historical constructivist stance, while applying SDT, culturally and place-responsive teaching, and theories and concepts of inclusion within the terms of EP. Only when it comes to analyzing and evaluating educational practices to include immigrant students in class communities, do I tend towards a reformist commitment to the existing practices.

Study 2 does not explicitly apply any specific operational theory as it is mainly descriptive rather than analytic. However, Hacking's classification of levels of commitment in constructionism play an important role in the discussion, where I use findings from study 1 and the applied theories and concepts of inclusion and culturally and place-responsive teaching to interpret the findings from study 2.

Table 1 depicts the structure of the theories applied in this thesis and how they are used in the respective articles.

<table>
<tr><td>Ontological and epistemological stances</td><td colspan="3">Historical Ontology, Dynamic Nominalism
[1-3]</td></tr>
<tr><td>Overarching theoretical frame</td><td colspan="2">Ecological Psychology
[4-6]</td><td></td></tr>
<tr><td rowspan="2">Specific theories for data collection and interpretation</td><td rowspan="2">Self-Determination Theory
[7]</td><td colspan="2">Theories and concepts of inclusion
[8-10]</td></tr>
<tr><td colspan="2">Culturally and Place-Responsive Teaching
[11-15]</td></tr>
<tr><td>Articles</td><td>Article 1:

“Building Roots” – Developing Agency, Competence, and a Sense of Belonging in Education Outside the Classroom</td><td>Article 2:

Does “Out” Get You “In”? Education Outside the Classroom as a Means of Inclusion for Students with Immigrant Backgrounds</td><td>Article 3:

Education Outside the Classroom in Norway: The Prevalence, Provision, and Nature of Uteskole</td></tr>
<tr><td>[1-3]</td><td colspan="3">Hacking (1999), Hacking (2002), Sugarman (2009)</td></tr>
<tr><td>[4-6]</td><td colspan="3">Heft (2016), Chawla (2021), Withagen (2023)</td></tr>
<tr><td>[7]</td><td colspan="3">Ryan and Deci (2017)</td></tr>
<tr><td>[8-10]</td><td colspan="3">Furman (1998), Wenger (1998), Osterman (2000)</td></tr>
<tr><td>[11-15]</td><td colspan="3">Sobel (2004), Gay (2010), Ladson-Billings (2014), Mannion and Lynch (2015), Derr et al. (2018)</td></tr>
</table>

Table 1: Visual representation of the theories used in this thesis and how they are interrelated.

3 Methodology

3.1 Meta-methodological considerations

3.1.1 Overall research design

This dissertation project consists of two studies each of which applies multiple methods from both the qualitative and quantitative research paradigms to explore the pedagogical practices and potential of EOtC. The goal of such a multiple methods design is to gather a more comprehensive and holistic understanding of the research question or problem.

Mixed methods research, on the other hand, is a specific research design that involves the integration or combination of both qualitative and quantitative research methods within a single study. This approach aims to leverage the strengths of both qualitative and quantitative approaches to provide a more complete and nuanced understanding of the research problem. Creswell and Plano Clark (2011, p. 6) propose that in a mixed methods design the researcher collects and analyzes both qualitative and quantitative data rigorously in response to research questions and hypotheses; integrates (or mixes or combines) the two forms of data and their results; organizes these procedures into a specific research design that provides the logic for conducting the study; and frames these within theory and philosophy.

Study 1, the ethnographic case study, consists of two articles. Hereby, article 1, “Building Roots”, builds solely on qualitative data. In article 2, “Does ‘Out’ Get You ‘In’?”, also quantitative data from both students and teachers were integrated. Those, however, were given less weight. According to the nomenclature introduced by Johnson and Onwuegbuzie (2004, p. 22), the design for article 1 would be expressed as “QUAL”. Article 2 would be expressed as “QUAL+quan”, where the capital letters for “QUAL” signify the dominant paradigm as opposed to the lower case “quan”, and where the “+” stands for “concurrent”, meaning that both

collection modes were conducted parallel within the same time frame. This means that article 2 can be regarded as applying a mixed-methods design.

Study 2, the national survey, resulted in article 3, "Education Outside the Classroom in Norway: The Prevalence, Provision, and Nature of Uteskole", and builds on predominantly quantitative data (QUAN), but the survey tool included also open-ended questions. In this article, those are used to provide additional information that had not been captured by the quantitative data collection. Therefore, they are considered concurrent but less dominant, which means that the design for this study can be expressed as QUAN + qual'. However, the qualitative information is not integrated, and I would therefore consider this to be a multiple rather than a mixed methods design.

Figure 2 illustrates the overall research design of this dissertation project with its modes of data collection and analysis. As has already been described in the prologue, the post-hoc data analysis of study 1 overlapped with the development of study 2, thus only preliminary findings of study 1 were available to guide study 2. Moreover, study 2 was not conceptualized as a sequel to study 1 but rather as a stand-alone project. Thus, the relation between studies 1 and 2 must also be considered as 'concurrent.'

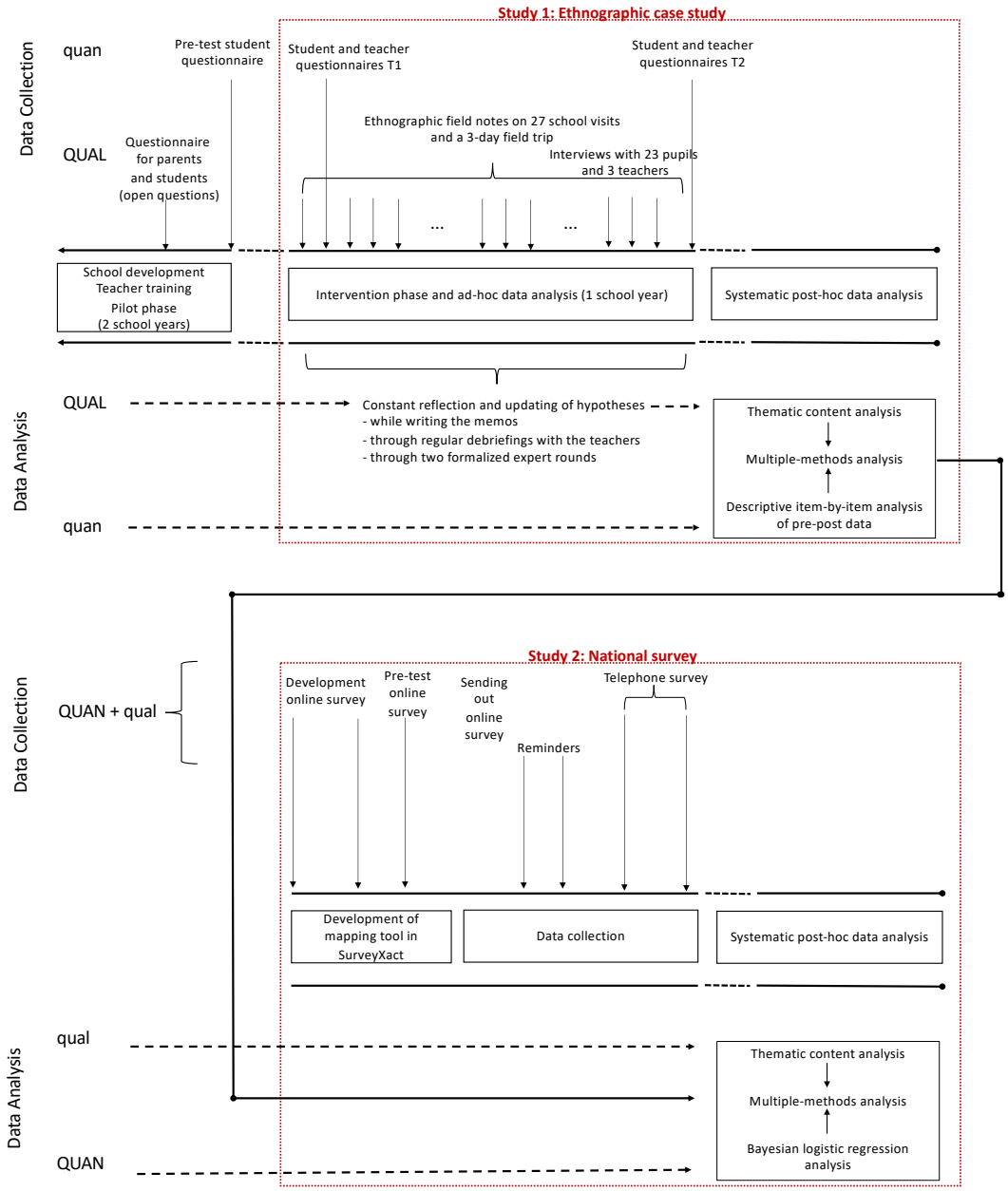

Figure 2: The research design for the dissertation project.

3.1.2 The commensurability of qualitative and quantitative research paradigms

3.1.2.1 Combining qualitative and quantitative research

Viewed from opposite ends of the qualitative and quantitative research spectrums, the two approaches may seem contradictory, with their respective purists considering their own paradigms as the ideal for research. They often assert the incompatibility thesis, arguing that qualitative and quantitative research paradigms and methods should not be mixed (cf. Johnson & Onwuegbuzie, 2004).

Qualitative purists notoriously advocate for the primacy of constructivism, idealism, relativism, humanism, hermeneutics, and at times, postmodernism (cf. Guba & Lincoln, 1989). They argue that multiple constructed realities exist, that universal generalizations not bound by time or context are neither attractive nor achievable. They emphasize that research is inherently value-laden, and it is impossible to completely disentangle cause and effect. Their approach to logic is from the specific to the general, generating explanations inductively from the data. They maintain that the knower and the known cannot be separated since the subjective knower is the sole source of reality (Guba, 1990). Qualitative purists also stand out for their aversion to a detached and passive writing style. Instead, they prefer a narrative that is detailed, rich and vivid, characterized by direct and somewhat informal expression.

Quantitative purists on the other hand argue for objectivity in social science research. They believe that creating generalizations that are independent of time and context is both desirable and achievable, and that it is feasible to reliably and accurately identify the true causes of social scientific outcomes (cf. Nagel, 1986). Under this paradigm, educational researchers should for example strive to remove personal biases, maintain emotional detachment and impartiality in their interactions with the

subjects of their studies, and rigorously test and empirically substantiate their hypotheses.

In the following, I will discuss those two perspectives in the light of my own approaches to my specific research problems, beginning with a brief introduction to ethnography.

3.1.2.2 Ethnography and the question of objectivity

Ethnological culture-analysis

As a subject area, ethnography developed from the disciplines of ethnology and sociology in the early 20th century. The term itself consists of two parts: the noun "*tò éthnos*" which in ancient Greek means a group of people connected either by their language/culture/origin or by their social position, and the verb "*gráphein*" which basically means drawing, sketching, and writing (Pape et al., 1905, „ἔθνος"). Thus, the word "ethnography" denotes the practice of writing or sketching about a culture or a part of it. What all traditions of ethnography have in common is the element of *discovery* and the use of distancing effects to transform unfamiliar into familiar things and vice versa (Breidenstein et al., 2015, p. 13). Ethnography is characterized by (1) its subject matter, i.e., social practices, (2) a prolonged stay in the research field applying participatory observation, using a plurality/combination of methods, and (3) documentation.

The 19th century can be seen as a starting point for a growing globalization which led to increasing encounters between the Western world and remote cultures and their different languages, customs and practices. The relations between the newly formed colonies and the colonial powers led to new conflicts which underpinned the basic motivation of the foundation of ethnological field research.

Knowledge about those 'foreign' cultures was either collected via participation on expeditions into the unknown or - more commonly - by sitting at home at one's writing desk and interpreting information gathered

by informants (e.g., missionaries, merchants or travellers). And even when the ethnographers actually ventured into those distant reaches themselves, they often remained safely on the porches of trading posts or missionary stations where they received reports from informants and thus wrote down 'second-hand experiences' without actually coming into real contact with the indigenous people they were trying to 'understand'. It was not until the turn of the 20th century when American and British anthropologists began "making careful inquiries in situ" (Barth, 2005, p. 11) even though those encounters were still mostly quite cursory.

It becomes rather clear that questions of objectivity turn out to be quite complicated in this line of ethnographic tradition: the (male, white, European) researcher at home (usually holding a quite determined worldview of the supremacy of the white race at that time) who receives only second- or even third-hand information from informants who themselves carry their own values, worldviews and aims with them (e.g., missionaries who want to convert 'pagans'), who has no means (and probably also no intention) of verifying his conclusions in any way. Then came the (again mostly male, white, Caucasian) researcher who did live for a prolonged period within a foreign culture and was trying to make sense of what he observed. However, the problems of transcultural understanding nevertheless persist also in this case, as he cannot but arrive with certain preconceived ideas (and may even need to have certain preconceptions to be able to make any sense at all). In addition, there is also no denying the fact that he exerts the power to speak *for* and not simply *of* those people, while ascribing cultural characterizations and trying to define concepts that can be understood by his Western audience.

By the 1920s, Chicago and other large American cities had turned into centres where many different cultural groups encountered each other and thus made it possible to study 'the foreign' right at home, using the technique of 'direct observation', similar to the style of the newly established 'news' reporter.

Again, also for this line of ethnographic tradition, the claim of objectivity is rather complicated. Although the researchers of the Chicago School do get into close contact with the object of their research, they cannot help but enter their field with certain pre-conceived ideas. And those ideas and their cultural imprint *will* affect the way they collect and interpret the data. Moreover, the field itself is highly complex and explanations will always only be able to cover certain aspects of the investigated constructs. Other people doing the same research would probably observe different things and would come to different conclusions.

Hence, there is from the very beginning an obvious tension within the ethnographic approach. On the one hand is an ethnographic naturalism based on the idea that social reality should be investigated in its natural state to get any appropriate and authentic data. Accordingly, the research field should not be manipulated, isolated or constructed to gain scientific knowledge - as for example with experiments or surveys. The ethnographer *must* in a way presume that her field is a self-organizing unity that exists 'naturally' apart from her being there, as people would play a soccer game or participate in an EOtC session, with or without the presence of the ethnographer.

But on the other hand, the researcher must also be aware of the fact that their own scientific knowledge is constructed and that their personal values influence the techniques of observation, analysis and presentation that are applied to the project. This tension cannot be fully resolved and is probably best met with a pragmatic approach regarding the specific focus of each study's interest and aim.

Today, the focus of ethnography is more often a situation of everyday interaction. When the ethnographer applies the methodological view of a distant observer and acts *as if* those customs and proceedings were foreign, this offers the possibility for new "discoveries". Alfred Schütz, the founder of this ethnographic tradition, was interested in the common knowledge of a society, the procedures and ways of thinking that are so ingrained in us and our everyday life that we use them automatically. We

rely on this kind of knowledge without questioning it. Only in moments of crisis, for example when we enter a foreign country as a migrant, do the norms and traditions of its society appear at first unfamiliar to us and thus we perceive them as strange phenomena. Another way to expose those hidden mechanisms is to make use of the perspective of the 'foreigner in their own culture'. The ethnographer can thus benefit from the knowledge of these outsiders – for example in disability studies or research about transgender people - who possess an increased awareness about the prevailing norms in their society where they do not fit in immediately (Garfinkel, 1967). Nevertheless, sociologists (and also ethnographers) always start from the perspective of being *within* a society and are never able to leave its inner boundaries completely behind (Schutz & Luckmann, 1973).

If we accept the underlying assumptions of the sociology of everyday life, the question of objectivity becomes even more complicated. For one, we are dealing with hidden driving forces within our societies, forces we are often not even aware of but nevertheless have a great influence over the way we interact and construct our daily lives. Moreover, societies are themselves becoming more and more complex and we all seem to adapt by embodying more and more different personas or wearing different masks (Goffman, 2002 (1959)). The ethnographer is fully entangled in this complex network, being for example a woman, German, an ex-patriate, a mother, a colleague, a climate justice supporter, etc., while at the same time working as a researcher aiming to finish her PhD-degree. All those roles carry their own distinct values within them and will impact the way the ethnographer conducts her research project. The ethnographic approach with its distancing techniques nevertheless offers new ways to observe one's supposed familiar 'umwelt'. It can help to raise an awareness of the underlying conventions that guide many aspects of our daily lives and the way we do research, thus assisting the ethnographer in maybe losing a certain naivety and therefore strengthening the quality of the findings.

3.1.2.3 The subjective elements in quantitative research

The replicability crisis in psychology

This same specific situatedness of the researcher applies to quantitative approaches. However, to acknowledge the subjective elements in this type of research is a rather new phenomenon in the scientific discourse but has gained momentum in the so-called 'replicability crisis' in social psychology (Clayton, 2021).

The replicability crisis refers to the growing realization among quantitative researchers that many previously published studies cannot be reliably reproduced when other researchers attempt to replicate their methods and findings. This crisis has led to a profound reassessment of research practices, methodologies, and the robustness of social psychological research (Earp & Trafimow, 2015). It is driven by questionable research practices, publication bias, small sample sizes, inadequate transparency and underpowered studies (Maxwell et al., 2015). More recently, a campaign signed by more than 800 leading scientists was launched in the prominent scientific journal *Nature* (Amrhein et al., 2019) to acknowledge malpractice in quantitative data analytical approaches.

A parallel discussion has been led by the Royal Statistical Society, where the contribution by Andrew Gelman and Christian Hennig, titled "Beyond Subjective and Objective in Statistics," has been deliberated upon by more than 50 prominent statisticians (Gelman & Hennig, 2017). Gelman and Hennig propose the abandonment of the relatively ambiguous terms 'objectivity' and 'subjectivity' in favour of: "transparency, consensus, impartiality and correspondence to observable reality" for the former, and "awareness of multiple perspectives and context dependence" for the latter. Alongside the concept of 'stability', these principles collectively constitute a set of virtues that they believe are valuable in discussions concerning the foundations and practice of statistics (p. 967).

In a reply to Gelman and Hennig, Dettweiler (2019) argues that this shift of focus from ontological and epistemological considerations within the

quantitative research paradigm to scientific conduct is falling short. Drawing on an argument put forward by Putnam (1981) he claims that no scientific method can be "purely formal, distinct and free from value judgements" (p. 2). There are many subjective decisions the quantitative researcher also needs to make and scientific practices are deeply rooted in their respective historical ontologies and value systems (cf. chapter 2.1 and Hacking, 1999). Thus, the quantitative researcher also needs to define their ontological and epistemological stances as well as their respective subjective prior beliefs in the estimation of each single parameter in a given statistical model.

Sampling and the question of the possibility of representation

In the context of my dissertation project, a critical consideration arises regarding the quantitative elements and their implications. Specifically, the way students' opinions are captured in the questionnaire is of paramount importance. I safeguarded valid data collection by providing individual assistance in filling out the survey, a practice that however introduces a potential bias into the data. This is taken into consideration in each case when interpreting the results.

To comprehensively assess the validity of the collected data, it is crucial to contrast students' perspectives with those of the teachers. However, due to the absence of other validity tests such as Confirmatory Factor Analysis (CFA) or Item Response Theory (IRT), the data is treated as 'qualitative,' raising questions about the robustness of the findings. Only in the contextualisation with the qualitative ethnographic data do those quantitative data become meaningful.

An additional layer of inquiry relates to the validity of the school representative's responses. Given that only one person per school provides information, concerns arise about the objectivity and level of information held by these individuals. To mitigate this, a telephone survey was conducted to contrast the online data with data from a random sample, although it is acknowledged that the effectiveness depends on the degree of knowledge possessed by the person on the other end of the line.

Evaluating the reliability of these replies becomes a key concern, prompting a closer examination of how representative they truly are. This touches on the broader question of how a probability calculus can address the challenge of incomplete induction and what constitutes representativeness in this context. It is acknowledged that the concept of probability is complex and subject to historical contingencies, as argued by Clayton (2021) and Hacking (2006). Therefore, it becomes imperative to rely on the current state-of-the-art methodologies to navigate these complexities. I determined the required sample size for a representative sample for the telephone survey carefully by considering the level of precision, the variability in the population, the confidence level, and the specific statistical method being used to determine the proportion of schools providing uteskole.

To that end, I applied, together with my co-authors, a novel approach using a Bayesian statistical framework. In Bayesian analysis, however, the researcher's prior expectation of the probability of each parameter in the model needs to be quantified in terms of probability distributions. This is a subjective but intrinsic element in probability theory that is neglected in classical statistics when dealing with uncertainty. Recognizing the subjective character of this step, we used weakly informed priors and conducted a sensitivity analysis to gauge the robustness of the conclusions drawn from the data. The computer code is made openly accessible for scrutiny at the Open Science Framework (OSF) repository at https://osf.io/r4c2m/.

In summary, this dissertation project grapples with various methodological challenges, ranging from the representation of students' opinions in the questionnaire to the validity of the data collected. The integration of quantitative elements necessitates a meticulous approach, involving sophisticated statistical methods and a constant awareness of potential biases and limitations in the data collection process. Thus, I tried to be as objective as possible by applying "transparency, consensus, impartiality,

and correspondence to observable reality", while at the same time acknowledging "multiple perspectives and context dependence" (Gelman & Hennig, 2017).

3.1.2.4 Beyond subjectivity and objectivity in research

I have tried to show that despite the many paradigmatic differences between qualitative and quantitative research, there are overlooked similarities. Both employ empirical observation to address research questions and construct explanatory arguments from their data. Furthermore, researchers from both camps incorporate safeguards to reduce confirmation bias and other sources of invalidity in their studies.

As a (mainly) qualitative researcher, I have been trained to understand human life based on observations of people's interactions. I am aware of myself as a central actor in the research project, and that who I am and what I believe will always have an impact on that research (Berger, 2013). Because I have gained practical experience with EOtC, having worked with students, as well as with in- and pre-service teachers for several years, and I am convinced that EOtC can contribute to finding solutions to many of the problems schools face today, I entered my research field with a biased mindset and had pre-formed ideas about what a 'good' EOtC session should encompass. On the one hand, this gave me a lot of valuable background information, as I entered the field as an expert on the subject. On the other hand, I needed to keep an open mind for possible aspects that may contradict my initial views during the data collection. I tried to account for this bias by looking repeatedly at my material (Are there always the same students appearing in the field notes? And if so, why? Are there always the same children on the photographs? And if so, why? Do I need to focus on someone/something else the next time?), by talking often with colleagues and the teachers, by showing them parts of my observation protocols and initial interpretations, and by having regular meetings with an external expert group to specifically discuss these issues and possible blind spots on my part.

As I have already shown above, the ethnographic approach must deal with some basic tensions that are inherent within this methodology: participation and distance, being present and wanting to re-present. To understand what it means to be part of a specific group - be it a profession, a (sub-) culture or, in my case, two school classes at a specific elementary school – one needs to be part of this group over a longer period. But the ethnographer is not simply another student or teacher for her time in the research field. She is at the same time someone who collects data about this specific field for a specific audience and a specific purpose.

In the end, it probably comes down to different layers: the 'problem' of subjectivity is simply more obvious in qualitative research and even more so in ethnography where the researcher herself functions as an 'instrument' of the research. In my opinion, objectivity thus becomes more a question of thorough and well thought through scientific work - with a researcher who is well aware of all the subjective value-decisions that play a part before (e.g., in the decisions about the topic and the design of the study), during (e.g., which methods to apply and the consequences this brings with it, or how to treat one's research 'objects', i.e., if and how far to include them as co-creators of the project) and after the project (e.g., how to sum it up, how to present it and with what aims). All those factors influence both quantitative and qualitative studies, though maybe in different degrees. In some cases, they are more implicit and in others they need to be dealt with in an explicit way. Thus, subjectivity is in fact a common ground for researchers in both the qualitative and the quantitative paradigms and commensurability not so much a problem, especially "since the so-called 'quantitative', 'qualitative', and 'MMR' communities are far from being coherent and unified systems of thought" (Ghiara, 2019, p. 13).

In ethnography, subjectivity is unavoidable and might even be the only way to come to any conclusions. So maybe "let's not talk about objectivity" as Ian Hacking put it quite provocatively in one of his articles (Hacking, 2015), because it is simply not what helps us here. The more

important issue is to find useful ways to tackle one's research questions and to come up with a description that is consistent and traceable for the reader, thus treating objectivity not as "a virtue but the absence of various types of vice" (p.22).

3.1.3 Systematic literature search

As a pre-study of my dissertation, I completed, together with some colleagues, a systematic literature review on the effects of regular EOtC on students' learning as well as on their social and health dimensions (Becker et al., 2017). I applied several search strings in international databases to identify the most recent peer-reviewed articles and grey literature in English, Danish, Norwegian, Swedish, and German. First, I searched generally on effects of EOtC on students' health, well-being, academic achievement, learning and social behaviour - which is also part of a future joint publication project and is registered at Prospero (Mall et al., 2022). This was then complemented with a specific search for article 2 focussing on inclusion of students with immigrant backgrounds in the school system. The search strings are given in the appendix.

3.2 The methodologies applied in the two studies

3.2.1 The ethnographic case study

In the ethnographic case study, I was interested in how students' basic psychological needs satisfaction in EOtC can be understood, i.e., how EOtC fostered the development of agency, competence, and a sense of belonging (article 1). In addition, I examined the potential of EOtC for inclusion, specifically for students with immigrant backgrounds (article 2).

The reason for choosing an ethnographic approach was that it was important for me to get in-depth information about EOtC in a real-life setting (Feagin et al., 1991). I did not want to create something 'artificial'

with pre-defined parameters that would not reflect what actually happens in ordinary school life. The goal of the project was not to find *one overall truth* but to explore the practices and potential of this educational approach and gain more knowledge about a *specific* social environment. I followed two school classes for a whole school year whenever they had EOtC (Madden, 2017), while doing participatory observation (Adler & Adler, 1987) and interviews both with teachers and students at the end of the school year, and issuing biannual questionnaires to students and teachers.

3.2.1.1 Sampling and data collection

Preparation of the ethnographic field

Before the ethnographic research project started, I spent two years supporting the school to implement EOtC by giving presentations, conducting workshops with the teachers, and facilitating contact with other teachers experienced in this teaching approach. At the end of the pilot phase, the school evaluated the EOtC practice, including seeking views from students and parents. They received very positive feedback and felt encouraged to continue with this teaching approach. In addition, after consulting with the headmistress, I conducted a pre-test of the student questionnaire on inclusion that I intended to use in my project, to get a better understanding of how children between seven and nine years of age would manage an instrument like that.

The specific research-field: Historical and political background

As a result of the very positive feedback from parents and students on EOtC, the school and the local school authority invited me to do a research project looking into practice and potential of the approach. Since one of the main topics in EOtC research is about students' flourishing and well-being from a Self-Determination Theory perspective (Becker et al., 2017), I wanted to understand how EOtC can support the development of agency, competence, and a sense of belonging among students.

The planning of my research project coincided with a very significant influx of refugees fleeing conflict in the Middle East and elsewhere. As a result, about 110 people, mainly from Syria, Afghanistan, and Ethiopia, arrived in the little village of about 1800 inhabitants where the school is located. Without prior warning and no time to prepare, about 15 children suddenly needed to be included in the school community. This brought with it a range of challenges, including lack of accurate age information and sometimes very diverse social and academic backgrounds. Based on past experiences, the headmistress considered that EOtC might actually help to deal with those challenges. Therefore, we agreed to also explore, whether and how the school could facilitate inclusion through EOtC.

Participants

The elementary school in this investigation was in a rural part of Southern Germany. The school consisted of about 80 students from grades one to four, with one class per grade level. The convenience sample (Trotter, 2012) was defined from the start, as I had been asked by the headmistress to conduct this research project with those two classes (second and third grade) whose teachers wanted to be part of the project. The students from both classes were predominantly from local families of high socio-economic status, including five children with immigrant backgrounds and one child with Down Syndrome who was accompanied by a school assistant.

Because of my prior involvement in establishing an EOtC pilot program, I was acquainted with most of the staff and the school culture and was a familiar figure for the students.

Ethnographic fieldwork

Two important sources of information were the 27 days of participatory observation during the school visits and a three-day field trip to the Alps. While the definition of EOtC used in this project is broad and encompasses more than just natural outdoor environments, an element of nature was present in 26 of the 27 observed EOtC sessions (cf. Table A1 for details). I followed the two school classes and their respective teachers

whenever they left the school building for their EOtC sessions and sometimes also when they had 'normal' schooling inside. The purpose of the latter was to assess whether the students behaved differently in the indoor classroom compared to what I observed in outdoor EOtC sessions. During the participatory observation, I took handwritten fieldnotes that consisted of brief descriptions, abbreviations and symbols, which I later transcribed and expanded into observation memos that captured my initial impressions, key events, conversations, emerging patterns and their exceptions (Breidenstein et al., 2015; Jackson, 1990).

Regular debriefings with teachers

A primary incentive for teacher participation was to provide them with feedback on their EOtC practice. To do so, I held meetings with staff after every EOtC session. During those more informal conversations, teachers shared important background information that served to deepen my understanding of the observations. I took minutes of those meetings and included them into my observation memos (Amankwaa, 2016).

Semi-structured interviews with teachers at the end of the school year

I also conducted three individual semi-structured interviews towards the end of the school year to give each teacher an opportunity to reflect on their EOtC practice. As time for communication during ordinary school days was usually short, those in-depth individual interviews also gave me the opportunity to learn more about the teachers' experiences throughout the school year and their motives for engaging with EOtC. It also helped to fill in some information gaps with no time pressure in a relaxed atmosphere away from school (Seidman, 2013). The interviews lasted between 42 and 52 minutes and, with consent, were digitally recorded with an Olympus WS-853, stored at a safe encrypted disk (offline), and afterwards transcribed verbatim (Bogner & Menz, 2002).

Guided interviews with students at the end of the school year

After observing the students during a full school year, I wanted to give them a chance to share their own reflections about their EOtC experiences. Due to time restrictions imposed by the school schedule I was

unfortunately not able to interview every single child but after consultation with the teachers (Greene & Hogan, 2005) I conducted interviews with 23 individual children, each lasting from eight to ten minutes. I selected the children according to gender, ethnic background and how visible/noticeable they had been during my observations, choosing both those who had been very noticeable and those who had not attracted much of my initial attention. Participation in these interviews was voluntary. By then, I had developed a trusting relationship with the children and had the impression that they felt quite relaxed talking with me, including taking the opportunity to ask me questions in return about my research or myself. Any sensitive data that arose, for example where the children talked about fellow students or other 'third parties', were omitted from publication. After obtaining individual consent from each student and their parents, these interviews were tape recorded and afterwards transcribed verbatim for analysis (Kutrovátz, 2017).

Questionnaires

The "Questionnaire (Fragebogen) for the measurement of degree of integration" (FDI4-6, Venetz, Zurbriggen Venetz et al. (2014)) and the "Social Participation Questionnaire" (SPQ, Schwab and Gebhardt (2016)) were assessed to document students' self-perceived change in relation to social integration over the school year and the teachers' perspectives on the students' degree of integration, respectively. Even if the questionnaires use the term "integration", it can be used to capture "inclusion" (Koster et al., 2009).

For the students' self-assessment, I assisted each child in an individual session with the FDI4-6, discussing each question one by one and the meaning of the respective answer on the 4-point Likert scale, with emoticons symbolizing the degrees of affirmation. The additional information gathered in these sessions was again documented and included in the qualitative information. The FDI4-6 scale consists of three subscales, i.e., social, emotional, and learning motivational integration, each with four items (see Table S1 in the Supplementary Materials for a graphical

display). The scale has fair internal consistency in our sample, with Cronbach alpha = 0.78 for T1 and 0.86 for T2.

For external assessment, two teachers independently completed an SPQ for each child. One was the class teacher, who also delivered the EOtC lessons (L1). The other teacher (L2) taught the students only in physical education (PE) classes. Answers from the teachers in the SPQ were provided on a 5-point Likert scale coded strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). Data from the SPQ are treated as qualitative information only on the item level; hence, no reliability score was calculated. The two instruments are compatible with each other, have been validated in a large sample, and are widely used in special needs educational research in Germany (Knickenberg et al., 2019).

Expert debriefing sessions

To mitigate observation bias and to address questions of the unbalanced power relationship between myself as a researcher and the participants in the field (Lichtman, 2013), I conducted two debriefing sessions during the school year with a group of EOtC experts who were not personally involved with the project. Prior to the meetings, excerpts from the observation memos together with some questions or problems that arose during field work were sent to the group and discussed in detail upon meeting in person. Directly after the meetings I wrote summary minutes. This feedback helped me to review my own material and my procedure from a different perspective (Beach et al., 2018; Tummons & Beach, 2019). Furthermore, I stayed in email contact with those experts during the whole time, asking for advice whenever questions arose.

3.2.1.2 Data analysis

Analysis of fieldnotes and interviews

During data collection, after each day of observation, an initial interpretation of the data was performed while transcribing the field notes into the observation memos. I again reflected upon these interpretations when preparing for the expert sessions, which generated further insights and sometimes indications towards other possible understandings of my material. Furthermore, the repeated discussions with some of my colleagues and with the teachers influenced understanding and further collection of the data.

The systematic post-hoc analysis started with a reading of all the material to obtain a sense of its entirety. Thematic content analysis (Braun & Clarke, 2006) was applied, originally generating 25 initial codes from the data, such as 'structure and rituals', 'freedom', 'hands-on activities', and 'bodily/sensory experiences'. The initial 25 codes were then organized into eleven themes.

To structure the material for paper 1, the themes were deductively associated with the guiding theoretical frameworks Self-Determination Theory and Ecological Psychology. As a result, three themes ('experience of self-efficacy', 'autonomy', and 'relatedness and building connections') were coded under SDT, and three themes ('qualities of the outdoors', 'affordances of the outdoors', and 'embodied experiences') were coded under EP - although in the actual EOtC situations, these themes interacted and overlapped. In the next step, situations were identified which were dominated by themes that were related to both SDT and EP. Whenever the remaining five themes ('joy', 'role of the teacher', 'gender aspects', 'barriers', and 'impact on everyday life') were present in those situations, they were used to provide yet another layer of explanation.

For paper 2, the data from the codes via the themes were related to predefined theoretical approaches to inclusion, place-based education and

culturally responsive pedagogy, which guided the construction of the two exemplary cases.

I then sought immediate feedback on the themes, so-called primary debriefing, from a colleague (McMahon & Winch, 2018). During the whole process, I stayed in contact with the teachers and performed a member check to ask for their agreement with the interpretations and whether they felt themselves adequately represented (Birt et al., 2016).

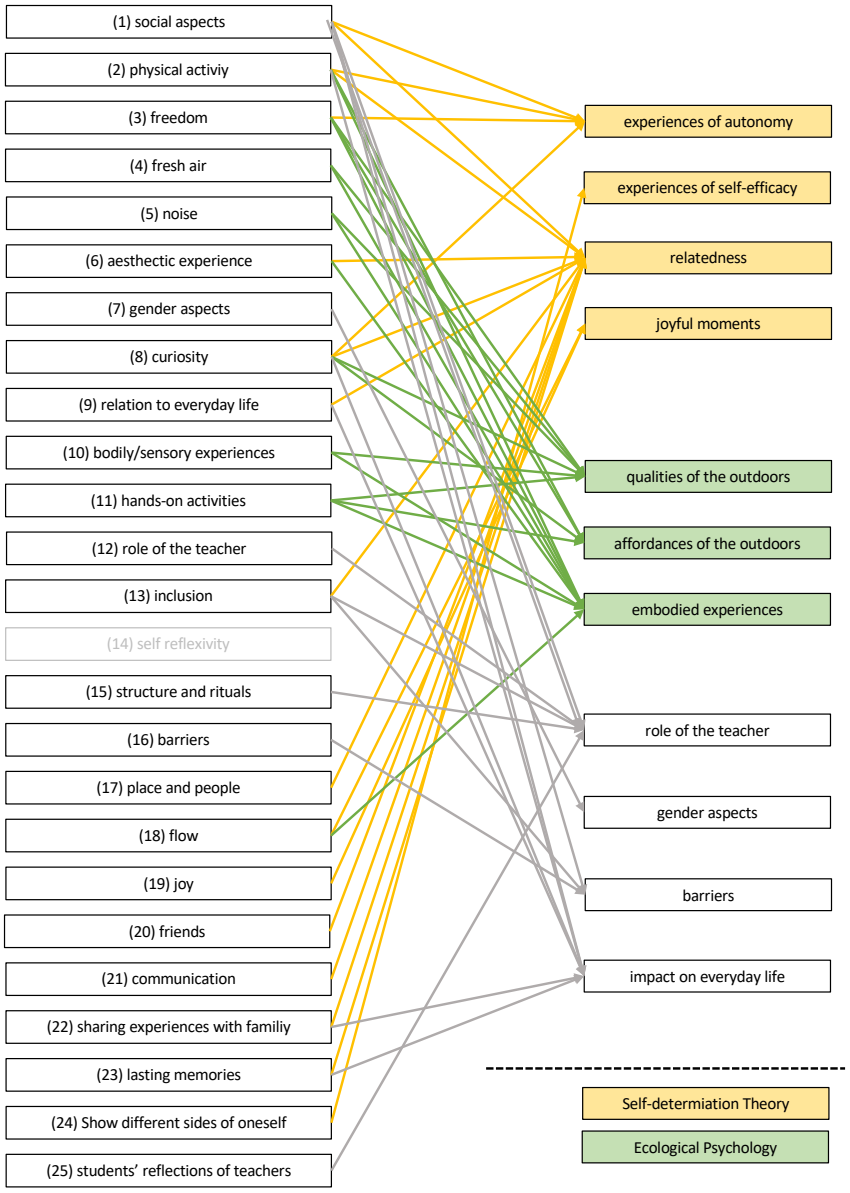

Figure 3: The connection between the 25 categories with the 11 themes related to Self-Determination Theory and Ecological Psychology.

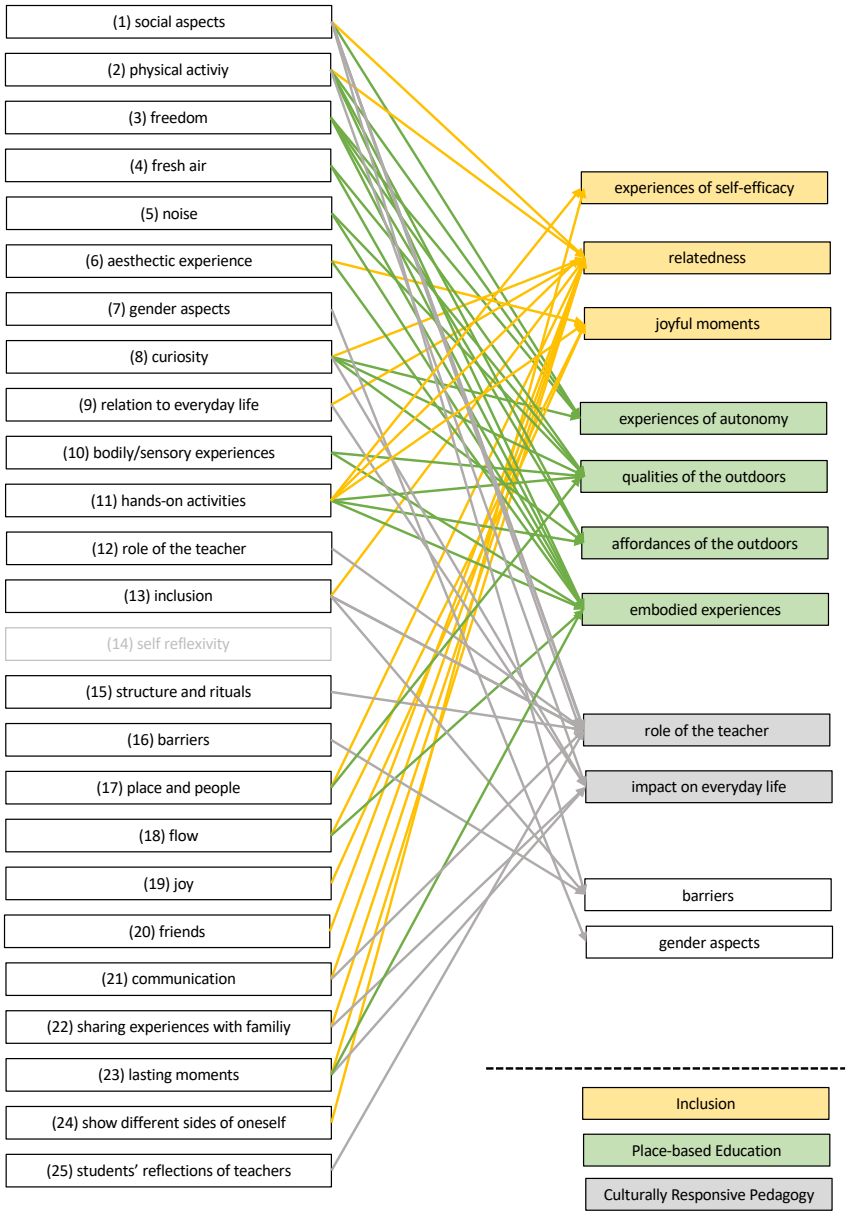

Figure 4: How the 25 categories relate to the 11 themes according to the guiding theories and concepts of inclusion, culturally responsive pedagogy and place-based education.

Analysis of questionnaire data

The questionnaire data were only used in paper 2. Since the overall goal with the questionnaire data was to obtain more formalized information about how each child perceived their social inclusion over the course of the school year and how the teachers evaluated their development, the data were analyzed case by case and each individual was compared to their peers. One-way ANOVA was conducted to test for gender and time effects in the FDI4-6. In paper 2, we focus on the results of two cases to contextualize their scores item by item with the ethnographic data and to contrast their self-perceived social integration from the FDI4-6 with the two teachers' evaluations from the SPQ.

Mixed method approach in paper 2

To present the two case stories, we primarily draw on data from the participatory observations that illustrate situations of inclusion and exclusion during EOtC (QUAL). We refer to data from the interviews with all the other children and the teachers as well as the questionnaires (quan) when they provide information that aids the understanding.

3.2.2 The national survey

In the national survey, I wanted to determine the prevalence and provision of uteskole in Norway and find out more about its nature, i.e. its practical delivery.

The reason for choosing a mainly quantitative national mapping approach was to gain updated systematic insight into this widely used teaching approach, which is a necessary first step to determine a baseline for further research.

3.2.2.1 Sampling and data collection

Preparation of the study

The project was designed in early January 2021, during the Covid pandemic. An online questionnaire was developed in close cooperation with

one author of the Danish mapping project (MB), who is also a co-author of paper 3. To ensure comparability with the Danish findings, items in the Norwegian questionnaire were aligned to the Danish version as much as possible and adjusted to the Norwegian context as much as necessary. The questionnaire was tested for practicability and intelligibility by n=21 colleagues in teacher education, teachers, and school officials. Their feedback was included in the final version of the questionnaire. Email addresses with the permission to use them for the purpose of this study had been obtained by the Norwegian Directorate for Education and Training (Udir), and the questionnaire had been approved for compliance with The General Data Protection Regulation (GDPR) by the Norwegian Agency for Shared Services in Education and Research/SIKT (SIKT-500199).

Online survey

To reduce the impact of the pandemic on the data, the data collection was conducted in October 2021 four weeks after Norway had officially lifted all COVID-19 restrictions, allowing the schools to readjust to 'normal' school life. An online questionnaire including four items asking about the use of uteskole during and after the pandemic was sent out to N=2671 schools in Norway (grade 1-10). From all contacted schools, n=535 (20.0%) provided valid data to calculate the prevalence.

To estimate the prevalence of EOtC in Norway, a two-stage approach was performed. First, one representative of each school (for instance the school leader) was asked to fill in the online questionnaire on uteskole practice at their respective school. Of the responses, 80% came from principals, 8% from assistant principals, 8% from teachers and 4% from administration personnel. Two items were used to determine the prevalence of uteskole: item 1 first briefly introduced the concept of uteskole as a teaching form where "a class is regularly taught in the local area, in the urban environment (e.g., museums, science centres or other cultural institutions) and/or in nearby outdoor areas or on school grounds", and then asked if the school practiced uteskole or not; item 2, which was

conditional on the answer 'yes' to item 1, asked to what extent uteskole was practiced, giving predefined frequency options. To enable comparison with the Danish mapping research (Barfod et al., 2021), similar frequency categories were used: (1) no uteskole, (2) very irregular, only a few days of the school year; (3) regularly, but less than half a day every two weeks; (4) regularly, approximately half a day every two weeks; (5) regularly, approximately half a day each week; (6) regularly, approximately a whole day every two weeks; (7) regularly, approximately a whole day each week; (8) more frequent than a whole day each week.

To explore the nature of uteskole in Norway, a set of eleven more comprehensive items were included in the online survey, asking for example for pedagogical goals in uteskole, the teachers' training, and the proximity to natural environments, while providing space for open-ended answers. Additionally, four items asking about the use of uteskole during and after the pandemic were included in the survey. These will be presented in another article which is not part of this dissertation.

Telephone survey to mitigate possible non-response bias

To account for a possible non-response bias (Berg, 2005) from those schools answering the online questionnaire that favour practicing uteskole in their schools, a random sample of n=460 of the remaining non-responding schools was contacted by telephone and asked to answer items 1 and 2. Of those 460 schools, n=334 offered complete replies to the two questions, resulting in a 95% chance for a sampling error of maximally 5.0%, which means that the sample of responses contacted by telephone is a representative sample.

3.2.2.2 Data analysis

Calculation of prevalence of EOtC in Norway

To determine the sensitivity of the data collection mode (online vs. telephone) and to calculate a more accurate prevalence of uteskole in Norway based on the whole dataset with N=869 schools (32.53%), Bayesian

logistic regression models with binary response variables were used for (a) the schools' own definition of uteskole (item 1, "yes"/"no") and (b) an ex-post definition of uteskole provision of at least half a day every second week based on item 2 ("uteskole practice meets duration-criterion" with two levels, "yes" and "no", with "yes" coded as 1, and "no" coded as 0). In both models, the mode of data collection was included as a categorical predictor variable, again with two levels, "online" (0), and "telephone" (1). A detailed technical description of the models can be found in the appendix.

Qualitative content analysis

The answers to the open-ended questions have been analyzed using directed content analysis (Hsieh & Shannon, 2005) to determine additional information that was not covered by the closed items of the questionnaire. Since the scope of the information provided was very narrow and did not go beyond the theme of the respective items, no additional coding was applied.

3.3 Research ethical considerations

3.3.1 Framing research ethics: reflexivity as a discursive tool

In their article *Ethics, reflexivity, and 'ethically important moments' in research*, Guillemin and Gillam (2004) draw a distinction between two dimensions of ethics in research, "procedural ethics" and "ethics in practice". Whereas procedural ethics is about the set-up of the research, the design, access to participants, etc., ethics in practice comes into play when the researcher must make immediate decisions about ethical concerns when confronted with unexpected and possibly difficult situations that arise in the field. The authors suggest using reflexivity as a discursive tool to articulate and validate the kinds of ethical issues that confront researchers on a day-to-day basis (Guillemin & Gillam, 2004). Unger

(2021) posits that in qualitative and field research, epistemological and ethical inquiries are closely intertwined. Ethical reflexivity entails the conscientious examination of the societal and political consequences of the research, with a commitment to preventing harm and safeguarding participants' rights, all while maintaining scientific accountability. This dynamic often engenders conflicting demands and tensions for researchers, necessitating not only dialogue with peers but also engagement with actors in the research setting. This is why in the following chapters, methodological steps previously described above (chapter 3.2.1), will be reconsidered in connection with their ethical dimensions.

3.3.2 Procedural ethics

Following the Guillemin and Gillam framework, the design of both studies, including the decision about which methods to use, would be considered part of the 'procedural ethics'.

For the national survey, there were no specific procedural ethical issues to address. This is because the data was collected at the school level, using standardized online or telephone questionnaires, without any further person-sensitive interaction, which was confirmed by SIKT.

The decision to involve the schools in the study was justified on several grounds. Firstly, the study offers benefits for research, contributing valuable data to the field. Secondly, the findings can inform school policy, leading to improvements in the education system. Lastly, individual schools stand to benefit as well. Better-educated teachers could enhance the learning experience for students. Moreover, the results of the study are made openly accessible, providing schools with insight that could inform their practice.

School anonymity was guaranteed by not disclosing their organization numbers. This measure addressed potential concerns about the schools' reputation. It also ensured the protection of sensitive information, such

as IP addresses. Importantly, no person-sensitive data was collected in the study.

Data security was assured and the sharing of data among the researchers was conducted in accordance with SIKT guidelines. The questionnaire was made available in all three official languages, Bokmål, Nynorsk, and Sámi, to ensure accessibility for all participants. Furthermore, the questionnaire was designed to be as short as possible to minimize the time and effort required from participants.

For study 1, the ethnographic case study, the approach was more complex. Procedural ethics involved discussion with the headmistress and teachers before beginning data collection in order to explain the intentions of the study, to answer questions, and to find the best ways to combine my requests as a researcher with the concerns of the school.

After I had come to an understanding with the school, the next procedural step involved the headmistress and I contacting the district supervisory school authority. We presented the research project together and received official permission to conduct the study.

I then had to obtain informed and freely given consent from parents, as in Germany, legal consent for children under 18 years can only be given by their legal guardians. To achieve this, the two participating teachers, the headmistress and I invited the parents to an information session at the school. After presenting the project and answering questions, parents received printed information and a letter of consent to take home. Only those children who provided written consent were included in the study. On the consent form the different intended methods were listed (observation, interview, photos) and parents could decide on each of these individually. I made it clear that anonymity was guaranteed as far as possible during all stages of the research project, and that participation was of course voluntary and could be withdrawn at any time without any negative consequences for the students. This latter aspect was stressed once more by the teachers who clarified that participation or withdrawal

would have no repercussions on grading. In addition to the written consent from parents, I asked every child for their verbal consent and made it clear to them as well, that they could withdraw at any time without any consequences.

For those parents who might not have been able to follow my explanations in German, I invited relatives along as translators, as I had no means to finance professional translators. I also contacted the voluntary community helpers supporting those families so that they were able to answer possible open questions that might occur afterwards or explain the details of the information and consent sheets, if needed.

I was aware from the start that doing research with young children between the ages of seven and nine would entail a special responsibility – even more so because there were children with different immigrant backgrounds involved who might have experienced trauma prior to their arrival in Germany. Furthermore, there might be misunderstandings due to language barriers and different cultural backgrounds. But these were all problems that schools had (and still have) to deal with anyhow, and I was excited to have the opportunity to observe how these things were handled in everyday school situations and how they might influence the EOtC practice.

As I had previously been working in EOtC with a group of children about that age for several years on a voluntary basis, and also had some experience in interviewing young children, I felt confident to begin this journey. Furthermore, I was part of the group of voluntary community helpers that supported refugees in this village when they first arrived and was thus a familiar person to these families and knew about some of the problems they had to deal with. In addition, I had done ethnographic fieldwork before and was in contact with a sociology professor who gave me valuable advice before and during the data collection.

3.3.3 Ethics in practice

As researchers, we have a unique responsibility when working with participants, especially with respect to safeguarding privacy and ensuring emotional well-being. These concerns were addressed in study 1 by accompanying the students throughout the whole school year to support the development of a trusting relationship. Returning to the Guillemin and Gillam framework, during the data collection phase, the 'ethics in practice' dimension became relevant. I tried to always be approachable when questions arose – be it from teachers, parents or students. The teachers could always contact me via my private mobile number or through email – even on very short notice – and I tried to stay as flexible and useful as possible as I learned very quickly that the demands of daily school life always had priority. This sometimes meant having to compromise, for example when it came to the number of students I was able to interview, or the available timeslots for completing the questionnaires. And although I was not able to give every single student the opportunity to voice their opinion during an interview, I was nevertheless able to talk with every child in a more informal way during our EOtC sessions. I always tried to find solutions in cooperation with the teachers, for example, when they experienced a conflict between wanting to tell me important but personal facts about individual students and maintaining confidentiality. We agreed that they should only tell me about those things that they felt comfortable about and were allowed to share. I needed to evaluate carefully "how use of some of the information may be permissible only as background information, that is, as a basis for improved understanding of the informant's expressions, attitudes and perspectives" (Alver & Øyen, 2007, p.41).

Another important aspect of research with children, and maybe even more so of children with immigrant backgrounds, is finding ways to deal with an obvious imbalance of power, as "[r]esearchers may possess power through formal position, gender, age, personality, language, and so forth" (Alver & Øyen, 2007, p.25). Although this is of course true for

any kind of (social) research, we need to pay extra attention when working with so-called 'vulnerable' groups. Being an adult, German, from the university, and obviously somehow 'in league' with the teachers, I definitely started from a certain implicit position of power. Moreover, the teachers wanted me to be called 'Mrs. Lauterbach' by the students (which is the custom for teachers in Germany) to make it clear from the beginning that I held a similar position of respect. This seemed to be accepted quite naturally by the students, probably because at that school, the children were used to the presence of additional grown-ups since a second supervisor was required for any activity taking place outside of the school building. It probably also helped that one of my children had attended the school previously (although he had left the school by the time my project began) and thus my face was familiar to some of the children who knew me as 'just another parent'. I had the impression that the students became used to me being part of their school routine quite quickly and soon lost any initial shyness. The more informal settings and especially the walks to areas where the EOtC sessions took place, also offered plenty of opportunity for the children to chat with me and to get to know me better – a chance that many of them seized eagerly. The students were of course curious when they saw that I was taking fieldnotes but were satisfied when I simply told them that this was part of my work. The fact that we spent so much time together helped to create a trusting atmosphere which hopefully also lessened some of the power imbalance. I tried to make it as easy as possible for them to have opportunities to tell me how they felt and that it was alright if they wanted to withdraw their consent at any time during the school year (even after receiving the legal consent of their parents), but the overall impression was that they were quite eager to be part of the project. This may have been due to the fact that the students really enjoyed the EOtC sessions and wanted to contribute to developing this fun way of being in school, as it was still quite new and in an experimental phase at that time.

For study 2, the critical part from an ethics perspective was the telephone survey and the direct interaction with the respondents. The calls were made by two student research assistants who were trained on how to approach the schools. They needed to make clear that the information gathered was strictly on school level and would not gather person sensitive information. This introduction was followed by a formal question asking for institutional consent. Only after the consent was given, did they continue with a short set of questions about uteskole and its provision at the school. The telephone interview was reduced to two items to minimize participants' time commitment. Moreover, the organization number of the school was not connected to the collected data so that the data collection was in fact anonymous and protected the schools' integrity.

3.3.4 And back again to procedural ethics

After the data collection of study 1, further questions of 'procedural ethics' needed to be dealt with. Regarding data storage and processing, I followed the guidelines required at that time in Germany, and approval for this study was granted by the district school authority. By moving the project to Norway, I had to obtain ethical approval from the Norwegian Agency for Shared Services in Education and Research. Approval was granted under the project number SIKT-500199. Furthermore, I needed official approval from the Technical University of Munich, my former employer during the time of the data collection, to be allowed to use the data from Germany in a PhD project that was then based at the University of Stavanger. In addition, questions of data storage and processing needed to be addressed in light of the Norwegian guidelines and changes in the General Data Protection Regulation.

The school, the teachers and the parents were also informed of my move to Norway and my intention to continue with the project there and made

no objections to my plans. To this day, I remain in contact with the German teachers and keep them updated about the ongoing process and the results of my study.

3.3.5 Researchers' responsibilities

Beginning the research project as someone who regarded EOtC in a very positive way, I was aware that I needed to pay special attention to negative aspects that might emerge during data collection as

> "[w]e tend to see what we expect to see, and we are inclined to hear what we hope to hear. That is, there is a higher probability that we perceive that which relates to our previous experiences and to our needs. Conversely, we tend to overlook and fail to register that which runs against our experiences and expectations. Not only is the probability of perceiving what is welcomed by our senses higher. We also tend to retain knowledge and observational materials selectively" (Alver & Øyen, 2007, p.292).

To account for possible bias, I used several techniques that could be summed up as methods of reflexivity. One approach was to look repeatedly at my material and reflect on my procedures. I also observed the two classes on several occasions when they had 'normal' schooling inside to see if the students behaved differently to what I had observed during the EOtC sessions. Another strategy was to talk often with colleagues and with the teachers, showing them parts of my observation protocols and initial analysis to find out if they shared my interpretations and felt themselves adequately represented. And finally, I also had regular meetings with an external expert group to reflect upon and specifically discuss these issues.

As researchers, we often get more in return for the time spent on a project than the participants. I was conscious that my presence at the school for a whole school year would definitely have an impact on the people in-

volved (Alver & Øyen, 2007), so I tried to make this burden as 'attractive' as possible. The school itself would hopefully get more evidence-based arguments to strengthen their case for working with EOtC. In addition, participating teachers profited in several ways. First, they were able to fulfil the legal obligation for a second supervisor when they left the classroom easily and cost-efficiently. In addition, they were able to get professional feedback and opportunities to reflect on their EOtC teaching. In those one-on-one conversations, they also received recommendations for relevant literature, including several sources of didactical material and ideas, and they were introduced to a network of similar minded teachers.

Ethical reflections do not end when we have received the official ethical approval for our project. Ideally, they should guide us through all stages of the research project, beginning with the design of the study, the information for and about our participants, how we obtain informed consent, the way we conduct the study, analyse the data, and even in the end when it comes to decisions about the dissemination of the results. To achieve this, the notion of reflexivity seems to be a very useful tool especially in the social sciences and maybe even more so when conducting qualitative research. I have tried to show how I applied reflexivity before, during and after my data collection to address questions that arose during my project, in light of the many responsibilities we have as researchers:

> "As researchers, we have a responsibility for the quality of our work. We have a responsibility for the individuals, groups and societies studied – and in particular for those who furnish data and information for our research. We have a responsibility in relation to our colleagues, to our disciplines, to our institutions – and to the sources of funding. All of these obligations have their foundation in ethical reflection" (Alver & Øyen, 2007, p. 11).

4 Findings

4.1 Article 1

4.1.1 The need for competence: to feel effective

My findings show that to support the students' need to feel effective, the role of the teacher was decisive. The teachers needed to provide assistance and support and as role models had an immediate impact on the students' behavior and involvement. The more physical, hands-on activities in the EOtC sessions, which frequently involved embodied experiences, created opportunities for those students who often underperformed in the classroom to show different sides of themselves and to experience feelings of agency and self-efficacy.

Moreover, as the EOtC teaching spaces were often spread over a larger area, the teachers had to pay special attention to safety issues and risk management and needed to find ways to provide structure to support the learning process. It was therefore important to regularly clarify and practice the rules of conduct and it helped to rhythmize the EOtC sessions to create a familiar and safe framework outside the school building. In addition, the students themselves were also given responsibility to maintain structure during the outdoor lessons by taking on 'services' for example as part of the 'safety team'.

Furthermore, the teachers needed to give very precise instructions for the EOtC assignments and had to bear in mind that some teaching material from the inside might not be suitable outside. They also had to be aware that some students were more easily distracted outdoors and needed to make sure that all students were able to hear and see the presented learning content as a prerequisite to enable them to experience competence.

4.1.2 The need for autonomy: to feel agentic

The data imply that the richness of the outdoor environment with its many affordances and invitations supported the satisfaction of the students' need for autonomy by providing opportunities for freedom, discovery and choices, which led to higher engagement. The students were more at liberty to move around during the EOtC sessions and to use the spaces. This perceived freedom also opened up possibilities for discovery, especially when teachers allowed the students to react spontaneously to stimuli. Furthermore, the children were often able to choose individual strategies on how to work with the assignments, how close they wanted to work together with others, and also had opportunities to be alone for a bit.

Moreover, the EOtC sessions often enabled the students to understand the practical significance of the learning content and they could contribute based on their own interests. Those moments of exerted freedom and the connection to their personal lives generated moments of joy which again increased their intrinsic motivation and curiosity and created spaces for autonomous learning.

4.1.3 The need for relatedness: to feel connected

The findings demonstrate how the specific qualities of the EOtC setting supported the satisfaction of the students' need for relatedness. The freedom to move around and the opportunities for free play created possibilities for more varied peer interactions than in the traditional classroom setting. Nevertheless, those new social relations were not very sustainable and the social structures from inside were re-enforced outside. However, when the teachers deliberately assigned shared collaborative activities in EOtC that brought together students from different peer groups,

there were moments when the new social connections sustained at least over a whole school day.

Moreover, during those EOtC assignments, the students were able to display different sides of themselves. This was recognized by their classmates and repeatedly led to higher acceptance. The observations furthermore show that on several occasions, these practical opportunities helped to empower children with immigrant backgrounds who were often not yet able to participate in the same way in the traditional classroom setting due to language barriers.

EOtC also supported the improvement of student-teacher connections as the more informal context created a space for casual conversations between teachers and individual children, for example while walking to and from the different EOtC sites. Interestingly, the students recognized several benefits of EOtC for themselves as well as for their teachers and described them to be happier and more relaxed outdoors. Many of them even expressed an understanding of the need for their teachers to apply stricter rules outside the classroom due to safety issues.

In addition, the data revealed that the creation of relatedness was not limited to people within the school but also extended to the community and specific places within it. The teachers used the local community and environment as a starting point for their teaching and the students got to know various aspects of the specific area they lived in. Moreover, they engaged actively with numerous people working there and were thus able to build wider connections that appeared to extend into their life outside school.

4.1.4 The need for time spent in nature

This article confirms the hypothesis that the students' basic psychological needs can be met, and that time spent in nature in an EOtC context helped the students to feel effective, agentic and connected. The findings

furthermore demonstrate that the children's development was driven by their active engagement with environmental affordances and invitations which facilitated embodied experiences. The opportunity to have enough time and space to immerse oneself in an activity also created moments of flow, in other words, the passage of time was perceived differently during EOtC. Moreover, the interplay with place and people specifically reinforced the children's satisfaction of relatedness and created a deepened sense of belonging to their community.

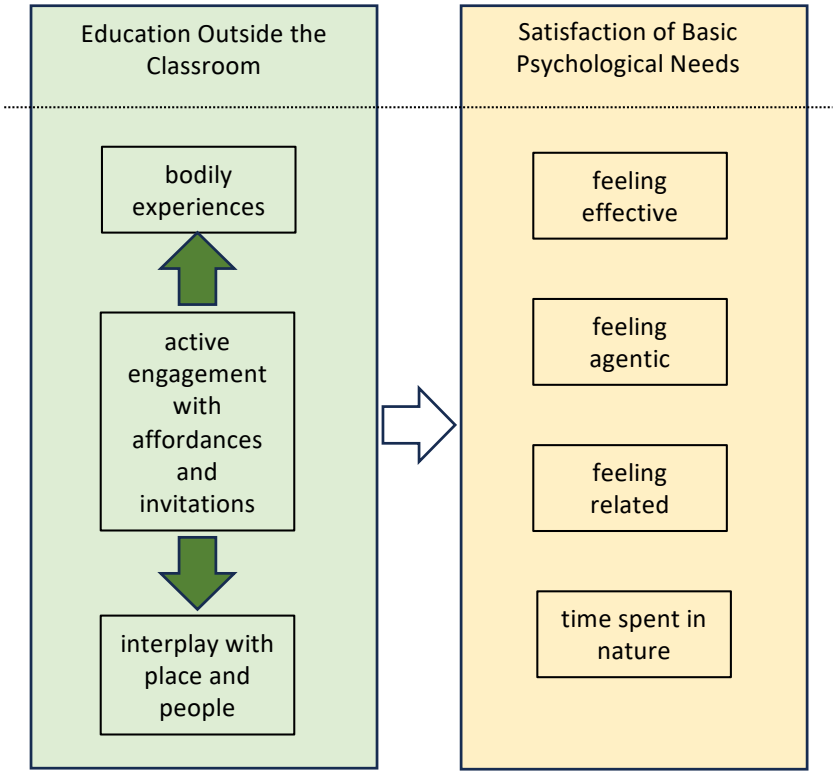

Figure 5: The satisfaction of basic psychological needs in EOtC through the lens of Ecological Psychology.

4.2 Article 2

This article presents findings from the second-grade class group from the same data set as article 1, however with a focus on the school's goal of improving inclusion for children with immigrant backgrounds. This became urgent during the refugee crisis as described above (cf. 3.2.1.1). In the article, the findings were portrayed in a narrative way by focusing on the cases of two students, illustrating typical moments of inclusion and exclusion during EOtC. In the following two chapters, I will present the findings in a more generalized way, without going into each specific situation in detail. These are set out in article 2, which can be found in the Appendix.

4.2.1 Practical opportunities and communication challenges

As the tasks during EOtC were often more hands-on, it seemed easier for students with immigrant backgrounds who were not yet proficient in the host language to understand what was expected of them and it enabled them to fully participate. On several occasions during my data collection, students were able to show different strengths or sides of themselves, which had not been obvious during traditional classroom teaching, when the focus on more theoretical knowledge usually required better language skills. By being able to contribute actively and even sometimes displaying unknown talents, the students with immigrant backgrounds were able to experience moments of success and pride and were thus also perceived differently by their peers.

Moreover, those more practical tasks seemed to be a relief for students who otherwise often struggled in the classroom because they were overwhelmed with the challenge of adapting to life in a foreign country with its new language and culture. The data further indicate that the children with immigrant backgrounds were able to build new connections to their

new home. The EOtC sessions regularly used the immediate surroundings of the school as a starting point, but often also involved the wider community with its various cultural institutions and local businesses. This meant that the students got to know and engaged actively with the people living and working there.

Nevertheless, sometimes the EOtC activities also led to episodes of exclusion, for example, when one of the students with an immigrant background was not adequately dressed for outdoor winter activity. He needed to be sent back to school because his family had not understood the information sheets in German that the teacher had sent home before the planned activity. He did not accept the additional clothing that was provided by the school, possibly because he may have felt ashamed to have to wear borrowed clothes.

Furthermore, whenever the tasks were more complex and needed some explanation, the students with immigrant backgrounds were often not immediately able to follow and needed additional support from the teacher or their classmates, as the students often worked together in small groups outside. Being part of a working group where everyone needed to communicate to complete a common task together was often very demanding for those children who were not yet able to speak a shared language and sometimes even intensified feelings of exclusion. According to their teachers, the students first needed to overcome the language barrier to fully profit from those shared collaborative activities that had the potential to create new peer relations and foster feelings of inclusion.

4.2.2 Moments of participation through experiences of self-efficacy

In addition to the language barrier, there were other elements that influenced the level of inclusion of children with immigrant backgrounds. Certain personality traits (e.g., being very shy or withdrawn) or feelings of being overburdened due to difficulties with the academic tasks led in

some instances to seclusion or reactive aggressive behavior and consequently to exclusion by peers.

However, in those cases the EOtC context and the more practical activities offered opportunities to showcase other talents and therefore facilitated rare experiences of joy, success and positive recognition from other classmates. But these experiences of self-efficacy and pride did not always lead to sustained inclusion. In particular, one boy became more of an outsider during the year of the data collection – both inside and outside of the classroom.

Nevertheless, that student made a point of mentioning that EOtC offered him the chance to get to know places and people that would otherwise have remained unknown to him and really seemed to appreciate these opportunities. The field notes indicate further that the recurring visits to the park, the village, or with various inhabitants seemed to have created closer links between the students and the places and people they visited during EOtC. This became obvious for example by the fact that the children gave special names, like the "Cinderella meadow", to places they liked best and even visited these in their spare time together with friends or family; and the student mentioned above became a regular visitor at the mayor's farmstead, helping him feeding his animals.

4.2.3 The two pathways for inclusion in Education Outside the Classroom

Taken together, these two in-depth cases revealed that inclusion during EOtC occurred in two ways. First, situations coded as "hands-on activities", where the students were able to "show different sides of themselves", were linked with themes associated with place-based education like "qualities of the outdoors", "affordances of the outdoors" and "embodied experiences". Whenever these themes arose during the EOtC sessions, they enabled the students to feel "self-efficacy", "joyful moments"

and “relatedness”, and thus led to experiences of inclusion. Second, situations coded as “communication” and “relation to everyday life” were associated with themes coded under culturally responsive teaching like “role of the teacher” and “impact on everyday life”. In situations where those themes appeared, the students again experienced “self-efficacy”, “joyful moments” and “relatedness”, and hence moments of inclusion (cf. Figure 6).

The findings stress the importance of the teachers’ key role in providing opportunities and spaces for inclusion. As role models, they needed to create a safe and welcoming atmosphere, where everyone’s uniqueness was respected and valued and where each student was enabled to contribute to shared learning experiences. This became important, for example, when assembling the working groups or in finding suitable assignments in the ‘right’ places in ways that could change the indoor classroom social dynamics to foster participation, collaboration, and the formation of new peer relationships.

The data further indicate that the school promoted inclusion when it collaborated with the community to create spaces for participation; for example, when they organized a workshop with the local brass band; planted potatoes at a community garden; or visited the mayor, both at the city hall and at home on his farmstead. Whenever the teachers specifically acted in culturally or place-responsive ways, this generated opportunities for the students to encounter their neighborhood, from the surrounding park landscape to the local fire station, and to establish connections with places and people. This had an immediate effect on the participation of all the children and created a feeling of belonging.

Thus, a combination of culturally and place-responsive pedagogy seems to offer a promising way to achieve inclusion in EOtC.

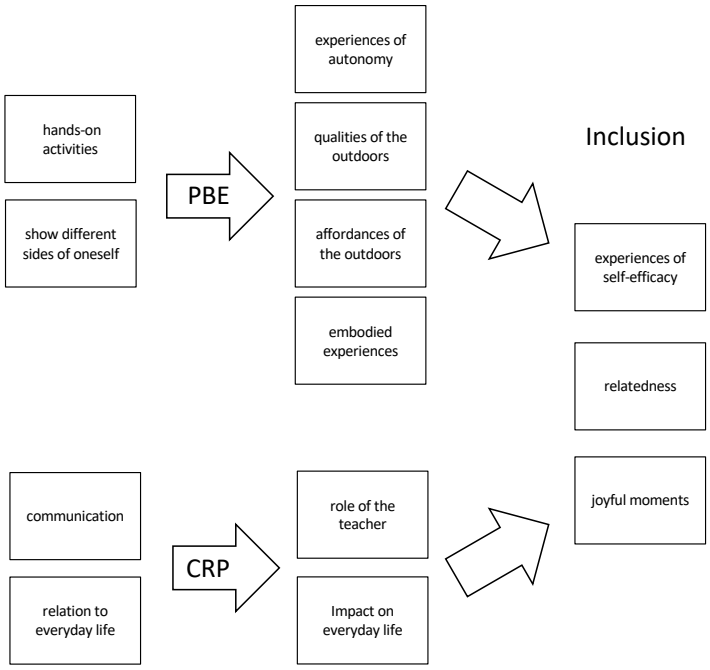

Figure 6: The two pathways leading to inclusion in EOtC.

4.3 Article 3

4.3.1 The prevalence and provision of uteskole in Norway

This article presents data from a national mapping survey on the prevalence, provision and nature of uteskole in Norway. When applying the schools' own definition of uteskole with respect to its provision over the school year, as many as 87.6% of all schools in Norway (grades 1-10) claim to have some sort of uteskole. Applying the Danish definition (regularly, at least half a day every second week), the analysis reveals a prevalence of 68.7%, ranging from 56.4% to 78.9% with 95% credibility.

Looking at county ('fylke') level, it can be seen that uteskole is a national phenomenon in Norway (cf. Table 2 and Figure 7) with a more or less

consistent prevalence of uteskole throughout the country. Only the city of Oslo has significantly less uteskole provision (50.2%), whereas in Vestfold og Telemark the provision is exceptionally high (91.4%).

Fylke	Prevalence [%][1]	Pearson Residual
Agder	70.0	0.31
Innlandet	77.9	1.31
Møre og Romsdal	61.8	-0.74
Nordland	66.4	-0.15
Oslo	**50.2**	**-2.22***
Rogaland	67.1	-0.06
Troms og Finnmark	67.4	-0.02
Trøndelag	66.4	-0.15
Vestfold og Telemark	**91.4**	**3.04****
Vestland	64.0	-0.45
Viken	60.6	-0.89

[1] Based on online data and corrected for sampling bias. The Pearson residual denotes significant deviations from the expected value. The threshold for statistically significant deviations follows the z-score table with ± 1.96 for α=0.05 (*) and ± 2.33 for α=0.01% (**).

Table 2: Prevalence of uteskole in the counties (fylke)

Applying the Danish definition of uteskole, the most popular model in Norway for teaching outside the classroom is “half a day every week”, which is practiced by 40.7% of the schools offering uteskole, whereas 32.2% go out “a whole day each week”. 16.6% have uteskole “half a day” and 7.8% “a whole day every two weeks”. 2.6% of the schools that practice uteskole go out “more frequently than a whole day each week”.

Uteskole is most frequently used in the lower school grades, with the highest provision in grades 1-4 (ca. 80%), decreasing slightly in grades 5-7 (ca. 68%). There is a clear drop from grade 7 to 8 (ca. 42%), which also marks the transition from elementary school (in Norway, ‘barneskole’, grades 1-7) to lower secondary school (in Norway, ‘ungdomsskole’, grades 8-10). The answers to the open-ended questions indicated that there exists no ‘culture’ for the use of uteskole in lower

secondary schools in Norway. Nevertheless, there are still 43% of the responding lower secondary schools that use uteskole with at least one class per grade.

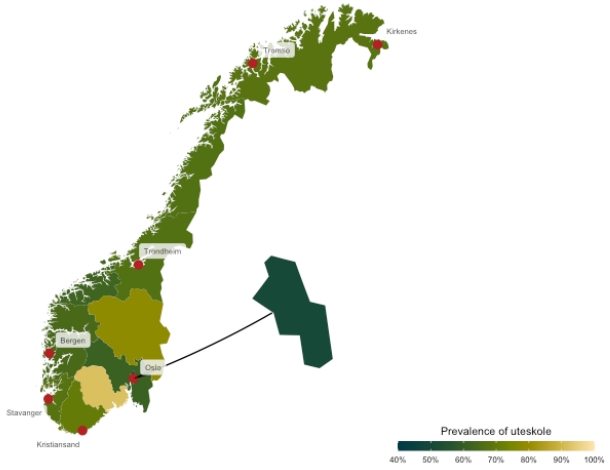

Figure 7: The geographical distribution of the prevalence of uteskole in Norway based on the online data corrected for sampling bias. The county of Oslo is depicted to the right in a larger scale for better visibility.

4.3.2 The nature of uteskole practice in Norway

In the following, all quantifications are based on how the Norwegian schools themselves defined uteskole, i.e., encompassing irregular provision that was excluded when applying the Danish definition. Among the schools that responded, 88% asserted that they have access to suitable uteskole locations within a 10-minute walk, while 9% can reach these

places within a 30-minute walk, 1% require the use of public transport, and 2% did not provide any information.

Hereby, the accessibility to places for teaching outside the school building is associated with the provision of uteskole: 90% of the responding schools with access to suitable places within 10 minutes walking distance practice uteskole. This provision decreases to 83% when the walking distance is up to 30 minutes. More than half of the few schools that need to use public transport answered that they still practice uteskole.

42% of the responding schools with uteskole answered that there exists some sort of formal embedding of uteskole in their teaching plans. Of all responding schools, 46% have teaching staff who had been formally trained in friluftsliv or uteskole during their teacher education. In total, 38% of the schools have staff with informal competence, for example acquired through several years of experience as uteskole teachers or tour guides, or a personal enthusiasm for the outdoors. Of the responding schools, 14% have staff who are part of an uteskole related network, for example 'Den Naturlige Skolesekken' (i.e., The Natural School Backpack) (Nasjonalt senter for naturfag i opplæringa, 2023). Moreover, 24% answered that they do not have staff with specific uteskole competence.

Of the responding schools practicing uteskole, 96% claim that uteskole is connected to the teaching in the classroom and that this approach is used across virtually all school subjects. The ones that are less frequently used during uteskole are music and religious education. Typically, uteskole is practiced as a blending of learning and social activities in the outdoors. For almost two thirds of the schools, cultural activities like visiting museums or theatres are not considered typical uteskole elements, whereas the remaining 37% count such cultural activities or visits to local companies, including school gardening, as uteskole.

The recently introduced national Norwegian curriculum from 2020 defines several pedagogical goals for all subjects. Those had been summarized in the survey and schools were asked to choose the one most central

to their uteskole practice: 1) social learning and development; 2) physical activity and health; 3) inquiry-based learning and curiosity; 4) respect for nature and ecological awareness; and 5) interdisciplinary teaching. No clear ranking of these five goals could be determined and the respondents clearly stated in the open-ended answers that all of them are equally important. It became evident that uteskole is in fact a widely used strategy to formally address those overarching pedagogical goals defined in the 2020 national curriculum. In addition to these categories, there were some schools that reported using uteskole specifically to teach Sámi culture and traditions.

The main reasons given by the responding schools for not practicing uteskole were lack of time (37%), too little flexibility in the school routines (23%), and lack of interest from the teachers (23%). 21% of responding schools do not recognize uteskole as relevant, and 17% claim to have insufficient knowledge to provide it. Extra costs like transportation or additional teaching staff are a barrier for 17% of the schools. For this item, multiple answers could be given. Moreover, there are geographical areas in Norway where the climate seems to make outdoor learning more challenging, as can be seen from the quote of one teacher: "The biggest problem in Finnmark is probably that it is winter most of the school year."

5 Discussion, conclusions and implications

In the following, I will first discuss the findings of the two studies separately and then explain their connections and provide possible conclusions.

5.1 Study 1: Ethnographic case study

In this chapter, the findings from articles 1 and 2 that comprise the ethnographic case study in Germany will be presented, discussed and connections between the two explored.

5.1.1 "Building Roots" – Developing Agency, Competence, and a Sense of Belonging in Education Outside the Classroom

Article 1 investigated how EOtC was used to support the students' basic psychological needs, i.e., their need for competence, autonomy and relatedness, as described in Self-Determination Theory. The framework of EP was applied to explain how the EOtC teaching settings helped the students to become effective, agentic and connected.

5.1.1.1 The need for competence

With respect to the students' need for competence support, the most important finding is that in EOtC, the students had more opportunities to show different sides of themselves and therefore felt more effective and were more engaged in their respective tasks. This might explain why students' motivation in EOtC has been found to be higher compared with the indoors in previous studies by Bølling et al. (2018) and Dettweiler et

al. (2015). Moreover, Szczytko et al. (2018) found that students with reported emotional, cognitive and behavioral disabilities (ECBD) had significantly improved attention spans and decreased disruptive behaviors when learning outdoors. In their study, they seemed to have made similar observations when they quote one of the teachers saying: "They [students with ECBD] were attentive and fully interacted with the activities. They felt they were successful which does not happen much in the regular classroom" (p. 6).

However, to achieve this, the teacher's role is crucial in creating a safe and supportive framework that enables the students' self-efficacy. Teachers need to find ways to encourage individual children or give technical and motivational support. This is in line with general classroom research that shows that the provision of structure and teacher support is vital for the satisfaction of students' need for competence (Sierens et al., 2009).

5.1.1.2 The need for autonomy

An important aspect of the students' satisfaction of the need for autonomy in EOtC was that they perceived more freedom in the outdoor lessons, which was associated with the way the children were allowed to use the space around them. This is supported by findings from Weinstein et al. (2009), which show that nature can promote autonomy by stimulating more exploratory behavior without pressure and expectations.

The higher degree of perceived freedom seemed to enable the students to make use of the places and situations, which has also been described by Mall et al. (2021) and Fiskum and Jacobsen (2013). This corresponds with a German study by Armbrüster et al. (2016) who explain this explorative character of EOtC with the children's active construction of spaces through movement. This qualitative aspect of movement is complemented by quantitative research on the children's physical activity levels obtained by accelerometry. Schneller, Duncan, et al. (2017) found

that children are more physically active in outdoor teaching settings than indoors and that students can satisfy their need for movement during outdoor lessons (Becker et al., 2019).

My findings furthermore show that the outdoor setting with its many affordances and invitations provided more opportunities for discovery and choice, which lead to increased situational interest. Jung et al. (2019) describe such an increased situational interest when the students are confronted with novel and surprising conditions, as well as with open and varied tasks that trigger their interest. The practical relevance of the learning content in EOtC can prepare the students for challenges in the "real world" (Dettweiler et al., 2022). This has also been found in a recent study by Skalstad and Munkebye (2022) who showed that children's interest in natural science activities increases in outdoor environments. My data clearly indicate that this feeling of freedom and agency is associated with a perception of "instant enjoyment" (Chen et al., 2001), which seems to be a common theme in EOtC research. In a study among lower secondary students in Germany, 'fun' has been found to be the most important category within outdoor learning and was defined as a driving factor of increased motivation (Dettweiler et al., 2015). This might also help to explain why the ability of making choices in EOtC is associated with better stress regulation and cerebral maturation (Dettweiler et al., 2023) and shows that when students "engage with nature through activities that support the development of their capabilities and self-determination, automatic physiological and psychological benefits of exposure to nature can be expected to happen simultaneously" (Chawla, 2022, p. 4).

5.1.1.3 The need for relatedness

In contrast to previous studies in EOtC, which found that the outdoor setting has the potential to improve social relations within a peer group (Glackin, 2018; Hartmeyer & Mygind, 2015), the observations in my study showed that the social structures from inside continued outside, or

were even reinforced, which has also been reported by Ellinger et al. (2023). Therefore, teachers need to carefully consider the composition of the working groups to support new peer contact and to ensure that everyone can participate and bring in their individual strengths. If this happens repeatedly and over a longer period, this might in fact lead to better peer connections.

On the other hand, student-teacher relations improved through EOtC because of the increased opportunity for informal communication and shared experiences. This has also been found in a study by E. Mygind, M. Bølling and K. Seierøe Barfod (2019), where teachers perceived better relations with students in EOtC as an added value compared with indoor teaching.

In addition, the data illustrate that the relatedness in the EOtC context expanded to place and community. Getting familiar with the specifics of a place and its people, visiting several locations during changing seasons, harvesting and eating something that has been planted together, and especially getting to know many inhabitants and their stories, all contribute to the students establishing roots and sometimes even becoming active members in their community, for example, in this case by joining the local brass band. The findings clearly show that when the teachers became "place-responsive practitioners" (Mikaels, 2018) and used the interplay between people and place, this constituted a powerful way to satisfy the students' need for relatedness.

5.1.1.4 The need for time spent in nature

Recently, the biophilia-based Attention Restoration Theory (ART) and Stress Reduction Theory (SRT) have been challenged. In their meta-analysis on how attention processes are affected by exposure to natural environments, Stevenson et al. (2018) found that the restoration potential's impact on participants was not entirely evident, necessitating an update to the construct of directed attention and the restoration effect of

exposure to natural environments based on current evidence for future research. Their analysis indicated that actual exposure to natural settings significantly influenced working memory, attentional control, and cognitive flexibility compared with virtual exposures. While ART posits that nature experiences restore cognitive abilities, their findings suggest that virtual nature alone may be sufficient for restoration, although actual exposure yields a stronger, more reliable effect. Contrary to ART, heightened restoration potential strengthens the effect on working memory but not attentional control or cognitive flexibility. This mixed evidence challenges the restoration mechanism, prompting a need for additional explanations, such as the immune system boost hypothesized by Kuo (2015).

Additionally, Chawla (2022) argues that the benefits from time spent in nature also depend on an active engagement, which is supported by the goal-discrepancy-account of restorative nature experiences (Joye et al., 2023). The latter highlights that nature can reduce the discrepancy between an individual's goals and their current situation, by "affording actions that can fulfill thwarted goals" (p.3).

This is consistent with my study's findings, which illustrate situations where the students had immersive and restorative experiences in EOtC through actively engaging with their natural surroundings. This became evident for example when the children reported that they could concentrate better and felt calmer outdoors. The reduction of stress in EOtC has also been shown in a German study with fifth graders where time spent in nature was associated with lower cortisol levels at the end of the school days compared with indoor classes (Dettweiler et al., 2017).

Article 1 confirmed the hypothesis that the students' basic psychological needs can be met, and that time spent in nature in an EOtC context helped the students to feel effective, agentic and connected. The findings furthermore show that the children's development was driven by their active engagement with environmental affordances and invitations which facilitated embodied and immersive experiences. Moreover, the interplay

with place and people specifically reinforced their satisfaction of relatedness and created a deepened sense of belonging to their community.

Thus, to foster children's healthy psychological and physiological development in EOtC, teachers should use the affordances and invitations of specific places as a starting point for their teaching to support the students to 'build roots' and develop their agency, competence and sense of belonging.

5.1.2 Does "Out" Get You "In"? – Education Outside the Classroom as a Means for Inclusion for Students with Immigrant Backgrounds

Article 2 explores how EOtC was used to foster the inclusion of students with immigrant backgrounds into their class community, using an ethnographic mixed-methods design, and presenting two exemplary cases.

5.1.2.1 Moments of inclusion and exclusion in EOtC

The stories of two immigrant students, Ali and Ben, revealed factors that can either prevent or facilitate experiences of inclusion during EOtC. Previous studies on social relations in EOtC have shown that lower secondary school students interact more with other classmates during outdoor lessons compared with indoor lessons (Mygind, 2009), that they build more social relationships and act more pro-socially (Bølling, Niclasen, et al., 2019). However, as illustrated in Ben's case, not all children seem to easily bond with others in the outdoor setting or form new peer relations. On the contrary, the students in my case study never chose by themselves to interact with different children outside than inside. Every interviewed child reported that if it was up to them, they would always prefer to be with the same peers. This was confirmed by their teachers and also found in a recent social network analysis in an EOtC

class in Germany (Ellinger et al., 2023). As can be seen in the two cases, individual psychological traits such as levels of openness or reserve or aggressive behavior, and abilities like language proficiency also determined to what degree the students were able to participate in the class community. These findings are in line with Adler and Adler (1995), who established the significance of personal characteristics for the dynamics of belonging in peer relationships. The importance of language proficiency for social inclusion has also been shown in a recent large-scale study conducted in Italy (Cavicchiolo et al., 2023). Interestingly, I could not observe exclusion in connection with the lower socio-economic status of the children with immigrant backgrounds, as might have been expected based on previous research that found an interaction effect between perceived lower socio-economic status and social integration (Veland et al., 2009).

Nevertheless, due to the greater freedom of choice and more hands-on activities, the outdoor setting had the potential to afford opportunities for the students to show individual abilities and strengths. In addition, the outdoor setting offered the teachers the possibility to change the social dynamics in class in a way that encourages participation, collaboration (Wenger, 1998), and the formation of new peer relationships (Gifford-Smith & Brownell, 2003), which again fosters inclusion. Ali, for example, was able to show an unexpected talent for painting during the visit to the local art museum and received praise from his classmates.

The data from the observations and the interviews imply that the students were especially proud when they achieved something together as a team where everyone played their part. This emphasizes the importance of the teacher in creating a safe and welcoming atmosphere, assembling the working groups, and finding suitable assignments in the 'right' places. Ben, for example, experienced being the strongest and therefore an important member of his group during the construction of their shelter, which boosted his feelings of pride and created a rare occasion where he was able to overcome his predominant sense of failure.

On an institutional level, the data indicate that the school fostered inclusion when working together with the community to create spaces for participation; for example, when they organized a workshop with the local brass band; planted potatoes at a community garden; or visited the mayor. Whenever the teachers acted in culturally or place-responsive ways, this created possibilities for the students to encounter their neighborhood, from the surrounding park landscape to the local fire brigade station, and to establish connections with places and people. This had an immediate effect on the participation of all the children and created a feeling of belonging. However, no instances could be observed where the immigrant children's own cultural backgrounds and stories were made visible by the teachers during EOtC.

On a systemic level, the rigid school system in this German federal state with its early selection and high academic pressure, generally limits the possibility for schools to engage in more inclusive approaches to education. Furthermore, the chaotic refugee placement procedures, where families were often moved around on short notice, also led to multiple dislocations of the children. As in Ali's case, his classmates were thus less motivated to meet his needs, as they were frustrated by having had to adapt to several prior changes.

Ali and Ben's cases show that there are many ways to create a more inclusive environment at school, and that EOtC, especially applied from a place-based education perspective, affords promising opportunities for students to show different aspects of themselves and to connect to the place (Beames et al., 2012). Yet, to enable the participation of all children in EOtC, it is necessary that the teachers ensure effective communication and understanding while being specifically aware of cultural differences and implicit power structures (Fruja Amthor & Roxas, 2016; Ivinson, 2000).

There is as much potential for exclusion outside as inside, and teachers need to understand the possibilities and constraints that are at play both in the outdoor and indoor spaces, always keeping in mind that inclusion

is a continuous process (Skeie et al., 2022). On the one hand, in this study, situations arose which allowed children to demonstrate their strengths in ways that would not have occurred in ordinary classroom activities. But on the other hand, these were not strong enough to surmount the relationships that 'deepened' over time and had been forged through interactions in the classroom.

To foster inclusion in EOtC, teachers need to become culturally and place-responsive by creating opportunities for all children to contribute to shared learning activities, to experience themselves as a resource, and to develop a feeling of belonging (Ainscow, 2020; Due et al., 2018).

5.1.3 Strengths and limitations of study 1

The study's significant strengths lie in its longitudinal design and the wealth of various materials collected throughout an entire school year. This allowed for a thorough understanding of the place and the people involved, fostering the development of trust and a broader context for individual observations. While case studies are inherently tied to specific cases and locations, this research project possesses numerous aspects that can be applied to similar situations and contexts, both nationally and internationally.

Nevertheless, it is essential to acknowledge a potential bias that may have been present when I entered the field as an outdoor education practitioner with a firm belief in the valuable benefits of EOtC. To mitigate this bias, I made a conscious effort to approach my role as a researcher and my connection to the research topic with a notion of reflexivity, both before, during and after data collection. I engaged in frequent discussions with external experts and colleagues to identify and address potential blind spots and conducted repeated member checks.

As there was no funding available for any interpreters, I also had to cope with language barriers, which might have caused some misunderstandings and underrepresentation, especially of Ali's voice. To mitigate this shortcoming, I observed Ali even more carefully and was in constant contact with his teachers.

Moreover, it would have been insightful to also present the perspective of a female immigrant student in the case study and to interview the families of the immigrant students to capture a more profound picture and hear about their own experiences first-hand. However, this was not possible due to the limited number of refugee children to sample from, as well as time and financial restraints.

Last but not least, dedicating even more time to the field with the participants might have offered additional insight into the sustainability of the students' initial connections with place and people, which could have been a valuable aspect to explore further.

5.1.4 Conclusion of study 1

Articles 1 and 2 connect two academic discourses, one about basic psychological needs satisfaction through the lens of EP, and a discourse about inclusive schooling via culturally and place-responsive teaching. In article 1, it has been shown that the EOtC setting was particularly good at making use of the affordances and invitations that specific natural features and places offered, thus enabling the students to engage actively with their surroundings. But as article 2 shows, culturally and place-responsive teaching approaches are important to achieve this when it comes to using EOtC to support the inclusion of students with immigrant backgrounds. Teachers need to adapt their teaching and find ways to provide a safe space so that all students can experience the benefits of the EOtC sessions, particularly where there are cultural differences or possible prior traumatic experiences.

Framing SDT and culturally and place-responsive teaching approaches within EP, presents a new perspective on EOtC and offers a way to address the challenges of increasingly diverse classrooms resulting from current global migration trends.

Based on these findings, the following implications can be drawn:

- It can be justified to add the need for nature as a fourth basic psychological need within SDT
- Teachers should practice place-essential teaching as a foundation to promote students' psychological and physiological well-being and to foster their relatedness to communities and the more-than-human world
- Culturally and place-responsive teaching should be incorporated into teacher education to equip teachers to meet the challenge of increasingly diverse classrooms

5.2 Study 2: National survey

5.2.1 The prevalence, provision and nature of uteskole

Article 3 presents data from a national survey on the prevalence, provision and nature of education outside the classroom in Norway. Compared to international provision of EOtC, as well as in comparison with other Nordic countries, the prevalence of 68.7% of regular uteskole in Norway can be deemed exceptionally high (Dettweiler & Mygind, 2020). It is difficult to compare the Norwegian data with the findings in Scotland since the methods are different and the Norwegian approach cannot reliably quantify the provision in minutes per student per week. But given the prevalence of uteskole in Norway (68.7%), and the fact that 72% of those schools that provide uteskole go out either half a day (about 180 minutes) or a full day (360 minutes) per week, the provision in Norway

is 25-50 times higher than in Scotland. The prevalence of uteskole in Norway is, however, directly comparable to data from Denmark after recalculating the data provided in Barfod et al. (2021) with the same methodology applied to the Norwegian data. Based on the responses from the combined online and telephone data, the prevalence for having udeskole in Denmark is 20.1% compared to 87.6% in Norway when all forms of uteskole are counted, and 19.3% compared to 68.7% for regular uteskole for at least half a day every other week.

The higher prevalence in Norway can probably be explained by two reasons. First, in Norway friluftsliv is part of the physical education curriculum and activities such as hiking, making campfires and cooking simple food over them, count as curricular learning activities. Whereas in Denmark, those friluftsliv-related activities are rarely curricular. They are a compulsory but minor topic in physical education for 7th grade students and above, and municipalities can offer friluftsliv as an elective subject. Thus, it is expected that friluftsliv is only occasionally registered as udeskole in Denmark. Second, the overarching pedagogical goals in the Norwegian 2020 curriculum are often addressed through uteskole, whereas such an incentive is not set out in the Danish curriculum, although public Danish schools must collaborate with social institutions and companies, for example, by using EOtC to follow The Open School approach (The Danish Ministry of Education, 2014).

When it comes to the different models of provision of uteskole in Norway and Denmark, the categories “half a day every two weeks” (17% in DK and 16.5% in NO) and “a whole day each week” (32% in both countries) are equally frequently used in both countries. The biggest differences are in categories (5) and (6): whereas “one day every two weeks” seems a quite popular model in Denmark (29%) it is not so in Norway (7.7%). There, “half a day each week” is by far the most frequently used model (41.4%). This model seems to offer the best trade-off between the benefits of uteskole and the pressure from other curricular activities and can probably best be explained by the easy access to suitable uteskole

places within less than 10 minutes walking distance for 88% of Norwegian schools. Finally, in Denmark, slightly more schools seem to offer EOtC "more frequent than a whole day each week" than in Norway (4.5% in DK and 2.6% in NO).

Although uteskole is a national phenomenon in Norway with almost equal prevalence in every county, there are some deviations. The provision of uteskole is lowest in the Oslo metropolitan region which might be due to more limited access to suitable uteskole places in the closer surroundings of the schools. The very high prevalence of uteskole in Vestfold og Telemark, however, can so far not be explained and needs further examination.

The declining provision of uteskole in Norway as students progress through grades 1-4, 5-7, and 8-10 can most probably be explained by increasing academic pressure, especially in the transition from elementary to lower secondary education, which is also the point when students begin to receive grades and teachers seem to prioritize more classroom-based forms of education. The same declining provision through grade levels can be seen in Denmark (Barfod et al., 2021).

The findings show that 46% of Norwegian schools practising uteskole can rely on teaching staff with formal uteskole/friluftsliv training, and 38% of the schools have staff with informal uteskole competences. According to the provided data, uteskole is used in virtually every subject. So far, however, formal uteskole training in Norway seems to be concentrated mainly within physical education teacher education. This might also partly explain the focus on friluftsliv activities in Norwegian uteskole practice.

5.2.2 Strengths and limitations of study 2

Study 2's survey does not provide information on uteskole practices at the subject level and does not evaluate how closely and pedagogically

successful the continuity of classroom teaching in uteskole actually is or to what degree it responds to the places used. Recently, Winje and Løndal (2021a) identified some room for improvement regarding continuity and suggested how teachers can be supported in "facilitating transaction between the pupils and the environment outdoors and aid in establishing continuity between learning activities outdoors and indoors" (p. 133). As shown in study 1, the students' active engagement with specific environmental affordances in EOtC teaching settings improved their academic engagement and well-being. It also described, how an EOtC approach with a strong focus on culturally and place-responsive teaching offers possibilities for the participation of all students and offers a promising way to achieve more inclusive schools.

This survey is the first systematic mapping of the prevalence and provision of uteskole in Norway, at least in the past 25 years, since the findings from the earlier survey (Bjelland & Klepp, 2000) could not be accounted for in the original and could not be quality-checked. This study provides robust and rich data on this widely used teaching approach, which can be used to inform educational policy and teacher education strategies (Mandinach & Honey, 2008a). The alignment with prevalence assessments in Denmark and Scotland (Barfod et al., 2021; Barfod et al., 2016; Bentsen et al., 2010; Mannion et al., 2023), has bolstered the external validity and comparability of this study's findings.

However, this study also has its limitations. It would have been beneficial to record the organisation number of the schools contacted by telephone to link their answers to the items for the geographical distribution analyses. This would have made the study even more robust with respect to the presentation of the nature of uteskole. However, I did not have ethical clearance for this documentation, as this would have involved person sensitive data.

It can furthermore be assumed that the deep anchoring of friluftsliv in Norwegian history and culture also explains the high prevalence and affects how uteskole has been - and still is - conceptualized and taught in

Norway. This might to a certain degree also replicate some of the exclusive tendencies in Norwegian friluftsliv with respect to social class, gender, ethnicity and age, put forth by Gurholt (2016), Gurholt et al. (2020) and Skille et al. (2023). The latter explicitly underlines the underrepresentation of Sámi perspectives and discusses the rich potential that lies in indigenous contributions to friluftsliv, which might also be the case for uteskole practice (Bergan & Laiti, 2023).

5.2.3 Conclusion of study 2

The most important finding from study 2 is that, with a prevalence of 68.7%, regular uteskole is indeed a widely used teaching approach all over Norway. Uteskole is most often practiced "half a day each week", which can probably be explained by the fact that the majority of Norwegian schools have easy access to suitable uteskole places within 10 minutes walking distance. There is a noticeable drop in the provision of uteskole in the transition from elementary to lower secondary education after grade seven, most likely due to the introduction of grading and an increasing focus on academic learning. Although uteskole in Norway is especially inspired by the concept of friluftsliv, the data reveal that virtually all curricular subjects are taught in EOtC and that the uteskole teaching is considered to be connected to indoor teaching.

Based on these findings, the following implications for further research and educational policy can be made:

- Given the prevalence and considering that up to 20% of all teaching in primary and lower secondary education in Norway takes place outside the classroom across all subjects, uteskole should become a mandatory element in teacher training
- Further research needs to increase expertise and capacity by developing good uteskole practices, teaching concepts and practical guidelines

- Further theoretical and methodological diversity for a more inclusive uteskole for all students needs to be encouraged, with a special focus on place and cultural responsivity as well as indigenous, particularly Sámi, perspectives

As this study sheds light on the prevalence and nature of uteskole in Norway, it serves as an initial step towards re-evaluating the systems of teacher training and educational practice. It is essential to acknowledge that schools play an immense role in shaping future generations, and uteskole presents a significant opportunity to contribute to students' holistic development. The findings imply that widespread incorporation of such teaching practices should be underpinned by well-trained educators. With the substantial evidence highlighting the positive effects of uteskole, Norway is uniquely positioned to provide its future generations with an education that equips them to meet the challenges that confront our world.

5.3 Discussion of the thesis as a whole

In study 1, the ethnographic case study, the Scandinavian concept of uteskole had been adopted in a German elementary school, specifically to address the challenges of including students with immigrant backgrounds in the class communities. The findings were then used to inform a discussion of the results from a national survey about the prevalence, provision and nature of uteskole in Norway. This implies referring to multiple systemic and institutional contexts for an understanding of EOtC in two countries, Germany and Norway, and raises the question of whether comparisons can be drawn and if the insights gained can provide learning across systems and cultures.

The thesis can be seen as a special case of ‘comparative’ educational research (Crossley & Watson, 2003) where a teaching model from one country is adopted in another, and where the findings are then transferred

back to the 'original' country. Although the aim of the thesis was not to directly compare EOtC practices in Germany and Norway, the challenges due to different cultural influences and educational practices (Bereday, 1964; Kelly, 2013) still remain. Despite difficulties in doing research in different contexts, a dialogue between cultural perspectives on EOtC practice can provide new understandings and establish a framework for diverse teaching and learning approaches (Waite et al., 2016).

As has been mentioned already, the overall design of this thesis is the result of merging two distinct projects and thus, some parts of the puzzle do not fit seamlessly. As I wrote in the prologue, I needed to conduct a mapping survey of uteskole in Norway in order to meet the requirements of the stipend, which meant that there was not an immediately clear connection between the ethnographic data collection in Germany and the Norwegian mapping survey.

However, bringing back the findings from a Scandinavian model of EOtC used in Germany to Norway made it possible to view uteskole without culturally influenced friluftsliv concepts and traditions. Maybe the German experience can support research from Norway to, in Hacking's terminology, "unmask" certain hidden exclusive tendencies or unused potential of uteskole in Norway. And it might even be necessary to move towards a "rebellious" stance when it comes to inclusion of immigrant students, one that fully incorporates culturally and place-responsive aspects and takes a more holistic view of education. Thus, it can also be seen as a strength of this PhD thesis that it covers two countries, draws lessons from a single case study and considers how these could be applied at the national policy level in both countries.

Furthermore, it made use of diverse methodologies: participatory observation and interviews in the ethnography, in addition to longitudinal quantitative pre and post surveys, and a cross-sectional national survey in the mapping project. Moreover, the thesis helps to close certain re-

search gaps: 1) how the satisfaction of basic psychological needs as described in SDT functions in EOtC through the lens of EP; 2) looking at the potential of EOtC to foster inclusion; and 3) mapping the prevalence and provision of uteskole in Norway and providing information about its nature.

As the link between study 1 and 2 is mediated via literature on friluftsliv (Broch, 2018; Skille et al., 2023) and not self-collected data on uteskole, the connection is not instantly obvious. However, I used the theories and concepts of inclusion and the findings from study 1 as a lens to inform the data interpretation in study 2 and thus tried to transfer knowledge between systems and cultures.

The limitation of not collecting data on the inclusive potential of EOtC in Norway as well, is compensated for by the quality of the ethnographic field work in Germany that lasted over a whole school year and included the preceding two years that prepared the field. This would not have been possible to replicate in Norway within the time frame of the PhD stipend – let alone given the cultural and language barriers for a German researcher in a Norwegian school. In retrospect, it was even more important that I was able to make use of an already completed data collection as the pandemic made it impossible to undertake a case study like that, which meant that I would have needed to change the complete research design. And although COVID did have some implications for the mapping survey, these were issues that I was luckily able to adapt to by sending out the survey at a later time than originally planned.

Another limitation is that for Norway, only school level data were available, meaning that students' voices are missing. However, the mapping study was always meant to be seen as a starting point and the current data for example do not capture how inclusive uteskole practice is in Norway. So far, it can only be assumed that the exclusive elements that are at play in friluftsliv probably also apply to uteskole, and further research needs to investigate this in more detail.

5.4 Conclusion and Implications: Pedagogical practices, prevalence, and potential of Education Outside the Classroom

Even though there are many differences when it comes to EOtC/uteskole in Norway and Germany, and other countries, I believe there are a lot of things that can be learned from each other. The German case study reveals how the students' active engagement with environmental affordances in EOtC settings supports the development of agency, competence and a sense of belonging (article 1). Furthermore, the two stories from the case study (article 2) illustrate which factors influence the inclusive or exclusive potential of EOtC, and how a focus on culturally and place-responsive teaching can support the connection to places and people, thus fostering inclusion. The results from the mapping project (article 3) clearly show that uteskole is a nation-wide phenomenon in Norwegian schools; and recent literature indicates that there seems to be a gap when it comes to the awareness of its inclusive potential and the importance of place. Therefore, the findings of my research project could contribute a) to inform education policy in Norway to establish uteskole as part of every subject in teacher education with a focus on culturally and place-responsive aspects to bridge cultural differences, avoid exclusion and provide an uteskole for all students; and b) influence uteskole or EOtC research in general to develop more inclusive and effective educational practices everywhere that consider the affordances and invitations of place.

A specific next step would be to repeat the ethnographic case study in the Norwegian context with an additional focus on indigenous Sámi perspectives. The mapping survey needs to be followed up by more in-depth analyses of the nature and use of uteskole in Norway to find out how it is *de facto* practiced and how teachers are prepared for teaching outside the classroom in pre- and in-service teacher education. Last but not least,

further research should include information at the student level in relation to uteskole, for example looking at well-being and inclusion, motivation or academic achievement.

Moreover, in acknowledging that EOtC is interpreted differently and has diverse legislative frameworks even in countries as similar as Norway and Denmark, it is necessary to encourage more studies investigating the impact of uteskole on students' outcomes with an eye on national and local contextual factors. This is crucial for understanding whether and how uteskole in Norway can enhance and sustain well-being and school motivation, for both students excelling in school and those who are marginalized.

Regarding global conditions, we might have to change education drastically and jump to a "revolutionary" (Hacking) stance, especially in the Western world, to enable a flourishing life for future generations of humans and more-than-humans in a shared world. Such a relational approach would be sensitive to non-Western cultures and traditions and could also be inspired by indigenous knowledge to preserve nature and to promote children's well-being.

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Appendices

Appendix 1 – The three articles

Article 1:

Lauterbach, G. (2023). "Building Roots"—Developing Agency, Competence, and a Sense of Belonging through Education outside the Classroom. *Education Sciences*, *13*(11). https://doi.org/10.3390/educsci13111107

Article 2:

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Article 3:

Lauterbach, G., Bølling, M., & Dettweiler, U. (2024). Education Outside the Classroom in Norway: The Prevalence. Provision, and Nature of Uteskole. *International Journal of Educational Research*, -accepted 18 March 2024, available online 30 March 2024. DOI: https://doi.org/10.1016/j.ijer.2024.102349 -

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Article

“Building Roots”—Developing Agency, Competence, and a Sense of Belonging through Education outside the Classroom

Gabriele Lauterbach

Special Issue
New Ways of Seeing Outdoor and Environmental Learning
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Article

"Building Roots"—Developing Agency, Competence, and a Sense of Belonging through Education outside the Classroom

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Abstract: This study investigates how Education Outside the Classroom (EOtC) was used to support the students' basic psychological needs, i.e., their need for competence, autonomy, and relatedness as described in Self-Determination Theory (SDT). The framework of Ecological Psychology (EP) was applied to explicate how the EOtC teaching settings helped the students to become effective, agentic, and connected. The findings show that this process was driven by their active engagement with environmental affordances which facilitated embodied experiences. Moreover, the interplay with place and people specifically reinforced their satisfaction of relatedness and created a deepened sense of belonging to their community. It is concluded that in order to foster the children's healthy psychological and physiological development in EOtC, teachers should make use of the affordances and invitations of specific places as a starting point for their teaching to support the students to develop agency, competence and sense of belonging.

Keywords: education outside the classroom; self-determination theory; ecological psychology; affordances; agency

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1. Introduction

1.1. Education Outside the Classroom

In an increasingly complex world, there is a need to find new ways in education to support children to develop agency, competence, and a sense of belonging which are seen as fundamental universal motives for human flourishing. Ryan and Deci define flourishing as individuals who become "motivated, vital, resourceful, and fully functioning adults" [1].

In recent years, the experiential teaching approach Education Outside the Classroom (EOtC) has gained influence as an alternative way of teaching [2] that has the potential to promote student well-being and motivation [3,4]. EOtC can broadly be defined as relocating standard curriculum teaching to places outside the school building, such as forests, parks, school gardens or museums, for a single or a few days per week; it is used as a supplement to indoor classroom teaching [5,6] and affords enriched, experiential, and situational learning [7–9].

EOtC research so far had a strong focus on students' physical activity (PA) and shows that children at the age between 7 and 13 years are physically more active [10–13] during EOtC sessions and that EOtC has significant effects on their health and well-being [14–16]. In this context, two major theories, stress reduction/recovery theory (SRT) [17] and attention restoration theory (ART) [18], are used to explain the restorative qualities of nature in EOtC. While SRT argues that contact with nature reduces stress and negative affect, ART claims that immersive experiences in nature restore cognitive abilities. Both make use of a biophilia argument that humans evolved in natural environments and therefore function best in natural surroundings.

It has further been reported for this age group that EOtC fosters students' social relations [19,20], pro-social behavior [21], levels of participation [7], and inclusion, the latter especially for students with immigrant backgrounds [22]. Moreover, EOtC also provides

the opportunity to strengthen student–teacher relationships [23] and increases learning motivation [24,25]. In a study by Szczytko, Carrier and Stevenson [26], teachers stated that students with reported emotional, cognitive, and behavioral disabilities had significantly improved attention spans and decreased disruptive behaviors when learning outdoors. In their conceptual analysis, Barrable and Arvanitis [27] explicitly link EOtC and SDT and propose that the fulfillment of the three basic psychological needs leads to a flourishing human life.

1.2. Self-Determination Theory

Self-Determination Theory (SDT) is one of the most referenced theories in EOtC research and describes motivational behavior in terms of psychological well-being [1]. In SDT, the students' learning motivation depends on the satisfaction of so-called basic psychological needs. Deci and Vansteenkiste [28] describe the students' need for *competence*, *autonomy*, and *relatedness* as "universal necessities" which are "not learned but are an inherent aspect of human nature and thus operate across gender, across culture, and across time" (p. 25). In reference to White [29], they define the need for *competence* as people's desire to be effective and to experience mastery in dealing with their environment. The need for *autonomy* refers to people's universal urge to become self-regulated, to experience freedom of choice, and to act in accord with their interests and values. The need for *relatedness* expresses the human desire to be socially connected and to experience feelings of care and belonging.

In the school context, this means that in order to facilitate more self-determined learning, these three basic human needs should be promoted to enable the students to feel effective, agentic, and connected while they are confronted with new ideas and learning content [30]. From school research, it is well known that students learn better if they are comfortable, confident, and enjoy what they are doing [31], which in turn leads to higher motivation. Hereby, the concept of situational interest, i.e., interest that arises spontaneously [32] and builds on novelty, challenge, attention demand, exploration intention, and instant enjoyment [33], becomes vital. Toward these ends, teachers play important roles, as they are actively responsible for the creation of school environments that support these basic psychological needs [34], for example through the provision of appropriate structure [35].

Since the proportion of the world's population living in urban areas is growing annually, people are affected by reduced contact with nature. There is an abundance of literature that attributes this with negative effects on human well-being and functioning [36]. Recently, Ryan and Deci [1] suggested that time spent in nature may make an important contribution because it promotes intrinsic motivation; catalyzes a sense of vitality and well-being; and encourages positive social relations, prosocial tendencies, and community cohesion [37,38]. Hereby, SDT refers to the capabilities approach to development as advocated by Sen [39] and Nussbaum [40] since both, SDT and the capabilities approaches, go back to Aristotle's eudemonic view of happiness and emphasize the importance of autonomy, or free choice in action as a basis for a flourishing human life [41]. Empirically, it has been shown that SDT's basic needs partially mediate the relation between capabilities and indicators of wellness [42], by "facilitating need satisfaction—that is, experiences of autonomy, competence, and relatedness—and by preventing the frustration of these needs" [1].

1.3. Ecological Psychology

This alignment of SDT with the capabilities approach also links SDT and Ecological Psychology (EP), which becomes apparent in the role that the concepts of competence and relatedness have in each theory. Ecological Psychology, grounded in the pioneering work of James J. Gibson, advances a fundamental ontological proposition, which asserts a profound and direct interconnection between organisms and their environment in the complex process of perception. In EP, meaningful action possibilities of environmental features are

Appendices

called "affordances" [43,44]. Recently, it has been suggested that the affordances need to be complemented by the concept of "invitations". While affordances capture the ecological facts of a situation and determine the appropriateness of displayed behavior, invitations explain the behavior and capture "what the world does to the agent, what affective behavior it solicits, in whatever way" [45]. Hereby, the concept of *transaction* is significant as it highlights "people's relations with physical artefacts, plants, animals, other humans, and features of the landscape" [46]. This transactional perspective underscores that cognition and behavior emerge from this embedded relationship, emphasizing the inseparable connection between an individual and their ecological context [47]. Within this transactional process, agents can relate to places and people and develop a sense of belonging.

The goal of EP is to explore the relationship between qualities of everyday environments and psychological well-being [48]. According to Chawla, time spent in nature is vital for children since a transactional relationship with nature is understood as "an essential dimension of a fully realized human life" [49] and enables them to develop competence and agency. Hereby, the children's development is promoted by embodied engagement with environmental affordances [50], which are site specific. Flat, relatively smooth surfaces for example afford for "walking, running, cycling, skating, or skateboarding", while relatively smooth slopes afford for "coasting down, rolling, sliding, or rolling objects down" [51]. With growing motor skills, children then discover new opportunities for movement and thus new affordances [52] and build the "capacity to understand and shape their everyday environment" [53].

Another aspect of EP is the importance of children's participation in communities which promotes opportunities for the students "to exercise control over values spheres of life" [53] and to build a connection to their immediate surroundings. This also connects EP with Place-Based Education (PBE) as both approaches emphasize the use of the local community and environment as a starting point for learning [54]. Establishing a relationship to local places and people "helps students [to] develop stronger ties to their community, enhances students' appreciation for the natural world, and creates a heightened commitment to serving as active contributing citizens" [55]. This relationship with nature and other people further explains how these experiences affect the students' general well-being [49], which links Ecological Psychology and Self-Determination Theory with Education Outside the Classroom.

There are several studies in EOtC research that have used SDT as a theoretical frame to investigate student motivation and basic needs satisfaction as an outcome of EOtC [56,57]. Most of these studies focus on teachers' perspectives. The few studies on the children's views are mainly quantitative, and there have so far been no studies that investigate empirically the mechanisms that explain the effects on students' motivation as a consequence of their participation in EOtC. There is a gap in the literature concerning a deeper understanding how these effects can be explained. This study's main hypothesis is that in EOtC, the affordances and invitations of the teaching arenas are especially prone to support the students' experience of psychological needs satisfaction, and their development of agency, competence, and a sense of belonging.

2. Material and Methods

2.1. Ethnographic Case Study

As it was important for me to obtain in-depth information about EOtC in a real-life setting [58], I chose an ethnographic approach and followed two school classes for a whole school year whenever they had EOtC [59]. As a subject area, ethnography developed from the disciplines ethnology and sociology of the early 20th century and was primarily interested in the question of 'what is going on out there?' with the aim to describe foreign worlds. Ethnography is characterized by (1) its subject matter, i.e., social practices, (2) a prolonged stay in the research field applying participatory observation, using a plurality/combination of methods, and (3) documentation [60]. It was one of the first qualitative techniques that

Appendices

was adapted for school studies [61]—and since the 1980s, it has been extensively used in the field of educational research and also specifically in EOtC research [4,56].

2.2. Participants/the Field

The elementary school in this investigation was located in a small village in a rural part of Southern Germany. The school consisted of about 80 students from grade one to four with one class per grade level and had recently implemented EOtC as part of their school profile.

The convenience sample [62] was defined from the start, as I had been asked by the headmistress to conduct this research project with two classes (second and third grade) whose teachers wanted to be part of the project. The students (between age seven and nine) from both classes were predominantly from local families of rather high socio-economic status, among whom were five children with immigrant backgrounds and one child with Down Syndrome who was accompanied by a school assistant. In addition, three teachers participated in this study, the class teacher for the second grade, the science and physical education (PE) teacher for the third grade and the headmistress, who was also the PE teacher for the second grade.

Because I was involved over two previous years in assisting to establish EOtC at that school, I was therefore already familiar with most of the staff and the existing school culture.

2.3. Ethical Considerations

Approval for this study was granted by the German district's school authority and the Norwegian Agency for Shared Services in Education and Research (SIKT-500199). Teachers and the author attended an informative school meeting with the parents where the project was presented, questions answered, and consent forms with multiple method choices (observation, interview, photos) were provided, ensuring anonymity and voluntary participation with the option to withdraw without repercussions at any stage in the project. It is acknowledged that researchers have a unique responsibility when working with children, especially with respect of safeguarding privacy, and ensuring emotional well-being. These concerns were addressed by accompanying the children throughout the whole school year to develop a trusting relationship.

2.4. Data Collection

2.4.1. Ethnographic Fieldwork

One important source of information was 27 days of participatory observation during the school visits and a 3-day field trip to the Alps. Even though the definition of EOtC used in this project is rather broad and encompasses more than 'only' natural environments, an element of nature was present in 26 of the observed EOtC sessions (cf. Table A1 for details). I followed the two school classes and their respective teachers whenever they left the school building for their EOtC sessions and sometimes also when they had "normal" schooling inside. The purpose of the latter was to assess whether the students behaved differently in the school as compared to what had been observed in EOtC. During the participatory observation, I took hand-written fieldnotes (jottings) that consisted of brief descriptions, abbreviations, and symbols which I later transcribed and expanded into observation memos that captured my initial impressions, key events, conversations, emerging patterns and their exceptions [60,63].

2.4.2. Regular Debriefings with the Teachers

A primary incentive for participation of the teachers was the provision of feedback on their EOtC practice. To do so, I held regular meetings with the staff after every EOtC session. During those more informal conversations, important background information was given by the teachers that again served to deepen the understanding of the observations. I wrote minutes of those meetings and included them into my observation memos [64].

2.4.3. Semi-Structured Interviews with Teachers at the End of the School Year

I also conducted three individual semi-structured interviews towards the end of the school year to give each teacher an opportunity to reflect on their EOtC practice and talk about significant experiences. Questions included pedagogical goals connected with EOtC, observations on social relations, and the students' learning As time for communication during ordinary school days was usually short, those in-depth individual interviews also gave me the opportunity to learn more about the teachers' experiences throughout the school year and their motives to engage in EOtC. It also helped to fill in some information gaps with no time pressure in a relaxed atmosphere away from school [65]. The interviews lasted between 42 and 52 min.

2.4.4. Guided Interviews with Students at the End of the School Year

After having observed the students over one whole school year, I also wanted to give them a chance to voice their own reflections about their EOtC experiences. Questions included what they remembered best from the previous year of EOtC, what they liked or did not like about it, and also covered some questions on social relations. Due to time restrictions imposed by school routine I was unfortunately not able to interview every single child but after consultation with the teachers [66]. I conducted interviews with 23 individual children, each for eight to ten minutes. I selected the children according to gender, ethnic background and how visible/noticeable they had been during my observations, choosing both those who had been very noticeable and those who had not attracted much initial attention. Participation in these interviews was voluntary. By then, I had developed a trusting relationship with the children and had the impression that they felt quite relaxed talking with me and also seized the opportunity to ask me questions about my research or myself in return. Where any sensitive data that arose or if the children started to talk about fellow students or other "third parties", it was omitted for publication. After individual consent of each student and their parents, these interviews were tape recorded and afterwards transcribed verbatim for analysis [67].

2.4.5. Two Expert Rounds

To mitigate observation bias and to handle questions of unbalanced power relationships between myself as a researcher and the participants in the field [68], I conducted two debriefing rounds during the school year with a group of EOtC experts who were not personally involved with the project. Prior to the meetings, excerpts from the observation memos together with some questions or problems that arose during field work had been sent to the group and then been discussed in detail upon meeting in person. Directly after the meetings, I wrote summary minutes. This feedback helped me to review my own material and my procedure from a different perspective [69,70]. Furthermore, I stayed in email contact with them during the whole time, asking for advice whenever questions arose. Analysis of fieldnotes and interviews

During data collection, after each day of observation, an initial interpretation of the data was already performed while transcribing the field notes into the observation memos. I again reflected upon these interpretations when preparing for the expert rounds from which I received further insights and sometimes indications towards other possible understandings of my material. Furthermore, the repeated discussions with some of my colleagues and with the teachers influenced understanding and further collection of the data.

The systematic post hoc analysis started with reading through all the material to obtain a sense of its entirety. Thematic content analysis [71] was applied, first generating 25 initial codes from the data, such as "structure and rituals", "freedom", "hands-on activities", or "bodily/sensory experiences", which were then subsumed into eleven themes. To structure the material, the themes were deductively associated with the guiding theories, SDT and EP. Hereby, three themes (experience of self-efficacy, autonomy, and relatedness and building connections) were coded under SDT, three themes (qualities of the outdoors, affordances of

the outdoors, and embodied experiences) under EP—although in the actual EOtC situations, these themes interacted and overlapped. In a next step, situations were identified which were dominated by themes that were related to both SDT and EP. Whenever the remaining five themes (joy, role of the teacher, gender aspects, barriers, and impact on everyday life) were present in those situations, they were used to provide yet another layer of explanation. See Table 1 for an overview of codes and themes and Figure 1 for a detailed depiction of the research design and the analytical approaches.

Table 1. Codes used to classify stereotypical situations that show how EP is related to the basic psychological needs in SDT.

Stereotypical Situation	Codes	EP-Related Themes	Basic Psychological Need	Difficulties and Barriers
Assisting student learning and well-being through hands-on activities that enable them to show different sides of themselves.	role of the teacher showing different sides of oneself hands-on activities physical activity bodily/sensory experiences structure and rituals	qualities of the outdoors affordances of the outdoors embodied experiences	Competence	unsuitable group constellations teachers' insecurities, unfamiliarity with places and people, and lack of interest
Assisting student learning and well-being through providing safety and structure (rules, rituals, precise instructions).				difficult to maintain control of and communication with class over a larger area rituals need practice (time consuming) students are more easily distracted outside
Assisting student-learning and well-being through providing opportunities for freedom, discoveries, and choices.	physical activity freedom curiosity relation to everyday life role of the teacher flow joy		Autonomy	finding the right balance between freedom and control great responsibility for student safety less control over learning outcomes due to the rich and sometimes unpredictable qualities of the outdoors
Assisting student-learning and well-being through relevance to everyday life.				
Assisting students' well-being through fostering peer connections.	social aspects physical activity freedom fresh air hands-on activities role of the teacher place and people sharing experiences with the family showing different sides of oneself friends students' reflections on teachers		Relatedness	social structures from inside are reinforced outside without teacher-intervention building new peer connections takes time
Assisting students' well-being through strengthening student–teacher connection.				
Assisting students' well-being through establishing connections to place and community.				teachers' insecurities, unfamiliarity with places and people, and lack of interest
Assisting students' well-being through aesthetic and restorative qualities of the outdoors.	physical activity freedom fresh air noise aesthetic experiences curiosity bodily/sensory experiences hands-on activities role of the teacher place and people flow joy lasting memories		Nature	finding the "right" place disturbances need to be addressed immediately
Assisting students' well-being through immersive qualities of the outdoors.				

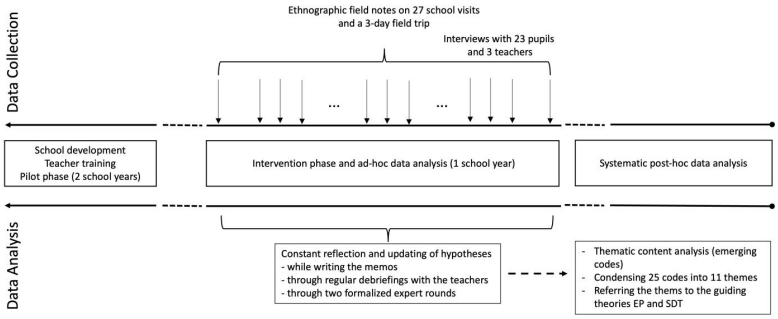

Figure 1. Study design with data collection and analysis strategies.

3. Results

3.1. The Need for Competence: To Feel Effective

> *"The interest of the children alone/they were totally involved in the topic, right from the beginning when we marched in there [into an art exhibition at the local museum] in a spiral, and I told them a few facts/but also later, when we broke up into groups/and the children lay on the floor all over the museum and somehow drew something according to Hundertwasser, and you really noticed that they had totally understood what the artist wanted to express, in his entire life actually/what he wanted to say, they got that and somehow wrote it down or painted it in their notebooks" (class teacher, 2nd grade).* (The symbol "/" signifies a noticeable pause in the speech flow. Ellipses "(. . .)" are used to express an omission. Words in brackets "[]" are added by the author to make the quote more readable.)

In the following two sections, I will show how the codes "role of the teacher", "hands-on activities", "physical activity", "showing different sides of oneself", "bodily/sensory experiences", and "structures and rituals" can explain the satisfaction of the students' need to feel effective (see Table 1).

3.1.1. Assistance and Support

My findings illustrate that the teachers had a strong influence on the students as role models: if a teacher from my study showed signs of insecurity or lack of interest, this had an immediate impact on the students' behavior and involvement. On the other hand, when they were enthusiastic and attentive, this was usually mirrored by the students.

Another aspect of the importance of the teachers' role for the students' experience of competence was mentioned by one of the teachers during the interview. She appreciated that EOtC gave students who often underperformed in the classroom a possibility to shine:

> *"well, sometimes the 'strong' students who do everything with ease in class may not shine in EOtC and erm/maybe that's not really their thing/but that the 'weak' students who actually/in class/have a lot of experiences of failure, then when [they are] outside and (uhh) [are] digging for potatoes or something (. . .); well, they simply have a completely different task/or they are challenged in a completely different way and also have a sense of achievement"* (class teacher, 2nd grade).

These often more physical, hands-on activities in EOtC seemed to support the children's feeling of agency and self-efficacy. To illustrate the power of such embodied experiences, another teacher described a lesson about the topic of speed which she claimed to be

a rather complicated concept: *"for some of them [the students] it is simply not understandable to grasp the topic of speed in a closed room"* and so she decided to teach this outside:

> *"We went to 'Nussallee' [an alley close to the school with many chestnut trees], we estimated the [length of the] alley, we measured how long it is, and walked along Nussallee once and measured the time [this took] and measured it [again] once while jogging and once at full speed. And then we went back to school and then calculated it, the speed, as it had been in each case. And after the unit, all the kids knew what speed is. Because they experienced it themselves with their own bodies and this was then also reflected in the written tests afterwards/the [positive] results simply reflected that this really was the case, that it wasn't just a guess on my part"* (head mistress).

3.1.2. Providing Structure

A further aspect to support the students' experiences of competence according to SDT is the provision of structure. In the EOtC setting, special attention needs to be paid to safety issues and risk management. As the teaching spaces in EOtC were often spread over a larger area, it was more difficult for the teachers to observe the learning processes and what was going on within each group.

My observations show that it was important to regularly clarify and practice the rules of conduct and that it proved to be very helpful when the EOtC sessions were rhythmized with a structured beginning and ending to create a familiar and safe frame outside of the school building. The teachers in my case achieved this by first collecting all the students in front of the school building where they then checked them for clothing and gear and gave a brief overview of the coming activity, reminded them of the rules that applied outdoors, and answered emerging questions. At the end of the school day, the students gathered again at the same place where the teachers recapitulated the day, listed once more what they had learned during today's EOtC session and closed the activity with an official ending ritual. Moreover, the children themselves were also given responsibility to maintain structure by taking on "services" during the outdoor lessons, i.e., the 'orienteering team' that was responsible for finding the way, the 'safety team' that needed to make sure that no one got lost or did something dangerous like climbing too high, and the 'medical team' that was carrying the first aid kit and provided first aid when necessary.

Furthermore, the teachers also had to give very precise instructions for the EOtC assignments and bear in mind that some of the teaching material from inside might not be suitable outdoors, such as the paper working sheets mentioned by a girl from the third grade: *"Yes, sometimes it's better inside when it's cold and when it's raining because sometimes the drops can fall on the work sheets and then you can't see anything anymore"*.

Other observed barriers were that some of the students were more easily distracted outdoors, and several children mentioned that it was sometimes difficult to follow the teachers' explanations, as one girl from the third grade remarked:

> *"When they [the teachers] explain something, they often show things and then we often don't see anything because everyone is jostling and then I can't really hear either and then I mostly talk to my girlfriends."*

3.2. The Need for Autonomy: To Feel Agentic

> *"I can totally identify a motivation to learn [in EOtC]/when I observe the children, when I'm outside with them (. . .) how committed they are, how they try to solve their assignments together in a team, how they communicate, how (. . .) high their agency is in comparison to the lessons [inside]"* (head mistress).

In the next two sections, I will use the codes "physical activity", "freedom", "curiosity", "relation to everyday life", "role of the teacher", "flow", and "joy" to explain how the richness of the outdoor environment with its many affordances and invitations can satisfy the students' need for autonomy (see Table 1).

Appendices

3.2.1. Providing Opportunities for Freedom, Discoveries, and Choices

A common theme in both the interviews with the students and the teachers as well as the field observations was that the students perceived more freedom in the outdoor lessons. For example, this sense of autonomy in the outdoors is expressed in the way the students use the space around them. Freedom was usually associated with not having to sit all day and being more at liberty to move around, as formulated by a boy from the third grade: "*we are freer/we can walk around more; we don't have to sit all the time like in the classroom (...)*".

A second aspect of the perceived freedom in EOtC is the possibility for discovery, as a boy from the second grade mentioned: "There *[outside] you can discover a lot. A lot!*" which was then specified by a girl from the same class:

> *"Because you learn something from nature there [outside], I think that's nice first (...) because you sometimes see animals, such as a rabbit, hopping across the meadow, for example when you walk along/that happens sometimes and you can also get very close to the birds that are in the bushes. They don't come fluttering into the school building and then you can also learn about the animals when you're outside, you can't do that so well inside".*

As a third aspect, my observations showed that EOtC also enabled the children to make more choices. The students were able to choose both individual strategies on how to work within the assignments as well as how closely they wanted to work together with others, including opportunities for retreats, as mentioned by one teacher:

> *"When they look for objects to measure (. . .) there is a much greater variety outdoors and then they also have the option to look for a quiet small place to take the measurements by themselves and this makes a big difference"* (head mistress).

This quality of the outdoor space with its various affordances has also been purposefully used by the teachers to engage the students:

> *"They are totally excited about the variety that is out there. They quickly realized that in the village and in our school surroundings they find much more learning opportunities than in a closed room"* (head mistress).

3.2.2. Relevance to Everyday Life

Another aspect of autonomy support is that the students understood the practical significance of the learning content and its meaning for their personal lives. Thus, the students appreciated that they were able to learn something from "reality":

> *"I"s just nice, because you can sometimes also play games and when we study outside, you also learn something from nature, not just something from books and such"* (girl, 2nd grade).

Moreover, the students were also able to bring in their own interests or something from home into the school. The children were always quite eager to share their own experiences and EOtC offered many opportunities to do this. For example, when one girl was allowed to bring her dog along when they learned about pets or when the children could use their own bird watching kits in the forest, this evoked moments of pride which again triggered their intrinsic motivation and curiosity and opened space for autonomous learning.

Another way to increase situational interest was when the teachers allowed the students to react spontaneously to stimuli, for example when the third grade visited the local fire brigade and several students started to follow the water running down the hill after a hosing demonstration to find out where it vanished into the ground, which led to speculations about what will happen with it afterwards. The teacher did not interrupt this process and commented on it in the interview:

> *"What really impressed me was how the children intuitively ran after this watercourse here on the street, where I thought, yes, that's exactly it [what EOtC offers]"* (teacher, 3rd grade).

At another EOtC session, when the students went to a local supermarket with a whole list of assignments to fulfill, their teacher mentioned afterwards:

> *"The children learned so incredibly much in one morning that I would not have been able to pack this into ten school lessons in the classroom. This assignment was incredibly rich, it contained plus calculation, estimating, there was weighing, ingredients of food, transport routes, there was packaging material and where does the waste go to, i.e., the whole area of environmental issues like disposal and recycling, then there was organic* vs. *conventionally produced food, self-made* vs. *convenient food products, healthy and unhealthy nutrition habits (. . .) that was, really, it was so full! And the children certainly remembered that much more than/well, there are also pages in the schoolbook about it, but I believe that the effect is much greater if you do it right on the spot, in small groups"* (head mistress).

Those moments of exerted freedom and the connection to their personal lives often led to joy in learning. The students did not perceive the outdoor lessons to be "real school" as shown in the quote of a girl from third grade: *"Just being in nature. That you have no school"*. Which was also confirmed by another girl from second grade: *"I feel like "m having fun all day and never like I am learning"*.

3.3. The Need for Relatedness: To Feel Connected

> *"When I take part in things, when I get involved in something, when I get committed, then I am also a part of it"* (head mistress).

In the following three sections, I will illustrate how the codes "social aspects", "physical activity", "freedom", "fresh air", "hands-on activities", "role of the teacher", "place and people", "sharing experiences with the family", "showing different sides of oneself", "friends", and "students' reflections on teachers" can satisfy the students' need for relatedness in EOtC (see Table 1).

3.3.1. Peer Connections

When it comes to student–student relationships, the overall impression from the participatory observations and the interviews was that specific qualities of EOtC offered various possibilities for peer interaction. The freedom to move around, the opportunities for free play, and the more informal setting offered some children the opportunity to approach classmates they were not able to bond with in the traditional school setting due to implicit social power structures. Nevertheless, those encounters were not very sustainable; rather, I observed that the social structures from inside were re-enforced outside. In the interviews, every child reported that if it was up to them, they would always prefer to be with the same kids, as one girl from the third grade formulated it: *"I always play with the same ones [in EOtC]"*—which was confirmed by her EOtC teacher when she said in the interview:

> *"I have the feeling that my evaluation of the social structures in class are more pronounced in EOtC (. . .) I sense that the same [social structures] that I notice in the classroom become more visible in the outdoors, not different"* (teacher, 3rd grade).

However, when the teachers deliberately assigned the shared collaborative activities in EOtC in a way that brought together students from different peer groups, there were moments when the new social connections sustained at least over a whole school day:

> *"I do believe that because of the long time period/that is, during the whole mornings/when they [the students] have to work together in their group/they develop a stronger sense of belonging together in a different way than they would do at school (. . .) that they are able to get to know each other's strengths and maybe also weaknesses and accept them"* (class teacher, 2nd grade).

During these occasions, the children were able to show different sides of themselves which was recognized by their peers and led to higher acceptance. One boy from a family who had recently immigrated to the community, was new to the class and was not able to

participate much in the "normal" classes due to language barriers showed an unexpected talent for painting during the visit to the local art museum which was noticed by a fellow student who exclaimed: *"And Ali/I did not know that he could paint so well! He really painted beautiful pictures"* (girl from 2nd grade). As a consequence, several classmates gathered around, and he obviously enjoyed their recognition.

3.3.2. Student–Teacher Connection

In my study, I observed that the more open EOtC setting created a space that the teachers often used for informal conversations with individual children, for example during walking time to the different EOtC sites and back to school. And the students also seized those opportunities to chat with their teachers and their classmates in a way that was not possible indoors, as in the classroom usually stricter rules of conduct and time pressure prevailed.

Moreover, the students recognized several of the benefits of EOtC they perceived for themselves also for their teacher, as stated by a boy from the second grade: *"she [the class teacher] is getting some fresh air and she's rested from all the stress of teaching in the classroom"*, and another classmate explicated further: *"I think she's even happier there [outside] because it's airier there and if/if, because it's much nicer outside and it's not so loud because the others/they look around and if they find something nice then how can you be loud?"*. In addition to getting fresh air and more quietude, being happier and rested, one boy mentioned that his class teacher *"might also see new things [outside]"* (boy, 2nd grade). During the interviews, 21 of the 23 students described their teachers to be happier and more relaxed outdoors, while the remaining two described them to be the same indoors and outdoors—although some mentioned that they were stricter due to safety issues. But the children seemed to understand the necessity of that and did not hold it against them:

> *"She [the teacher] just has to be a bit more careful [outside], because if someone gets lost, you have to go back and search everything, and she has to be a bit stricter because she has to make sure that we all stay together"* (girl, 2nd grade).

Those surprising reflections of the students about their teachers' well-being and their responsibilities outdoors can be interpreted as a quality of student–teacher connection.

3.3.3. Connection to Place and Community

In addition to what is commonly understood in SDT as relatedness, I have found that relatedness was not limited to people within the school but also extended to the community and places. The teachers used the local community and environment as a starting point for their teaching and most of the various places that they visited with their students during EOtC sessions were in the close surroundings. If it was the monastery down by the lake side, the town hall, the local art museum, different working places or the nearby park area with its forests and meadows—the students experienced "the pedagogical power of place in education" [72] and got to know about the specific place they lived in well.

They learned about the flora and fauna of their alpine upland, about the various local businesses, traditional trade and repair companies, the cultural institutions in their village, and how the municipal council works in "hands-on, real-world learning experiences" [55]. At the same time, they also engaged actively with various people working there and were thus able to build connections—or in the words of the headmistress:

> *"The main effect is that the children can develop a strong bond with the village, that they can recognize their roots/basically it's about the roots/and the children are the roots of the village (. . .) and I would like to be part of this village, or I am a part of this village and I would also like to do something in return, because the village also needs something"* (head mistress).

My observations show that those "roots" sometimes also expanded to the families at home. For one thing, the students talked more about what they had done during EOtC than about what had happened on an "normal" school day—feedback the teachers received

from many of the parents. And in the afternoons or during the weekends, I observed that the students sometimes brought their family or friends to visit things they had built or special places they had discovered during their EOtC lessons, thus appropriating the outdoor places. This becomes visible for example in the way they gave names to locations of significance for them, like the "Cinderella Meadow".

The headmistress also interpreted the willingness of many parents to assist whenever additional support was needed as their broad acceptance for this teaching approach:

> *"I think if EOtC wasn't also accepted by the parents, then they wouldn't support it as much. And some of them take vacation time to be able to accompany us (. . .) That is also an element of EOtC, the involvement, the participation (. . .) of parents in school life, the opportunities to help shape it and that is what EOtC offers perfectly. Because it's not just about baking cakes anymore"* (head mistress).

3.4. The Need for Time Spent in Nature

> *"Because outdoors nature is more close (. . .) and I like nature very much and that's why I also want to be outdoors. So that you get to know her [nature], so that you get to love her. And not just be inside and not loving her at all"* (boy from 2nd grade).

In the next two sections, I will link the codes "physical activity", "freedom", "fresh air", "noise", "aesthetic experiences", "curiosity", "bodily/sensory experiences", "hands-on activities", "role of the teacher", "place and people", "flow", "joy", and "lasting memories" to the satisfaction of the students' need for time spent in nature (see Table 1).

3.4.1. Aesthetic and Restorative Properties of the Outdoors

The data show that the children clearly see that their time spent in nature during EOtC had a positive effect on their well-being. They specifically stated that "fresh air" and the possibility to hear, smell or see things like flowers or animals (or at least their tracks) as something they really appreciated about being outside: "*because you're more out in the fresh air, that's good!* (. . .) *That you can hear the sounds better. From the birds and such*" (boy, 2nd grade). During several occasions, the students also commended the beautiful scenery or a flowering tree and seemed to take an aesthetic pleasure from being outdoors.

They also associated the enhanced experience of well-being with better learning. A number of students specifically claimed that they could concentrate better when they were outside "*you can think better (. . .) because it's not so stuffy there [outside]*" (boy from 3rd grade) and "*less noisy*" (boy from 2nd grade). One boy from the second grade who was diagnosed with ADHD added in the interview: "*I also feel much calmer outside*".

3.4.2. Immersive Properties of the Outdoors

Another topic that was mentioned by several students during the interviews was that they felt that time passed by differently during EOtC sessions: *"[Time] goes by faster at outdoor school and then in after-school care, it goes by slower"* (boy, 2nd grade). Interestingly, this different perception of time was also mentioned by all three teachers during the interviews. They often perceived the EOtC sessions as moments of "slowing down", when the students got the opportunity to immerse themselves in what they were doing, which happened very rarely during "normal" school days. One example for such a "slow-down-moment" was given by the headmistress when she had asked the students to show her their most special place and was led to a little bay at the lakeside with three beautiful birch trees. There the children were requested to paint that place and got totally absorbed in the activity:

> *"That was a moment when I thought, yes, exactly, they are connecting something that is very important to them, that is very valuable to them, and connect it with a creative expression. And for me that actually is the highest form of art, to combine the emotional with the creative"* (head mistress).

Both perceptions of time moving faster and slowing down are essentially part of the same phenomenon of the qualities and affordances of the outdoors triggering situational

interest for both the students and the teachers. Examples of such moments were finding a fox hole and looking for signs if it was inhabited or discovering signs of the changing seasons while tasting berries and collecting flowers and leaves. Those moments of embodied experiences of learning, relaxation, and immersion show how EOtC can lead to deeper levels of academic understanding and student involvement, as has been commented on by one teacher:

> *"I have the impression that what the children have learned outside, that they have firmly anchored it in their consciousness, that they remember it, and, in the tests, they also show that they have understood it"* (head mistress).

In the interview, the headmistress also explained her motivation for engaging in EOtC with the vivid memories of her own school experiences as a child. The moments she remembered best after almost half a century were all linked to rich encounters with nature.

Yet, the specific learning area is important, which she emphasized when she said that the learning success can sometimes be greater outside—but only if one has chosen the "right place" for the activity, one that offers the affordances that are needed to achieve the determined learning goal. But the richness of the affordances and invitations in the outdoors sometimes also distracted the students from their tasks. My data showed that disturbances always needed to be dealt with immediately to secure successful learning encounters. For example, during two EOtC sessions in winter, the temperature was rather low and some of the students did not wear the right clothing. They started to feel cold, and it soon got to a point where they were not able to concentrate or participate at all.

4. Discussion and Implications

4.1. The Need for Competence

With respect to the students' need for competence support, the most important finding is that in EOtC, the students had more opportunities to show different sides of themselves and therefore felt more effective and were more engaged in their respective tasks. This might explain why student's motivation in EOtC has been found to be higher than compared to the indoors in previous studies by Bølling, Otte [24] and Dettweiler, Ünlü [25]. Moreover, Szczytko, Carrier and Stevenson [26] found that students with reported emotional, cognitive, and behavioral disabilities (ECBD) had significantly improved attention spans and decreased disruptive behaviors when learning outdoors. In their study, they seemed to have made similar observations when they quote one of the teachers saying: "They [students with ECBD] were attentive and fully interacted with the activities. They felt they were successful which does not happen much in the regular classroom" (p. 6).

However, to achieve this, the teacher's role is crucial in creating a safe and supportive frame that enables the students' self-efficacy, and they need to find ways to encourage individual children or give technical and motivational support. This is in line with general classroom research that showed that the provision of structure and teacher support is vital for the students' satisfaction of their need for competence [35].

4.2. The Need for Autonomy

An important aspect of the students' satisfaction of the need for autonomy in EOtC was that they perceived more freedom in the outdoor lessons, which was associated with the way the children were allowed to use the space around them. The higher degree of perceived freedom seemed to enable the students to make use of the places and situations, which has also been described by Mall, Au and Dettweiler [73] and Fiskum and Jacobsen [74]. This corresponds with a study from Germany by Armbrüster, Gräfe [75] who explain this explorative character of EOtC with the children's active construction of spaces through movement. This qualitative aspect of movement is complemented by quantitative research on the children's physical activity levels obtained by accelerometry: Schneller, Duncan [76] found that children are more physically active in outdoor teaching settings than indoors and that students satisfy their need for movement during outdoor lessons [15].

Appendices

The outdoor setting with its many affordances and invitations furthermore provides opportunities for discoveries and choices which leads to increased situational interest. Jung, Zimmerman and Land [77] describe such an increased situational interest when the students are confronted with novel and surprising conditions, as well as with open and varied tasks that trigger their interest. The practical relevance of the learning content in EOtC can prepare the students for challenges in the "real world" [78]. This has also been found in a recent study by Skalstad and Munkebye [79] who showed that children's interest in natural science activities increases in outdoor environments. The data clearly indicate that this feeling of freedom and agency is associated with a perception of instant enjoyment [33], which seems to be a common theme in EOtC research. In a study among lower secondary students in Germany, "fun" has been found to be the most important category within outdoor learning and was defined as a driving factor of increased motivation [25]. This might also help to explain why choicefulness in EOtC is associated with better stress regulation and cerebral maturation [80] and shows that when students "engage with nature through activities that support the development of their capabilities and self- determination, automatic physiological and psychological benefits of exposure to nature can be expected to happen simultaneously" [41].

4.3. The Need for Relatedness

In contrast to previous studies in EOtC which stated that the outdoor setting has the potential to improve social relations within the peer group [20,81], the observations in this study showed that the social structures from inside continued outside or were even reinforced which has also been reported by Ellinger, Mess [82]. Therefore, the teachers need to carefully consider the composition of the working groups to support new peer contacts and to ensure that everyone can participate and bring in their individual strengths. If this happens repeatedly and over a longer period, this might in fact lead to better peer connections.

Nevertheless, the student–teacher relations improved through EOtC due to more opportunities for informal communication and shared experiences. This has also been found in a study by Mygind, Bølling and Seierøe Barfod [23] where teachers perceived better relations with students in EOtC as an added value compared to the indoor teaching.

In addition, the data illustrate that the relatedness in the EOtC context expanded to place and community. Getting familiar with the specifics of a place and its people, visiting several locations during changing seasons, harvesting, and eating something that has been planted together, and especially getting to know many inhabitants and their stories all contribute that the students established roots and sometimes even became active members in their community, for example by joining the local brass band. The findings clearly show that when the teachers became "place-responsive practitioners" [83] and used the interplay between people and place, this constituted a powerful way to satisfy the students' need for relatedness.

4.4. The Need for Time Spent in Nature

Recently, the biophilia-based theories ART and SRT have been challenged for example by Chawla [41] who argues that the benefits from time spent in nature also depend on an active engagement which is supported by the Goal-Discrepancy-Account of Restorative Nature Experiences [84]. The latter highlights that nature can reduce the discrepancy between an individual's goals and their current situation, through for example "affording actions that can fulfill thwarted goals" (p. 3).

This is consistent with this study's findings which illustrate situations where the students had immersive and restorative experiences in EOtC through actively engaging with their natural surroundings. This became evident for example when the children reported that they could concentrate better and felt calmer outdoors. The reduction in stress in EOtC has also been shown in a German study with fifth graders where time spent

Appendices

in nature was associated with lower cortisol levels at the end of the school days compared to indoor classes [14].

4.5. Strenghts and Limitations

This study's significant strengths lie in its longitudinal design and the wealth of various materials collected throughout an entire school year. This allowed for a thorough understanding of the place and people involved, fostering the development of trust and a broader context for individual observations. While case studies are inherently tied to specific cases and locations, this research project possesses numerous aspects that can be applied to similar situations and contexts, both nationally and internationally.

Nevertheless, it is essential to acknowledge a potential bias that may have arisen when I entered the field as an outdoor education practitioner with a firm belief in the valuable benefits of EOtC. To mitigate this bias, I made a conscious effort to approach my role as a researcher and my connection to the research topic with introspection, both before, during, and after data collection. I engaged in frequent discussions with external experts and colleagues to identify and address potential blind spots and conducted repeated member checks. Additionally, spending even more time in the field might have offered insights into the sustainability of the students' initial connections with place and people, which could have been a valuable aspect to explore further.

5. Conclusions

In this article, the hypothesis that the students' basic psychological needs can be met and that time spent in nature in an EOtC context helped the students to feel effective, agentic, and connected, was confirmed. The findings furthermore show that the children's development was driven by their active engagement with environmental affordances and invitations which facilitated embodied and immersive experiences, which was also expressed in the way time was perceived by both, teachers and students. Moreover, the interplay with place and people specifically reinforced their satisfaction of relatedness and created a deepened sense of belonging to their community.

Thus, in order to foster the children's healthy psychological and physiological development in EOtC, teachers should use the affordances and invitations of specific places as a starting point for their teaching to support the students' to "build roots" and develop their agency, competence and sense of belonging.

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Appendix A

Table A1. List over school visits with sites and learning goals.

School-Visit	Class	Month	Primary site	Primary Learning Goal	Secondary Sites	Secondary Learning Moments
1	3	September	Classroom	First-aid workshop, part I (Red Cross junior helper)	School yard	---
2	3	September	Classroom	First-aid workshop, part II (Red Cross junior helper)	School yard, close surroundings of school	----
3	2	October	Market stall at the local food market on the square in front of the train station	Differences between fruit and vegetable; seasonal/native fruit and vegetable; where do the products come from?	Community garden; (about 2 km) walk through the park landscape	Identifying several fruit species; purchasing and paying (calculating)
4	3	October	Wood and park landscape around the school	The Forest, part I (experiential educational games)	Walk to the sites and back (about 1 km)	Games to enhance class cohesion
5	2	October	Classroom (actually an outdoor session about the common earthworm was planned, but it needed to be cancelled because of time pressure due to the upcoming test)	Revision of lessons about fruit/vegetable (preparation for upcoming test); healthy nutrition; calculating within the number range over 100	Public library located in the nearby monastery; walk to the library and back through the park (about 1 km)	How to loan books; how to find stuff in a library; how to behave in a library
6	3	November	Different sites of conifers in the park landscape around the school	The Forest, part II; conifers	Walk to the sites and back (about 1.5 km)	Activity plays; class cohesion
7	2	November	Area in the woods in the surroundings of the school with lots of dead wood	Building and constructing a shelter	Walk to the site and back; a sunny meadow behind the construction area	Activity plays
8	3	December	Local fire brigade	Learning about the fire brigade	Walk to the site and back (about 400 m)	----
9	2	December	The local Art Museum: visit of the Hundertwasser-exhibition	Learning about the artist Hundertwasser; preparing own drawings inspired by the artist	About 3 km hike to and from the museum through park landscape and along a lake	Lifecycles in nature (inspecting a decaying tree trunk at the side of the path); connections to Hundertwasser's recurring motive of the "spiral" to symbolize life-cycles

Table A1. *Cont.*

School-Visit	Class	Month	Primary site	Primary Learning Goal	Secondary Sites	Secondary Learning Moments
10	3	January	Snow-covered meadow with a slope close to the school	Experiments around fire with the aim to come up with own hypotheses and to test them: how to build a campfire; how do different materials burn (cotton wool, fabric, wool, tinfoil, stone, etc.)	Wider area around the slope; Walk to the site and back (about 400 m); Slope itself	Sledding
11	2	January	Snow-covered meadow with a slope close to the school	Sledding (as part of PE)	Wider area around the slope; Walk to the site and back (about 400 m)	Playing in the snow; building a snow-sofa
12	1-4	January	Rehearsal room of the local brass band in the former 'old' school building	Differences between wood- and brass instruments; how to play a brass instrument	Walk through the village to the old school building and back (about 800 m)	Getting to know about the local brass band; history of the school
13	1-4	January	Gasteig, a big concert house in Munich	Visit of a concert for children	Public transport to and in Munich (about 40 km)	Orienteering on a map; using public transport
14	2	February	Farmstead of the mayor in the village center	Learning about farm and domestic animals (what do they eat, what do they need); learning about the profession of a farmer	Walk through the village to the mayor1s farm (about 1.5 km); School yard; Classroom (visit from a student's grandfather with his dog): What does a dog need/eat, etc.	Changes in farming from previous times until today; how to prepare a presentation about one's favorite pet
15	3+1	March	The local Art Museum: visit of the Hundertwasser-exhibition (with two other classes)	Learning about the artist Hundertwasser; preparing own drawings inspired by the artist	About 3 km hike to and from the museum through park landscape and along a lake	Getting to know about the local businesses along the way (e.g., the hotel); older students needed to take care of younger ones
16	2	March	Different meadows in the park landscape around the school	Classifying wildflowers	Walks through the park to the sites and back (about 1 km)	Collecting flowers in order to press them for an herbarium
17	2	March	Meadow, walking path and a dirt mound in the park landscape close to the school	Experiments around 'air 'to find out more about its properties	Walk to the site and back (about 500 m)	Activity games

Table A1. *Cont.*

School-Visit	Class	Month	Primary site	Primary Learning Goal	Secondary Sites	Secondary Learning Moments
18	3	March	Classroom	Experiments around electricity; specifically kinetic energy	Gym (testing out spools the students had built)	How to conduct scientific experiments
19	3	April	Classroom	Learning about vision/how we see/parts of the human eye	---	How to conduct scientific experiments
20	3	May	Park landscape and woods surrounding the school	Visit of the local forester: what is so special about this specific forest; What does a forester do	Walks through the park landscape (about 2 km)	Discovering a fox burrow and therefore learning about foxes; experiential educational games
21	1-4	May	Local monastery	Learning about the history of the village and the role of the monastery	Walk through the park and village to the site and back (about 1 km)	Different possibilities to preserve history (e.g., through a wall painting)
22	1-4	May	The school's assembly hall	Presenting a poster with the model for the planned ball path by the students of the second grade; explaining what will happen on the project day	School yard	How to do a presentation in front of many people
23	2	May	School yard	Experimenting with building a prototype for the ball path	Meadow and slope behind the school building	How to measure; how to saw
24	1-4	May	School yard; grounds around the school	Whole school project day: construction of the common ball path; working in smaller groups to build single parts for the common ball path	meadow and slope behind the school: this is where at the end of the day, the separate parts will be constructed into one big ball path	Working together in mixed-aged groups; working together with experts; conducting interviews for a local radio feature
25	3	June	Park landscape around the school	Learning about native 'wild' animals through a visiting expert	Walks around the park to different sites (about 2 km)	---
26	2	July	Several businesses and companies all over the village (bakery, boat building yard, monastery, hotel, fishery, pharma company, carpenter's workshop, dentist, physiotherapist, collection station, childcare center)	Learning about the local businesses and companies; getting to know different professions	Walks around the village (about 3 km)	How to do interviews; how to record interviews; how to create a portfolio about different professions (this would be done later in the classroom with the information gathered that day)

Table A1. *Cont.*

School-Visit	Class	Month	Primary site	Primary Learning Goal	Secondary Sites	Secondary Learning Moments
27	3	July	Visit of the local archive	Learning about the history of the village	Walk through the village to the site and back (about 1.5 km)	How to keep history alive; what to learn from archives
28	3	June	3-day Residential Berchtesgaden	The water-cycle; how water formed the landscape	National Park; National Park Visitor Centre (with workshop)	Who lives in the stream? Determining water quality by examining animals in the water

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Article

Does "Out" Get You "In"? Education Outside the Classroom as a Means of Inclusion for Students with Immigrant Backgrounds

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Abstract: This study investigates how Education Outside the Classroom (EOtC) was used to foster the inclusion of students with immigrant backgrounds into the class. An ethnographic mixed-methods design was used, and two exemplary stories display the barriers and facilitators of inclusion in a rural school in Germany. The findings show that a lack of language proficiency and academic and social overburdening are among the main barriers to inclusion. An EOtC approach with a strong focus on place and culture responsivity, on the other hand, offers possibilities for the participation of all students and offers a promising way to more inclusive schools.

Keywords: education outside the classroom; inclusion; culturally responsive teaching; place-based education; immigrant

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1. Introduction

1.1. Migration and Inclusion

In Germany, about 20% of the population (i.e., 16.3 million people) have an immigrant background, of which about two-thirds live in bigger cities, whereas in rural areas, the percentage is usually much lower. Around the time of the present study, 1.5 million persons sought asylum in Germany, which was the largest influx of refugees in the country since the Second World War [1]. Among those, about 125,000 were children of compulsory schooling age [2]. This reflects a worldwide situation: the World Migration Report declares that the estimated number of international migrants has increased over the past five decades, with about 281 million people living in a country they were not born [3]. According to the United Nations High Commissioner for Refugees (UNHCR), about 26.6 million migrants are refugees, and over half of them are of compulsory schooling age [4]. As a consequence, classrooms all around the world must include students who need to cope with a new culture, language, and potential pre-arrival trauma [5], as well as possibly new academic expectations [6]. Teachers have to adapt to increasing cultural diversity and acculturation processes [7].

The concept of inclusion has been broadened in school policy in recent years. It now focuses not only on special needs education but also on immigrant students [8], perceiving them as resources that enrich learning [9]. One important aspect of inclusion is participation, which is operationalized in the educational context as common engagement in tasks and learning together in a class community [8,10,11], where community is defined as a relational unit [12] whose members or "communities of practice" feel important to each other and who share collaborative activities. And this "engagement in social practice is the fundamental process by which we learn and so become who we are" [13]. Schools have a key role as gatekeepers for newly arrived children with immigrant backgrounds when they encounter their community, build trust [14], relationships, and potentially establish a sense of belonging to their new country [15,16]. This has led to an emphasis on the importance

Appendices

of *context* which has been called the "inclusive turn" by Ainscow [17], a shift that focuses on specifically developing the capacity of *local* neighborhood mainstream schools to move towards inclusion [18].

There is little research on pedagogical measures for how refugee children can be included in elementary school, as most research focuses on the age group between 12 and 19 [19]. Regarding younger children, Keles and Munthe [20] have found seven intervention studies promoting the social inclusion of immigrant and ethnic minorities among preschool children. They report that interventions are more effective if they aim at a strength-based approach, not a deficit-based one; involve the family and the larger community; and facilitate cultural brokerage and intergroup contact to reduce prejudice and discrimination and improve social relations. For the school context, Nishina and Lewis [21] have come to similar conclusions, stressing that having a positive ethnic identity, multicultural/diversity training, and cooperative learning, as well as the promotion of social competence and prosocial behaviors, fosters inclusion in classrooms.

One important resource for inclusion in schools is culturally responsive pedagogy (CRP), which is defined by Gay [22] (p. 31) as "*using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them*" and which is also backed by current empirical research [20]. As a holistic approach, CRP also focuses on the importance of context and has been described to foster student engagement and academic achievement and to strengthen the relationships among peers [23]. Numerous qualitative case studies have described how CRP can lead to inclusion [24], such as empowering students intellectually, socially, emotionally, and politically by using cultural references to impart knowledge, skills, and attitudes [25].

1.2. Inclusion and Education Outside the Classroom

The focus on the importance of context, of using the local community to empower students to become actively engaged, is also an important feature of the alternative teaching approach Education Outside the Classroom (EOtC) [26]. EOtC can broadly be defined as relocating standard curriculum teaching to places outside the school building, such as forests, parks, school gardens, or museums, for a single day or a few days per week as a supplement to indoor classroom teaching [27,28], affording enriched, experiential, and situational learning in natural outdoor environments or local community settings [29–31]. When places or situations in EOtC are used as responsive concepts, i.e., when "the local community and environment are used as a starting point to teach academic concepts across the curriculum" [32], this is referred to as "place-based education" (PBE), which is a relational pedagogical model where learning opportunities emerge from the interaction of people, place, and other [31].

Among lower secondary school students, EOtC has been reported to foster students' social relations [33,34], pro-social behavior [35], and intrinsic learning motivation [36]. In addition, EOtC provides the opportunity to tighten student–teacher relationships [37], which could strengthen the communities of practice and the feeling of belonging. In addition, the more experiential or situational the learning approaches are, the higher the students' levels of participation [30]. Those findings suggest that EOtC can in fact promote social interaction and could therefore provide a promising way to foster inclusion also of children with immigrant backgrounds. However, the underlying methodological–didactical concepts in EOtC and their effects on social interaction have not yet been closely examined [38].

The outdoor setting has already been used to foster the integration of adult immigrants [39,40]. There is, however, a theoretical gap regarding to what extent EOtC can be used to foster inclusion among children in general, and the inclusion of immigrant or refugee students is absent in the EOtC literature [26,41]. To close this gap, we conducted an ethnographic case study to answer the question of which factors promote or prevent inclusion in EOtC.

In this article, we present findings from one class at one elementary school in rural Bavaria/Germany that was challenged to include children with immigrant backgrounds during the refugee crisis in 2016/2017. We will first present the participants and the specific research design and then describe the setting and the context before we report modes of data collection and analysis. The findings are portrayed in a narrative way by focusing on two cases that illustrate typical moments of inclusion and exclusion during EOtC.

2. Methodology

2.1. Design and Participants

This study applies a mixed methods design to obtain a "thick description" [42] of the setting and the participants to help the reader visualize the EOtC situations [43], complemented with self-reported information by the students and teachers (cf., Figure 1). The school was located in a small village with an immigration population of 10% and consisted of about 80 students from grades one to four with one class per grade and had recently implemented EOtC into their school profile.

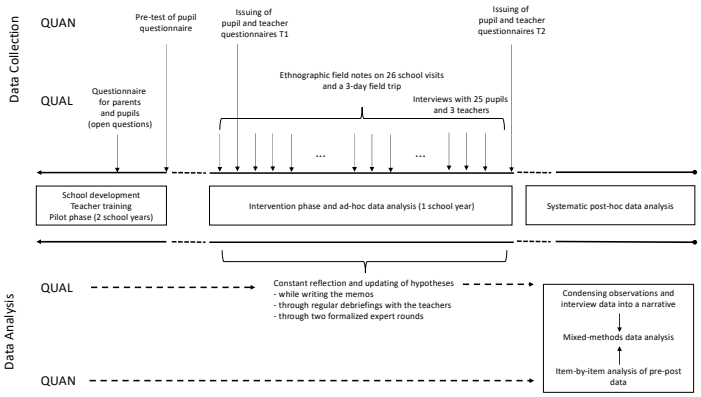

Figure 1. Study design with data collection and analysis strategies.

This convenience sample [44] was defined from the start, as GL had been asked by the headmistress to conduct this research project and needed to work with the two classes whose teachers wanted to be part of the project and also taught the subjects that were easiest to take outside. It was a great advantage that GL had already established close contact with the school over the previous two years, during which she assisted them on their way to establishing EOtC at their school. GL was therefore already familiar with most of the staff and the existing school culture and had an understanding with the headmistress, whose strong support made it possible to conduct an ethnographic study in the first place. GL followed two classes (second and third grade) over the course of one school year. In the third grade, there were two children with immigrant backgrounds who both came from Syria. The second grade consisted of 26 students, three of whom had immigrant backgrounds.

For the scope of this article, we decided to focus on the second grade since these students—in contrast to the third grade—had already started with EOtC in their first year at school with the same class teacher they had this year. This meant that they had

Appendices

already established certain routines and structures which helped to provide a more reliable EOtC practice. Moreover, we chose to present those two children whose stories captured most illustratively moments of exclusion and inclusion during EOtC: Ben from Romania whose family had migrated to Germany out of economic reasons, and Ali, a refugee boy from Afghanistan, the latest newcomer to this class. The third boy was Amal from India, who had been in this class from grade one and was already well included in the class community. The other students were children from local families who shared a rather high socio-economic status and similar cultural backgrounds. Thus, the class was somewhat representative of the school situation in southern rural Germany.

2.2. Setting and Context

As described in the introduction, the high number of refugees entering Germany in a relatively short period of time led to a significant congestion of the established administrative structures, the accommodation in first-instance institutions, the registration, and the asylum procedures. This overburdening of public structures caused many problems of social and societal participation for the refugees [45], who already faced a number of challenges as they needed to adjust to a new culture and language.

Students with immigrant backgrounds are subject to compulsory education, and assistance with the transition into the German school system is guaranteed by law, especially to learn the German language in so-called "transition classes". The placement into grade level is based on (mostly compulsory) language evaluations and is then performed according to the individual prerequisites and competencies. This means that according to governmental policies, children with language barriers are included in the classrooms only after achieving a certain level of language proficiency [46]. Whereas this was managed in most German states on a county level, in this specific county, the schools themselves were responsible for student placement at that time [47].

In the project school, it was mostly up to the teachers to decide how to deal with the increasing numbers of immigrant children whose ages often appeared to be inaccurate and who came with very differing school experiences and socio-cultural backgrounds, ranging from students from peasant families with parents who had no formal school education themselves to children from families of rather high economic and academic standards. In addition, some children had suffered traumatic experiences, and all of them needed to come to terms with being uprooted from their homes and having to adapt to life in a foreign country. To overcome language barriers, the school had to rely on voluntary helpers who assisted the refugee students with their assignments, either during school lessons or after school. Moreover, in this particular state, both students and teachers already experience a lot of stress due to the high workload of the compulsory syllabus and the upcoming transfer to the next school level which is solely determined by the grades the students have received during their four years of primary education [48].

This situation put a lot of additional pressure on the teachers who were not trained to work in such a heterogeneous classroom with so many different needs and levels of knowledge or language skills—never knowing if and how long those students were going to stay. Thus, the school decided to use EOtC as a strategy to better include the newly arrived immigrant children in their school community.

2.3. Data Collection

2.3.1. Participatory Observation

The data contain detailed handwritten field notes taken during the participatory observation of 29 school visits both on days with and without EOtC, including a three-day field trip to the Alps. The field notes were then transformed into memos which already reflected on the observed situations. Our goal was to be sensitive to the participants and to produce rich data to gain a holistic understanding of the processes during the EOtC sessions. The data further include minutes from regular debriefings with the teachers,

and protocols from two discussion rounds where GL had invited external EOtC experts to reflect on open questions and to mitigate a possible observation bias.

2.3.2. Interviews

Individual interviews were conducted with 16 students in this class on their experiences with EOtC at the end of the school year, including questions on the students' perceptions of their social relations indoors vs. EOtC, their academic experiences, and their well-being, while being considerate of a possible social desirability bias. In addition, semi-structured interviews were held with the three involved teachers to give them an opportunity to reflect upon their own practices and encounters with the students, asking them to describe significant episodes of their EOtC experience and talk about their pedagogical goals and expectations regarding EOtC or if they had observed differences in the students' social behavior during the EOtC sessions compared to indoor teaching.

2.3.3. Questionnaires

The "Questionnaire (Fragebogen) for the measurement of degree of integration" (FDI4-6, Venetz, Zurbriggen [49]) and the "Social Participation Questionnaire" (SPQ, Schwab and Gebhardt [50]) were assessed to document students' self-perceived change of social integration over the school year and the teachers' perspectives on the students' degree of integration, respectively. Even if the questionnaires use "integration", it is justified to use it in terms of "inclusion" [51].

For the students' self-assessment, GL assisted each child in an individual session with the FDI4-6, discussing each question one by one and the meaning of the respective answer on the 4-point Likert scale, with emoticons symbolizing the degrees of affirmation. The information gathered in these sessions was again documented and added to the qualitative information. The FDI4-6 scale consists of three subscales, i.e., social, emotional, and learning motivational integration, each with four items (see Table S1 in the Supplementary Materials for a graphical display). The scale has fair internal consistency in our sample, with Cronbach alpha = 0.78 for T1 and 0.86 for T2.

For external assessment, two teachers filled in the SPQ on each child independently. One was the class teacher, who also conducted the EOtC lessons (L1), whereas the other teacher (L2) taught the students only in physical education (PE). Answers from the teachers in the SPQ were provided on a 5-point Likert scale coded Strongly disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly agree (5). Data from the SPQ are treated as qualitative information only on the item level; hence, no reliability score was calculated. The two instruments are compatible with each other, have been validated in a large sample, and are widely used in special needs educational research in Germany [52].

2.4. Data Analysis

As mentioned above, preliminary analyses of the data began during the data collection while writing the memos (ad hoc analysis, see Figure 1). The systematic post hoc analysis started with reading through all the material to obtain a sense of its entirety. We applied thematic data analysis [53], first generating initial codes from the data, such as "social aspects", "freedom", "hands-on activities", or "friendships". In a second cycle of coding, those 25 codes were further condensed into eleven themes. For the scope of this article, we related the data from the codes via the themes to our pre-defined theoretical approaches inclusion, place-based education, and culturally responsive pedagogy, which guided the construction of the two exemplary cases (cf., Table S1 in the Supplementary Materials).

We then sought immediate feedback on our themes, so-called primary debriefing, from a colleague [54]. During the whole process, GL stayed in contact with the teachers and performed a member check to ask for their agreement with the interpretations and whether they felt themselves adequately represented [55].

Since the overall goal with the questionnaire data was to obtain more formalized information about how each child perceived their social inclusion over the school year and

how the teachers evaluated their development, the data were analyzed case by case and each individual was compared to their peers. One-way ANOVA was conducted to test for gender and time effects in the FDI4-6. In this article, we focus on Ali's and Ben's results in order to contextualize their scores item by item with the ethnographic data and to contrast their self-perceived social integration from the FDI4-6 with the two teachers' evaluations from the SPQ.

To present Ali's and Ben's stories, we primarily draw on data from the participatory observation that exemplify situations of inclusion and exclusion during EOtC. We refer to the data from the interviews with all the other children and the teachers as well as the questionnaires when they provide information that is important for the understanding of those two stories.

2.5. Ethical Considerations

Approval for this study was granted by the district's school authority in Germany and the Norwegian Agency for Shared Services in Education and Research (SIKT-500199). To achieve informed and freely given consent, the teachers and GL were invited to an informative meeting at school where the project was presented, and questions were answered. The different intended methods were listed on the consent forms (observation, interview, photos) and could be chosen individually. Anonymity was guaranteed and it was stressed that participation was voluntary and could be withdrawn at any time without any negative consequences for the students. For those who might not be able to follow the explanations in German, relatives who were already fluent in the language were invited as interpreters as we had no means for professional translators.

We were aware that conducting research with young children entailed a special responsibility, even more so when immigrant children were involved who may have had traumatic experiences [56]. Furthermore, there was a possibility of misunderstandings due to language and different cultural backgrounds, and a disbalance of power between the researcher and the participants [57]. We attenuated this by accompanying the children over a whole school year and by always being approachable, so that they had a chance to get to know the first author and establish trust.

3. Findings

As can be seen from Figure 2, on average, the students perceived their social integration as quite stable over the school year (bold dashed green line, ANOVA: $F(1, 78) = 0.10$, $p = 0.919$). And also, during the year of participatory observation, no systematic exclusion of students from their class communities due to differing cultural backgrounds or different socio-economic status was discovered, nor did we observe greater differences in the level of inclusion between the genders; this is also reflected in the quantitative data which showed a non-statistical gender effect (ANOVA: $F(1, 78) = 0.569$, $p = 0.453$, cf., Supplementary Materials for more details on the statistical analysis). Only one child (Ben) is lower than the standard deviation from the average at the end of the school year (dashed red line) and shows a dramatic drop in self-perceived integration. Ali has a quite stable overall positive trajectory of integration and is at both time points within the standard deviation from the group mean, although on the lower end.

We have chosen to portray Ali's and Ben's stories as focal cases because the analyses of both the qualitative and the quantitative data revealed that their examples showcase typical moments of inclusion and exclusion that children with immigrant backgrounds can experience in EOtC. Hereby, the themes "experiences of self-efficacy", "relatedness", and "joyful moments" are associated with inclusion; "experiences of autonomy", "qualities of the outdoors", "affordances of the outdoors", and "embodied experiences" refer to place-based education; "the role of the teacher" and "impact on everyday life" represent moments of culturally responsive pedagogy. "Barriers" and "gender aspects" are additional recurring themes.

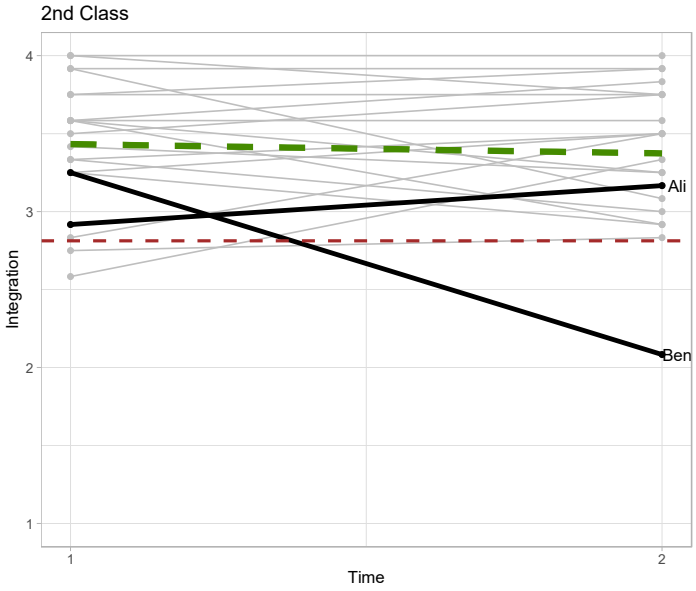

Figure 2. The students' individual trajectories of integration (FDI4-6, light gray lines). Note: The dashed green line represents the group mean slope; the red dashed line is the lower limit of what can be deemed a "normal" level at time point 2. Ali's and Ben's trajectories are highlighted in solid black lines. It can be seen that Ben's self-perceived integration level dramatically worsened over the school year and that he is the only student falling under the expected integration level. Ali, on the other side, shows a slight improvement over the school year.

3.1. The Stories of Ali and Ben

3.1.1. Ali: Practical Opportunities and Communicative Challenges

Ali, a boy from Afghanistan, joined the class after the school year had already started and most of the other students had known each other already for at least over a year. In the interview, the class teacher reported that in the transition phase from the first to the second grade, the students experienced several changes because some children had moved away or left for another school. According to her, the students had initially been quite interested and eager to help the new arrivals. But after having been through several relocations, the teacher felt that they had become frustrated and grew tired of attuning to each new child and his/her different needs again and again. Furthermore, this newest entrant did not understand any German at all and was also not a very open and outgoing person and mostly kept to himself, which the teacher assumed was partly due to the experiences of a dramatic flight. The teachers also suspected that Ali probably had no or only very limited school experiences prior to his arrival in Germany. He nevertheless was put into the second instead of the first grade due to his (estimated) age. For the second part of the school year, the teachers decided to let him visit the Math and German lessons in the first grade, as

the pace there was slower, and he would thus be able to consolidate his knowledge. The students of both classes appeared to accept this arrangement without many questions and Ali seemed to profit—although this part-time separation from his own class may of course also have reinforced his outsider position. Nevertheless, weighing the pros and cons, the teachers decided that the positive aspects prevailed, and Ali seemed to adapt well to those changes and made no objections. On the contrary, in the FDI4-6 questionnaire, Ali reported a large academic improvement at the end of the school year compared to his entry score (items 6 and 12, see Table S2). This is also reflected by the two teachers' ratings of Ali's level of integration in class. Overall, the two teachers saw Ali as quite stable over the course of the school year, with the PE teacher noting a slightly more positive development with Ali being integrated into peer play (items 2 and 10, L2, see Table S3).

However, when it came to the EOtC sessions, it could be noticed that Ali often liked to "*cook his own little soup*" (as his class teacher formulated it), which is also reflected in the EOtC teacher questionnaires (items 9 and 19, L1, see Table S3). Ali seemed to be relieved, however, that the tasks they had to perform outdoors were often easy to understand without words: planting potatoes or laying out a mosaic picture with items found in nature were things that he could grasp immediately, and he often got completely absorbed in doing them. Moreover, he had an artistic talent and obviously loved to draw—something that a fellow student noticed during a visit to a local art museum: "*And Ali/I did not know that he could paint so well! He really painted beautiful pictures*" (girl from grade 2). He was also athletic and whenever they did something that involved running or other forms of physical exercise, he was an enthusiastic part of the action and seemed to enjoy himself very much, such as when the class went sleighing in winter, which he had never done before.

> "*I have the impression that because KH [the PE-teacher] has provided such a clear structure from the start, there are no major or minor complications: everyone knows what they have to do and if not, the others loudly draw their attention to it (mostly to get off the sled track!) [. . .] Ali (this was his first time on a sled) obviously had a lot of fun and proved to be rather skilled. Over the course of the morning, he started sledding down from higher and higher up the hill, but he often got in the track when walking back up. I'm really not sure if he didn't understand the instructions [due to language barriers], or if he simply didn't care. [. . .]. I did not observe any outsiders today, even though on and off there were one or two children who for some time rather wanted to play in the snow on the side of the slope instead of sledding together with the others. At the end of the day, the whole class sled down the hill together on their stomachs like 'dolphins'*" (Translated into English by GL from protocol Nr.11).

In these moments, Ali was able to show different strengths or sides of himself that were not obvious during the "normal" teaching. Moreover, those EOtC sessions seemed to offer relief from a school routine that must have been very hard for someone who (at least at the beginning) was not able to understand a word of what was said and did not really know what he had to do. In those more hands (or feet)-on activities at different places in the closer surroundings of the school, it could be observed that Ali comprehended what was expected of him and was finally able to excel and experience success—something that was also recognized by his classmates. The field notes indicate that Ali was able to build his first connections to his new home during EOtC sessions in the park area around the school or at various cultural institutions, for example, during a workshop with the local brass band where he was very proud to get a sound out of a tuba, or visits to the monastery and handicraft businesses such as the shipbuilder or the fishery at the lakeside where Ali was offered to touch a baby catfish.

Nevertheless, sometimes the EOtC activities also led to episodes of exclusion, for example, when the students were supposed to construct a shelter in the woods on a very cold and icy winter day. Communication with Ali's family was a problem as they were not able to understand the information sheets that the teachers sent home with the children before the planned activities. Hence, Ali did not wear sufficiently warm clothes that day and stubbornly refused to wear the extra jacket and hat the teacher offered him. By providing

extra clothing, she tried to be prepared for possible problems, but she did not consider that the boy may have felt ashamed to have to wear borrowed clothes. And even if Ali had put on an additional layer of clothes, he would still have been wearing only insufficient, thin running shoes on his feet. He started to be cold immediately and neither the teacher nor other classmates were able to induce him in any way to move and run around to get warm. It got to the point where the teacher finally decided that Ali needed to go back to school as he was in danger of catching a severe cold otherwise. This of course meant that he was excluded from the rest of the activity, his group, and his class, which several classmates only noticed when they walked back in rows of two at the end of the EOtC session and one girl of his group remarked "*Ali has not helped a bit with the construction!*".

Furthermore, whenever the tasks outside were more complex and needed some explanation (e.g., experiments or collection of certain plants), Ali was often not immediately able to follow and needed additional support from the teacher or his classmates, as the students usually had to work together in small groups of three or four children outside. During those shared tasks, occasions were observed when a group member explained something wrong to Ali on purpose and seemed to find it funny to watch him fail: "I have told Ali that we need to look for clover instead of liverleaf for our herbarium and, look, now he is searching for the wrong plant" (boy from second grade, laughing). The class teacher mentioned in the interview that being part of a small group where you really need to communicate to achieve a task together might be very demanding for those children who are not yet able to speak a shared language:

> "*Of course it's also socially challenging for the refugee children, I think, so if they aren't really part of the group yet and if they then have to work in the group, not at their place in school, where they have their sheet of paper in front of them that they can fill out by themselves-but/in the outdoor school they have to act within the group and they have to communicate there, and also have to be careful about what the other person actually wants from them*".

She continued that this may at first lead to them feeling even more excluded and stated that only if the students are past the language barrier, will they be able to really profit from those shared collaborative activities.

3.1.2. Ben: Rare Moments of Participation through Experiences of Self-Efficacy

Ben, a seven-year-old boy from Romania, was rather fluent in German and had no problem communicating with his classmates, but he had difficulties in keeping up with the academic level, as the self-report FDI4-6 questionnaire revealed (item 12, see Table S3). This was something he himself was clearly aware of. This overburdening often led to reactive aggressive behavior and Ben struggled with almost everyone in class. Ben often voiced that he was treated unfairly, for example, that he deserved a better grade than the one the teacher had given him, that others had more money than his family, or that no one liked to play with him. He also stated that he did not like his fellow students and claimed that they did not like him. The drastic drop in his perceived friendship score in the FDI4-6 (item 2, Table S3) and the two teachers' evaluations (SPQ, items 1, 13, 18, 19, 22, and 24, Table S4), as well as the observation protocol, document the worsening situation over the school year. In the interviews, several of his classmates specifically said that they felt disturbed by him or that he distracted them from learning, as exemplified in the quote from a fellow classmate: "*rain doesn't bother me, but Ben does, he bothers me most of the time*" (boy from second grade). The field notes also show that others did not like to work with him.

In Ben's case, episodes of both inclusive and exclusive moments during the EOtC sessions could be observed. Like Ali, Ben was able to show other abilities outdoors that did not come into play during the indoor schooling. He clearly enjoyed the lessons outdoors and claimed: "I would like to stay [outdoors] every day!" He also mentioned that EOtC introduced him to places around the village that he would not be able to visit otherwise: "*there [in EOtC] we go [to] places that I don't know yet and where I can't go alone*", presumably because his parents do not have much time, as he stated in the interview: "*my mum doesn't*

go that often and my dad isn't free that often". The field notes indicate that these recurring visits to the park and the village seemed to have created closer links between all the students and the places they visited during EOtC, some of which they even gave special names like the "*Cinderella meadow*".

When the mayor of the village invited the children to the town hall to show them how the community administration worked, and also took them on a tour of his farm in the center of the village, Ben connected immediately. He was actively engaged and told the GL that from that moment on, he visited the mayor's home several times per week and helped him feed his animals.

On the occasion when the students had to construct shelters in the woods and Ali needed to leave, Ben had a completely different experience as can be seen from this excerpt from the observation protocol:

> "*Especially Ben takes his job [as today's safety delegate] very seriously, keeps clearing sticks out of the way, holding up branches and seems to feel important! [. . .] In the group of [names erased] and Ben there are a few discussions about who holds the position as "boss": Ben really would like to be the team leader, but the others don't want that and especially with [a boy from this group] there are at first some taunts and smaller quarrels. Overall, I think Ben fits in amazingly well on that day and works very hard. It seems to be really good for him to have a clear task where he can also show his strengths. He helps for example [a girl from this group] to cut a branch in half with the words "I was already strong even as a baby!". Working together as a team, the group constructs a good shelter relatively fast (one can tell that they have at least one group member who used to be in the forest kindergarten and feels quite comfortable with this sort of activity). And also [the aforementioned girl], who usually has some difficulties to integrate herself into the class community, really works well together with everyone and obviously feels comfortable!*" (Translated into English by GL from protocol Nr.7).

As the physically strongest member in his group, he was able to help others by carrying and working with the heavy branches and thus experienced himself as a valuable part of his team. This was the first time he was observed to be proud of himself and very confident in what he was doing, which he also expressed later during a conversation on the walk back to the school: "*Well, we found branches and we put them on top of each other and I almost did the most in my group because I had the longest branch. And I have placed it very high-somewhere and it was really heavy. But not for me*". Moreover, his useful contribution to the assignment was also recognized by the other members of his team who often asked for his help during that day. This possibility for the academically "weak students" to "have a sense of achievement" during EOtC sessions was also emphasized by the class teacher in the interview.

On the other hand, for example, when the children were assigned to some recurring tasks for the outdoor lessons (e.g., finding the way or carrying the first aid kit, etc.), Ben very often experienced exclusion. The field notes show that no one volunteered to work with him and if assigned by the teacher, it always ended in quarrels. And when the children were allowed to pick their own working groups, he was always left out. Asked what he would like to do again during an EOtC session, he answered that he would like to "*mm, build a giant house out of sticks*", and when inquired further if it should be big enough for all his classmates to fit in, he confirmed this at first but then added that he also wanted: "*a private one with a door*".

At the beginning of the school year, Ben did form some sort of friendship of convenience—probably due to the scarcity of other options—with Amal from India, but as soon as Amal was more fluent in German, he had other friends in class. A teacher once mentioned in one of the debriefings that Ben had been told by his parents not to play with the "foreign kids" but to socialize with the local children, which might have limited his options even more, as it could have been a possibility to join forces with Ali, but this never happened. Ben became more and more of an outsider in class, which was also reflected in both questionnaires.

4. Discussion

Beyond the Stories of Ali and Ben

The stories of Ali and Ben reveal some factors that can either prevent or facilitate experiences of inclusion during EOtC. Previous studies on social relations in EOtC have shown that lower secondary school students interact more with other classmates during outdoor lessons compared to indoor lessons [58], that they build more social relationships [33], and act more pro-socially [35] as an effect of regular EOtC. However, as illustrated in Ben's case, not all children seem to easily bond with others in the outdoor setting or form new peer relations. On the contrary, the students in our case study never chose by themselves to interact with different children outside than inside. Every interviewed child reported that if it was up to them, they would always prefer to be with the same peers, and this was confirmed by their teachers and also found in a recent social network analysis in an EOtC class in Germany [38]. As can be seen in the two cases, individual psychological traits such as levels of openness or reserve or aggressive behavior and abilities like language proficiency also determined to what degree the students were able to participate in the class community. Our findings are in line with Adler and Adler [59], who established the significance of personal characteristics for the dynamics of belonging in peer relationships. The importance of language proficiency for social inclusion has also been shown in a recent large-scale study conducted in Italy [60]. Interestingly, we were not able to observe any experiences of exclusion due to the lower socio-economic statuses of the children with immigrant backgrounds, as could have been expected based on previous research that found an interaction effect between perceived lower socio-economic status and social integration [61].

Nevertheless, due to a greater freedom of choice and more hands-on activities, the outdoor setting has the potential to afford opportunities for the students to show individual abilities and strengths. In addition, the outdoor setting offers the teachers the possibility to change the social dynamics in class in a way that fosters participation [62], collaboration [13], and the formation of new peer relationships [63], which again fosters inclusion. Ali, for example, was able to show an unexpected talent for painting during the visit to the local art museum and received praise from his classmates.

The data from the observations and the interviews imply that the students were especially proud when they achieved something together as a team where everyone played their part. This emphasizes the importance of the teacher's role, e.g., in creating a safe and welcoming atmosphere, assembling the working groups, and finding suitable assignments at the "right" places. Ben, for example, experienced himself as the strongest and therefore a very useful member of his group during the construction of their shelter, which boosted his feelings of importance and created a rare occasion where he was able to overcome his predominant sense of failure.

On an institutional level, the data indicate that it helped to foster inclusion when the school worked together with the community to create spaces for participation, for example, when they organized a workshop with the local brass band, planted potatoes at a community garden, or visited the mayor. Whenever the teachers acted in culturally or place-responsive ways, this opened up possibilities for the students to encounter their neighborhood, from the surrounding park landscape to the local fire brigade station, and to establish connections with places and people. This had an immediate effect on the participation of all the children and created a feeling of belonging. However, we were not able to observe any instances where the immigrant children's own cultural backgrounds and stories were made visible by the teachers during EOtC. It would have been interesting to see if a fully realized CRP approach would have led to more inclusion, as has been suggested by Kia-Keating and Ellis [64].

On a systemic level, the rigid school system in this German federal state with its early selection and the high academic pressure generally limits the possibilities of the schools to engage in more inclusive approaches to education. Furthermore, the rather chaotic procedures concerning refugee placements where families are often moved around on short

notice also lead to multiple dislocations of the children. As in Ali's case, his classmates were thus less motivated to meet his needs as they were already frustrated by having had to adapt to several prior changes.

Taken together, Ali's and Ben's stories reveal that inclusion during EOtC especially happened along two pathways. First, situations coded as "hands-on activities" where the students were able to "show different sides of themselves" were linked with the PBE-associated themes "qualities of the outdoors", "affordances of the outdoors", and "embodied experiences". Whenever these themes came to bear during the EOtC sessions, it enabled the students to feel "self-efficacy", "joyful moments", and "relatedness", and thus led to experiences of inclusion. Second, situations coded as "communication" and "relation to everyday life" were associated with the CRP themes "role of the teacher" and "impact on everyday life". In situations where those themes were realized, the students again experienced "self-efficacy", "joyful moments", and "relatedness", and thus moments of inclusion (cf., Figure 3).

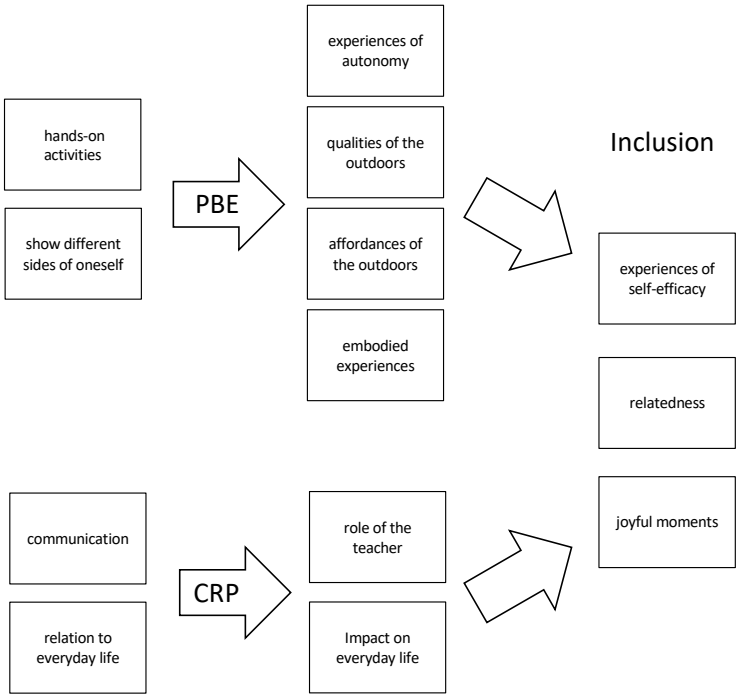

Figure 3. The two pathways of PBE and CRP leading to inclusion. Note: The left column represents the codes that emerged from the data; the middle and right columns display the themes to which the codes had been condensed.

Thus, a combination of culturally and place-responsive pedagogy seems to be a promising way to achieve inclusion in EOtC.

5. Strengths and Limitations

The major strengths of this study are its longitudinal design and the richness of the various materials acquired over a whole school year. It provided an opportunity to get to know the place and the people, and to build trusting relationships, which also helped to put single observations into perspective. And while it is the nature of a case study to be case- and place-specific, there are many features of this research project that can be transferred to similar situations and contexts, nationally and internationally.

However, GL was probably biased when entering the field as an outdoor education practitioner who is convinced of the valuable benefits of EOtC. To counterbalance this, she tried to consider her role as a researcher and her relationship to the topic of research before, during, and after the data collection, through recurrent discussions about possible blind spots with external experts and colleagues, and by performing repeated member checks [65,66]. As there was no funding available for any interpreters, the first author also had to cope with language barriers, which might have caused some misunderstandings and underrepresentation of Ali's voice, which might have threatened the validity of the findings. To mitigate this shortcoming, GL observed Ali even more carefully and was in constant exchange with his teachers. Moreover, it would have been insightful to also present a female perspective in the case study and to interview the families of the immigrant students to capture a more profound picture and hear about their own experiences first-hand. But again, this was not possible due to the limited number of refugee children to sample from, as well as time and financial restraints. Furthermore, it could have been worthwhile to spend even more time in the field with the participants, as this might have revealed if the students' initial connections with place and people were sustainable.

6. Conclusions and Implications

This paper explores both moments of inclusion and exclusion during EOtC by presenting the stories of two immigrant students, Ali and Ben. Those cases show that there are many ways to create a more inclusive environment at school, and that EOtC, especially applied in a PBE perspective, affords propitious opportunities for students to show different aspects of themselves and to connect to the place [29]. Yet, to enable the participation of all children in EOtC, it is necessary that the teachers secure effective communication and understanding while being specifically aware of cultural differences and implicit power structures [67,68].

There is as much potential for exclusion outside as inside, and the teachers need to understand the possibilities and constraints that are at play both in the outdoor and indoor spaces, always keeping in mind that inclusion is a continuous process [69] in which to engage. This means that EOtC alone did not "magically" solve all the problems with inclusion. On the one hand, in our study, situations did arise that allowed children to demonstrate their strengths in ways that ordinarily would not have occurred in classroom activities. But on the other hand, these were not strong enough to surmount the relationships that "thickened" over time and had been forged through interactions in the classroom. Teachers therefore need to become "culturally" and "place responsive" to create opportunities for *all* children to contribute to the shared learning in EOtC, to experience themselves as a resource, and to develop a feeling of belonging [15,18].

The next step would be to fully realize the concept and implications of culturally and place-responsive pedagogy and to apply them in a deliberate way to create possibilities for the children to actively bring in elements of their unique personality, their own culture(s), and diverse backgrounds to enrich the learning experiences for all, students and teachers [11]. It would therefore be useful to combine EOtC/PBE pedagogies and didactics with CRP in teacher education to assist teachers in implementing more inclusive ways of education. This would enable further research on a larger scale to examine how EOtC

approaches in combination with culturally and place-responsive pedagogies can support schools to effectively fulfill their role as key gatekeepers for inclusion. This could inform policies on how to create more supportive environments that enhance the engagement of the individual student with the class, the school, and the wider community.

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Education Outside the Classroom in Norway: The Prevalence. Provision, and Nature of Uteskole

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Abstract (288/300 words)

This article presents data from a national survey on the prevalence, provision, and nature of education outside the classroom ("uteskole") in Norway. Uteskole can broadly be defined as the practice of relocating traditional classroom teaching to outdoor settings such as forests, parks, school gardens, or cultural and societal institutions as a supplement to indoor classroom teaching. Herby, uteskole facilitates enriched, experiential, and context-based learning has inspired school practices in other parts of Europe, such as the UK, Germany or Switzerland. Despite its widespread use and impact on teaching nationally and internationally, no reliable data on the prevalence, provision, and nature of uteskole exists to date. From a total of 2671 schools contacted via an online questionnaire, n=535 (20.0%) provided valid data. To account for a possible non-response bias, a random sample of n=460 of the remaining non-responding schools was additionally contacted by telephone. Of those, n=334 offered complete replies, resulting in a representative sample. The results reveal a prevalence of 87.6% of uteskole practice in Norway in grades 1-10, and 68.7% practice uteskole at least half a day every second week. Uteskole is taught almost across all subjects and is reported to be connected to the indoor teaching and is strongly influenced by the tradition of friluftsliv ("outdoor-life"). This is also represented in the respective teacher qualifications, as specific uteskole competences are mainly acquired in physical education teacher training. We conclude that to align the teachers' qualifications with the widespread uteskole practices, it should become a mandatory element in teacher education across all subjects. With the substantial evidence highlighting the positive effects of uteskole, we firmly believe that Norway is uniquely positioned to provide its future generations with an education that equips them to meet the challenges that confront our world.

Keywords: uteskole, education outside the classroom, outdoor teaching, outdoor learning, friluftsliv

1. Introduction

1.1. Education Outside the Classroom in the Nordic countries

The idea of using the school surroundings as a resource in education is based on the belief that the body and senses must play a central role in the learning process. This view is firmly grounded in both classical pedagogical philosophy and learning and developmental psychology. There is a continuity from Dewey's, Vygotsky's, and Piaget's theories, emphasizing the importance of senses and experience in the process of cognition, to recent neuro-psychological research highlighting the bodily foundation for learning (Chawla, 2021; Jordet, 2010).

In the past three decades, the primary and secondary educational approach internationally termed as Education Outside the Classroom (EOtC) (Braund & Reiss, 2006; Lee et al., 2022) has gained prominence as an innovative teaching method (Mygind, 2020). EOtC can broadly be defined as the practice of relocating traditional classroom teaching to outdoor settings such as forests, parks, school gardens, or museums as a supplement to indoor classroom teaching. Most often the class teachers conduct the lessons outside the classroom, however, sometimes, the lessons are partly provided by external learning professionals, such as museum educators or nature interpreters. Herby, EOtC facilitates enriched, experiential, and context-based learning (Beames et al., 2012; Beames et al., 2023; Waite, 2017). In the socio-cultural educational tradition of Scandinavia, the teachers enjoy significant autonomy in selecting teaching methods (Helgøy & Homme, 2016), allowing them to move education out of the classroom and to use the school environment as a resource in their teaching, which has been a central theme in educational thinking and practice over the past century (Jordet, 2011). This regular use of EOtC is termed in Norwegian “uteskole” (Jordet, 1998), in Danish “udeskole” (Bentsen et al., 2009), and in Swedish “utomhuspedagogik” (Dahlgren & Szczepanski, 1998) and specifically aims at a transfer of learning opportunities between inside - and outside of the classroom (Bærenholdt et al., 2022). In the research context, “regularity” is often defined as a minimum threshold of at least half a day every second week (Barfod et al., 2021; Barfod et al., 2016; Bentsen et al., 2010; Bentsen et al., 2009).

Not least due to several major Danish studies on “udeskole” (Bølling et al., 2023; Mygind, 2005; Nielsen et al., 2016), this teaching approach has gained a lot of international attention (Mygind, 2020) and has inspired school practices in other parts of Europe, such as

the UK (Forest School Association, 2023), Germany, or Switzerland (Jucker & von Au, 2022).

Research on EOtC has so far focused mainly on physical activity and school motivation, revealing that children are physically more active during EOtC sessions (Bølling et al., 2021; Mygind, 2007, 2016; Schneller et al., 2017), and that students' learning motivation is enhanced (Bølling et al., 2018; Dettweiler et al., 2015). In addition, EOtC research has demonstrated positive effects on students' health, well-being, and academic achievement (Becker et al., 2019; Dettweiler et al., 2017; L. Mygind et al., 2019; Otte et al., 2019; Winje & Løndal, 2021b), including better biological stress regulation, brain function and development (Dettweiler et al., 2023) and improved attention spans and reduced disruptive behaviours among students with emotional, cognitive, and behavioural disabilities (Szczytko et al., 2018). EOtC has also been found to strengthen student-teacher relationships (E. Mygind et al., 2019), to have a positive effect on students' pro-social behaviour (Bølling, Niclasen, et al., 2019) and social relationships (Bølling, Pfister, et al., 2019), although the latter association is still inconclusive (Ellinger et al., 2023; Lauterbach, 2023). Furthermore, EOtC has been associated with the improvement of levels of participation (Quay, 2003) and inclusion, particularly among students with immigrant backgrounds (Lauterbach et al., 2023). Moreover, real-world settings in the local surroundings are important to develop and practice environmental citizenship (Iversen & Jónsdóttir, 2018).

A recent scoping review on research about EOtC in the Nordic countries shows that teachers' perspectives are most frequently investigated, followed by studies about ideal practices and potentials of outdoor education, well-being, and cognitive learning. Fewer studies explored teaching and learning processes, digital resources, and education for sustainability (Remmen & Iversen, 2022).

EOtC in Scandinavia is a routine part of the school schedule which aligns it to some extent with the "forest schools" in the UK (Waite et al., 2016). In Scotland, for example, outdoor education and play experiences are integral components of Scotland's Curriculum for Excellence for children aged 3-18 (OECD, 2021). Outdoor learning is also incorporated into the Professional Standards for teachers set by the General Teaching Council for Scotland (General Teaching Council for Scotland, 2021). The provision of outdoor schooling in Scotland has been mapped three times, in 2006, 2014, and 2022. On average, students in primary school spent seven minutes per week with outdoor learning in 2022. Out of the total time spent outdoors, 87% occurred within or near the school premises as well as visits to

woodlands and local greenspaces (parks and gardens). The primary curricular themes outdoors were health and well-being, science, and mathematics, with a focus on practical activities, teamwork, nature, and play (Mannion et al., 2023).

But despite its widespread use, the prevalence and practice of EOtC in Scandinavian schools remain somewhat underexplored, especially in Norway and Sweden. Nevertheless, investigations into prevalence and provision, combined with positive outcomes can offer a more solid foundation for data-driven investments and more effective resource allocation for both governments and municipalities (Mandinach & Honey, 2008). In Denmark, for example, systematic research on the prevalence and nature of "udeskole" has been conducted throughout the past 15 years and witnessed an increase in EOtC. The results from the first Danish mapping in 2007 indicated that approximately 14% of all public schools had one or more classes practicing udeskole on a regular basis (Bentsen et al., 2010). This number grew to 17.9% for public schools in the schoolyear 2013/2014 (Barfod et al., 2016) and remained at about that same level in the most recent mapping survey. However, the provision of udeskole was larger among special-needs schools (34.0 %) than among public schools (19.5 %) in the 2019 investigation (Barfod et al., 2021). But as EOtC, that had started mainly as a grassroots movement, gains popularity (Passy et al., 2019), there is an increasing need for critical examination and assessment of what is actually being taught and how (Barfod & Daugbjerg, 2018).

1.2. Uteskole in Norway

The focus on student engagement and the integration of the local environment have been fundamental in Norwegian education throughout the 20th century, but this still needs to be more thoroughly researched for EOtC (Jordet, 2011).

In 2000, a nationwide school survey had been undertaken in Norway to assess school meals and physical activity in Norwegian primary schools. Hereby, "uteskole" had been identified as one source of physical activity (Bjelland & Klepp, 2000). The survey revealed that more than 90% of first graders participated in uteskole activities for either half or a whole day each week. However, as students progressed through their schooling, there was a gradual decline in provision. By the time students reached the seventh grade, only 10% of them were engaged in regular uteskole activities once a week (reported in Bentsen et al., 2010; unfortunately, the original report could not be retrieved). Apart from this early survey on uteskole in Norway and two master theses that focused on uteskole in different Norwegian

regions (Limstrand, 2001; Vestøl, 2003), no recent data on the prevalence and nature of uteskole in Norway are available.

While the concept of EOtC encompasses teaching activities both outdoors and indoors, such as in cultural institutions and companies, the practice of uteskole in Norway is particularly influenced by the concept of "friluftsliv" and outdoor environments as a setting for personal development and learning (Winje & Løndal, 2021a). The Norwegian cultural heritage of valuing outdoor life or friluftsliv is grounded on a long tradition of outdoor activities (Tordsson, 2010). It has been argued that the concept of friluftsliv is connected to the formation of the (new) Norwegian national identity after its independence in 1814 (Slagstad, 2008) and the national romantic movement (Faarlund et al., 2007). It has been used as a unifying element to evoke feelings of pride of the Norwegian nature and was therefore considered to be an important topic in education (Skille et al., 2023). There has been a long-standing emphasis on friluftsliv in the curriculum for nearly eight decades. In the "normalplanen" from 1939, the word "friluftsliv" was mentioned for the first time in a Norwegian curriculum (Helle, 2017). With the curriculum reform in 1994, friluftsliv was integrated as a specification in upper secondary physical education in Norway. Three years later, guidelines for friluftsliv were developed for all school forms, that explicitly encouraged the use of the local community as an educational resource across all subjects. In the wake of these curriculum revisions, this form of teaching gained momentum and the term "uteskole" was used to describe this practice (Jordet, 2007). Arne Jordet's case study from the early 2000s, based at Lutvann Primary School in south east Norway, provided insights into regular uteskole practices, where friluftsliv is defined as an integral part of uteskole, among others (Jordet, 2002, 2009). In his influential book "The Classroom Outdoors", Jordet argued that uteskole encourages active, sensory learning through personal experiences outside the classroom, bridging the gap between indoor and outdoor education (Jordet, 2010).

In the newest curriculum reform ("fagfornyelsen") from 2020/21, varied learning environments, activities, the use of nature and the local community, collaboration, exploration, and character development are important themes. Although the term "uteskole" is not explicitly used, the idea that outdoor teaching can effectively align with the new curriculum remains robust (Flatmo, 2021).

The continuity of indoor and outdoor teaching, however, has been questioned in a recent study by Winje and Løndal (2021a) who found that the "connections between *friluftsliv activities* and *theoretical learning activities* are seldom emphasised" (p.133, cursive

in the original) and there are only a few studies to date that explicitly examine uteskole practices (Remmen & Iversen, 2022).

Based on the lack of comprehensive research on the prevalence and nature of uteskole in Norway and the ambiguities between friluftsliv and uteskole, the purpose of this study is to examine the prevalence of uteskole in Norway and find out more about the properties and conditions of its practice.

2. Methods

2.1. Research design and instruments

The project had been designed in January 2020, right before the COVID-19 pandemic. An online questionnaire was developed in close cooperation with one author of the Danish mapping project (MB), who is also co-authoring this study. To secure comparability to the findings obtained in Denmark, items in the Norwegian questionnaire had been aligned to the Danish version as much as possible and adapted to the Norwegian context. The Norwegian questionnaire had been tested for practicability and intelligibility by a total of 21 teachers, school officials, and colleagues in teacher education. Their feedback had been incorporated in the final version of the questionnaire. Email addresses with the permission to use them for the purpose of this study had been obtained by the Norwegian Directorate for Education and Training (Udir), and the questionnaire had been approved for compliance with The General Data Protection Regulation (GDPR) by the Norwegian Agency for Shared Services in Education and Research/Sikt (ID: SIKT-500199).

2.2. Sampling and data collection

To obtain data least affected by the pandemic, the data collection was conducted in October 2021 four weeks after Norway had officially lifted all COVID-19 restrictions, allowing the schools to readjust to “normal” school life. An online questionnaire including four items asking about the use of uteskole during and after the pandemic was sent out to N=2671 schools in Norway (classes grade 1-10). For this article, only the quantitative data on the provision of uteskole during and after the pandemic are considered.

To estimate the prevalence of EOtC in Norway, a two-stage approach was performed. First, one representative of the school (for instance the school leader) was asked to fill in the online questionnaire on uteskole practice at their respective schools. Of the responses, 80% came from principals, 8% from assistant principals, 8% from teachers, and 4% from

administration personnel. Two items were used to determine the prevalence of uteskole: item 1 first briefly introduced the concept of uteskole as a teaching form where "a class is regularly taught in the local area, in the urban environment (e.g., museums, science centres or other cultural institutions) and/or in nearby outdoor areas or on school grounds". Residentials, 'brain breaks' or physical activity breaks outside the classroom were explicitly excluded from the definition of uteskole. We then asked if the school practiced uteskole or not. Item 2, which was conditioned on the answer "yes" to item 1, asked to which extent uteskole was practiced, giving predefined frequency options (see table 1, column 1). To enable comparison to the Danish mapping research (Barfod et al., 2021), similar frequency categories were used: (1) No uteskole, (2) Very irregular, only a few days of the school year; (3) Regularly, but less than half a day every two weeks; (4) Regularly, approximately half a day every two weeks; (5) Regularly, approximately half a day each week; (6) Regularly, approximately a whole day every two weeks; (7) Regularly, approximately a whole day each week; (8) More frequent than a whole day each week.

From all contacted schools, n=535 (20.0%) provided valid data to calculate the prevalence. To account for a possible non-response bias (Berg, 2005) of those schools answering the online questionnaire that favour practicing uteskole in their schools, a random sample of n=460 of the remaining non-responding schools was additionally contacted by telephone and were asked to answer items 1 and 2. Of those 460 schools, n=334 offered complete replies to the two questions, resulting in a 95% chance for a sampling error of maximally 5.0%, which means that the sample of responses contacted by telephone is a representative sample of the initially non-responding schools.

To explore the nature of uteskole in Norway, a set of eleven more comprehensive items were included in the online survey, asking for example for pedagogical goals in uteskole, the teachers' training, or the distance to natural environments, also providing space for open-ended answers.

The questionnaire had been available in all three national languages in Norway, i.e., Bokmål, Nynorsk, and Northern Sámi.

2.3. Calculation of prevalence of EOtC in Norway

To determine the sensitivity of the data collection mode (online vs. telephone) and to calculate a more accurate prevalence of uteskole in Norway based on the whole dataset with N=869 schools (32.53%), Bayesian logistic regression models with binary response variables

were used for (a) the schools' own definition of uteskole (item 1, "yes"/"no") and (b) an ex-post definition of uteskole provision of at least half a day every second week based on item 2 ("uteskole practice meets duration-criterion" with two levels, "yes" and "no", with "yes" coded as 1, and "no" coded as 0). In both models, the mode of data collection was included as a categorical predictor variable, again with two levels, "online" (0), and "telephone" (1). A detailed technical description of the models can be found in the supplementary material.

3. Results

3.1. The prevalence and provision of uteskole in Norway

Table 1 provides the summary statistics of the responses in both data collection modes, the online data collection and the follow-up via telephone in the respective response categories. Following the "Danish Model" (Barfod et al., 2021; Barfod et al., 2016; Bentsen et al., 2010), only categories (4)-(8) are defined as uteskole (i.e., regular use of EOtC) to calculate the prevalence of uteskole in Norway and are coded "yes": = 1. Answers in categories (1)-(3) are coded "no": = 0, while answers in categories (9) and (10) are coded as missing for the statistical analysis.

Table 1. Responses in the respective categories on uteskole provision in the two collection modes (telephone and online)

	telephone (%)	online (%)
(1) No uteskole	11.1	11.4
(2) Very irregular, only a few days of the school year	8.4	4.1
(3) Regularly, but less than half a day every two weeks	8.7	6.9
(4) Regularly, approx. half a day every two weeks	9.3	13.3
(5) Regularly, approx. half a day each week	24.6	32.6
(6) Regularly, approx. a whole day every two weeks	2.4	7.5
(7) Regularly, approx. a whole day each week	23.7	22.4
(8) More frequent than a whole day each week	1.8	1.9
(9) Do not know item 2	4.5	0.9
(10) Do not know item 1	5.7	0.0

For the schools' own definition of uteskole practice (a), the logistic regression model determines virtually no difference (0.0%) between the two data collection modes and reveals a prevalence for having uteskole of 87.6% (95% CRI 84.3%-90.8%) in Norway (see Table A1 in the appendix).

The model for the ex-post definition of uteskole (b) reveals that the corrected prevalence in Norway is 11.1% lower than obtained by the online survey, i.e., 68.7%, with credible values ranging from 56.4% to 78.9% within 95% credibility (see Table A2 in the appendix).

At county ("fylke") level in Norway, the data show that uteskole is a teaching approach used nation-wide (cf. Figure 1, Table 3), with a constant prevalence throughout the country. Only the city of Oslo has significantly less provision of uteskole (50.2%), whereas in Vestfold and Telemark the provision is exceptionally high (91.4%).

The data also show that 59% of the responding schools increased the provision of uteskole during the COVID-19 pandemic. Of those schools, 44% have continued with higher provisions in the school year 2021/22 after the pandemic, and no schools reported to have less provision than before COVID.

Table 2. Prevalence of uteskole in the counties (fylke)

Fylke	Prevalence [%][1]	Pearson Residual
Agder	70.0	0.31
Innlandet	77.9	1.31
Møre og Romsdal	61.8	-0.74
Nordland	66.4	-0.15
Oslo	**50.2**	**-2.22***
Rogaland	67.1	-0.06
Troms og Finnmark	67.4	-0.02
Trøndelag	66.4	-0.15
Vestfold og Telemark	**91.4**	**3.04****
Vestland	64.0	-0.45
Viken	60.6	-0.89

[1] Based on online data and corrected for non-response bias. The Pearson residual denotes significant deviations from the expected value. The threshold for statistically significant deviations follows the z-score table with ± 1.96 for α=0.05 (*) and ± 2.33 for α=0.01% (**).

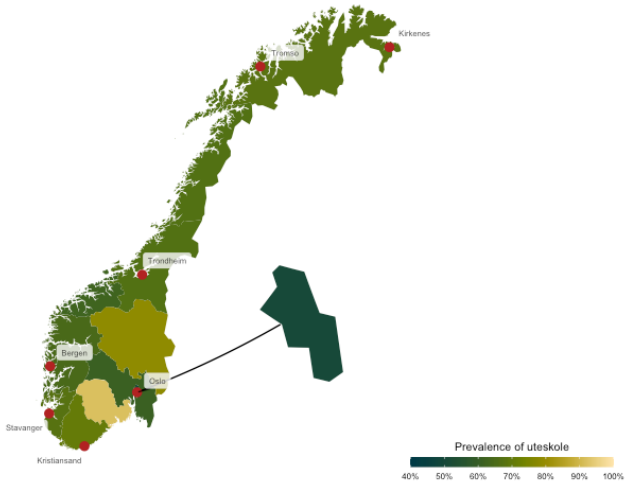

Figure 1 displays the geographical distribution of the prevalence of uteskole in Norway based on the online data corrected for non-response bias. The county of Oslo is depicted to the right in a larger scale for better visibility.

Applying the Danish definition of uteskole (categories 4-8, table 1), and based on merged online and telephone data (N=869), the most popular model in Norway to teach outside the classroom is "half a day every week", which is practiced by 40.7% of the schools offering uteskole, whereas 32.2% go out "a whole day each week". 16.6% have uteskole "half a day" and 7.8% "a whole day every two weeks". 2.6% of the schools that practice uteskole go out "more frequently than a whole day each week" (cf. Table 4).

Uteskole is most frequently used in the lower school grades, with the highest provision in grades 1-4 (ca. 80%), decreasing slightly in grades 5-7 (ca. 68%). There is a clear drop from grade 7 to 8 (ca. 42%), which also marks the transition from elementary school (in Norway, "barneskole", grades 1-7) to lower secondary school (in Norway, "ungdomsskole", grades 8-10). The answers to the open-ended questions indicated that there exists no "culture" for the use of uteskole in the lower secondary schools in Norway. Nevertheless, there are still 43% of the responding lower secondary schools that use uteskole with at least one class per grade.

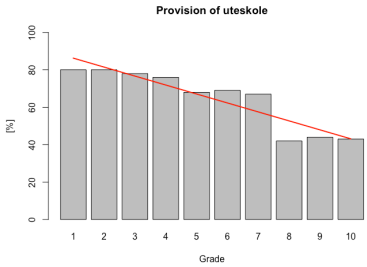

Figure 2 depicts the decline of uteskole provision of at least half a day every second week through grades 1-10 based on the online data (item 1). With entering lower secondary school in 8th grade, the provision of uteskole drops. A linear regression (red line) indicates a highly significant decrease of provision of uteskole with increasing grade level (BF_{10}=130, R^2=0.853). However, approximately 43% of the lower secondary schools still provide at least some form of uteskole.

3.2. The nature of uteskole practice in Norway

In the following, all quantifications are based on the Norwegian schools' definitions of uteskole (item 1) and therefore comprise also irregular provisions that were excluded in the previous section. Of the responding schools, 88% claimed that they have access to suitable uteskole places within ten minutes, 9% within 30 minutes walking distance, 1% need to take public transport, and 2% provided no information.

Hereby, the accessibility to places for teaching outside the school building is associated with the provision of uteskole: 90% of the responding schools with access to suitable places within 10 minutes walking distance, practice uteskole. This provision decreases to 83% when the walking distance is up to 30 minutes. And more than half of the few schools that need to use public transport answered that they still practice uteskole.

42% of the responding schools with uteskole answered that there exists some sort of formal embedding of uteskole in their teaching plans. Of all responding schools, 46% have teaching staff who had been formally trained in friluftsliv or uteskole during their teacher education. In total, 38% of the schools have staff with informal competence, for example acquired through several years of experience as uteskole teachers or tour guides, or personal enthusiasm for the outdoors. Of the responding schools, 14% have staff who are part of a uteskole related network, for example "Den Naturlige Skolesekken" (i.e., "The Natural School Backpack") (Nasjonalt senter for naturfag i opplæringa, 2023). Moreover, 24% answered that they do not have staff with specific uteskole competence.

Of the responding schools practicing uteskole, 96% claim that uteskole is connected to the teaching in the classroom and that this approach is used virtually across all school subjects. The ones that are less frequently used during uteskole are music education and religious education. Typically, uteskole is practiced as a blending of learning and social activities in the outdoors. For almost two thirds of the schools, cultural activities like visiting museums or theatres are not considered typical uteskole elements, whereas the remaining 37% count such cultural activities or visits to local companies, including school gardening, as uteskole.

The newly introduced national Norwegian curriculum from 2020 defines several pedagogical goals for all subjects. Those had been summarized and the schools were asked to choose the one most central for their uteskole practice: 1) social learning and development; 2) physical activity and health; 3) inquiry-based learning and curiosity; 4) respect for nature and ecological awareness; 5) interdisciplinary teaching. No clear ranking of these five goals could be determined and the respondents clearly stated in the open-ended answers that all of them are equally important, and it became evident that uteskole is in fact a widely used strategy to formally address those overarching pedagogical goals defined in the curriculum. In addition to the offered categories, there were some schools that reported to use uteskole specifically to teach Sámi culture and traditions.

The main reasons given by the responding schools for not practicing uteskole were lack of time (37%), too little flexibility in the school routines (23%), and lack of interest from the teachers (23%). 21% of the responding schools do not recognize uteskole as relevant, and 17% claim to have not enough knowledge to provide it. Extra costs like transportation or additional teaching staff are a barrier for 17% of the schools. For this item, multiple answers could be given. Moreover, there are geographical areas in Norway, where the climate seems to make outdoor learning more challenging, as can be seen from the quote of one teacher: "*The biggest problem in Finnmark is probably that it is winter most of the school year*."

4. Discussion

4.1. Prevalence, provision, and nature of uteskole in Norway

Compared to international provisions of EOtC, the prevalence of 68.7% of uteskole in Norway can be deemed exceptionally high (Dettweiler & Mygind, 2020) – also in comparison to other Nordic countries. It is difficult to compare the Norwegian data with the findings in Scotland since the methods are different and the Norwegian approach cannot

reliably quantify the provision in minutes per student per week. But given the high prevalence of uteskole in Norway (68.7%), and the fact that 72% of those schools that provide uteskole go out either half a day (ca. 180 minutes) or a full day (360 minutes) per week, the provision in Norway is 25-50 times higher than in Scotland. The prevalence of uteskole in Norway is, however, directly comparable to data from Denmark after recalculating the data provided in Barfod et al. (2021) with the same methodology. Based on the responses from the combined online and telephone data, the corrected prevalence for having regular udeskole in Denmark is 19.3% (see Table A4 in the appendix). This is considerably lower than in Norway with a corrected prevalence of 68.7% for regular uteskole (see Table A2).

The higher prevalence in Norway can probably be explained by two reasons. First, in Norway, friluftsliv is part of the physical education curriculum and activities such as hiking, making fire, and preparing simple food over campfires count as curricular learning activities. Whereas in Denmark, those friluftsliv-related activities are rarely curricular: they are a compulsory but minor topic in physical education for 7th grade students and above, and municipalities can offer friluftsliv as an elective subject. Thus, it is expected that friluftsliv is only occasionally registered as udeskole in Denmark. Second, the overarching pedagogical goals in the new Norwegian curriculum from 2020/21 are often addressed through uteskole, whereas such an incentive is not explicated in the Danish curriculum, although public Danish schools are expected to cooperate with social institutions and companies, for example also by using EOtC to follow The Open School approach (The Danish Ministry of Education, 2014).

When it comes to the different models of the provision of uteskole in Norway and Denmark (see Table A5 in the Appendix), the categories “half a day every two weeks” (17% in DK and 16.5% in NO) and “a whole day each week” (32% in both countries) are equally frequently used in both countries. The biggest differences are in categories (5) and (6): whereas “one day every two weeks” seems a quite popular model in Denmark (29%) it is not so in Norway (7.7%). There, “half a day each week” is by far the most frequently used model (41.4%). This seems to offer the best trade-off between the benefits of uteskole and the pressure from other curricular activities and can probably best be explained by the easy access to suitable uteskole places within less than ten minutes walking distance for 88% of the Norwegian schools. Finally, in Denmark, slightly more schools seem to offer EOtC “more frequent than a whole day each week” than in Norway (4.5% in DK and 2.6% in NO).

Although uteskole is a national phenomenon with almost equal prevalence in every county, there are some deviations. The provision of uteskole in Norway is lowest in the Oslo metropolitan region which might be due to more limited access to suitable uteskole places in the closer surroundings of the schools. The very high prevalence of uteskole in Vestfold og Telemark, however, can so far not be explained and needs further examination.

The stepwise decline of uteskole provision in Norway through the grades 1-4, 5-7, and 8-10 can most probably be explained by increasing academic pressure, especially in the transition from elementary to lower secondary education, which is also the timepoint when the students begin to receive grades and teachers seem to prioritize more classroom-based forms of education. The same stepwise decline of provision can be seen in Denmark (Barfod et al., 2021).

The findings show that 46% of the schools practising uteskole can rely on teaching staff with formal uteskole/friluftsliv training, and 38% of the schools have staff with informal uteskole competences. According to the provided data, uteskole is virtually used in every subject. So far, however, formal uteskole training in Norway seems to be concentrated mainly within physical education teacher education and this might also partly explain the high focus on friluftsliv activities in Norwegian uteskole practice.

The current survey does not provide information on uteskole practices at the subject level and does not evaluate how closely and pedagogically successful the continuity of classroom teaching in uteskole *de facto* is, or to what degree it responds to the places used. Recently, Winje and Løndal (2021a) identified some room for improvement regarding continuity and formulate how teachers can be supported in "facilitating transaction between the pupils and the environment outdoors and aid in establishing continuity between learning activities outdoors and indoors" (p. 133). In a study conducted in Germany, Lauterbach (2023) showed how the students' active engagement with specific environmental affordances in EOtC teaching settings fostered their academic engagement and well-being. The same study also described, how an EOtC approach with a strong focus on place and cultural responsivity offers possibilities for the participation of all students and opens up a promising way to more inclusive schools (Lauterbach et al., 2023).

It can furthermore be assumed that the deep anchoring of friluftsliv in Norwegian history and culture also explains the high prevalence and affects how uteskole has been and still is conceptualized and taught in Norway. This might however to a certain degree also

410 replicate some of the exclusive tendencies in Norwegian friluftsliv with respect to social
411 class, gender, ethnicity, and age, that had been put forth by Gurholt (2016), Gurholt et al.
412 (2020) or Skille et al. (2023). The latter explicitly underlines the underrepresentation of Sámi
413 perspectives and discusses the rich potential that lies in indigenous contributions to friluftsliv.
414 The same might be the case for uteskole practice (Bergan & Laiti, 2023).

415 ### 4.2. Strengths and limitations

416 This survey is the first systematic mapping of the prevalence and provision of
417 uteskole in Norway, at least in the past 25 years, since the findings from the early survey
418 (Bjelland & Klepp, 2000) could not be accounted for in the original and could not be quality-
419 checked. This study provides robust and rich data on this widely used teaching approach,
420 which can be used to inform educational policies and teacher education strategies
421 (Mandinach & Honey, 2008). The alignment with prevalence assessments in Denmark and
422 Scotland (Barfod et al., 2021; Barfod et al., 2016; Bentsen et al., 2010; Mannion et al., 2023),
423 has bolstered the external validity and comparability of this study's findings.

424 However, this study also has its limitations: first, it would have been beneficial to
425 record also the organisation number of the schools contacted by telephone to link their
426 answers to the items for the geographical distribution analyses. This would make the study
427 even more robust with respect to the nature of uteskole discussed in section 3.2. Moreover,
428 this study can only be seen as a starting point for more in-depth analyses of the nature and use
429 of uteskole in Norway to find out how uteskole is *de facto* practiced and how the teachers are
430 prepared for teaching outside the classrooms in pre-service and in-service teacher education.
431 The current data for example do not capture how inclusive uteskole practice is, it can so far
432 only be assumed that the exclusive elements that are at play in friluftsliv probably also apply
433 to uteskole.

434 ## 5. Conclusion

435 The most important finding from this survey is that with a prevalence of 68.7%,
436 regular uteskole is indeed a widely used teaching approach all over Norway. Uteskole is most
437 often practiced "half a day each week" which can probably be explained with the fact that the
438 majority of Norwegian schools have easy access to suitable uteskole places within 10 minutes
439 walking distance. There is a noticeable drop in the provision of uteskole with the transition
440 from elementary to lower secondary education after grade seven, most likely due to the
441 introduction of grading and an increasing focus on academic learning. Although uteskole in

Norway is especially inspired by the concept of friluftsliv, the data reveal that it is virtually taught in all subjects and that the teaching in uteskole is considered to be connected to the indoor teaching.

Based on our findings, we can formulate the following implications for further research and educational policy:

- Given the high prevalence and considering that up to 20% of all teaching in primary and lower secondary education in Norway takes place outside the classrooms across all subjects, uteskole should become a mandatory element in teacher training.
- Further research needs to increase expertise and capacity by developing good uteskole practices, teaching concepts, and practical guidelines.
- Further theoretical and methodological diversity for a more inclusive uteskole for all students needs to be encouraged, with a special focus on place and cultural responsivity as well as indigenous, particularly Sámi perspectives.

As this study sheds light on the prevalence and nature of uteskole in Norway, it serves as an initial step towards re-evaluating the systems of teacher training and educational practice. It is essential to acknowledge that schools play an immense role in shaping future generations, and uteskole presents significant opportunities to contribute to the students' holistic development. We emphasize that widespread incorporation of such teaching practices should be underpinned by well-trained educators. With the substantial evidence highlighting the positive effects of uteskole, we firmly believe that Norway is uniquely positioned to provide its future generations with an education that equips them to meet the challenges that confront our world.

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687

688

689 Appendix

690

Table A1. Results from the logistic regression model for Norway, item 1.

			Credibility Interval (95% CRI)				
	mean	sd	2.5%	25%	50%	75%	97.5%
Uncorrected Prevalence	0,876	0,015	0,847	0,866	0,876	0,885	0,904
Corrected Prevalence	0,876	0,016	0,843	0,866	0,877	0,887	0,908
Difference	0.00 (0%)						

The mean and 95% CRI boundaries are already transformed from log-odds to probabilities.

691

692

Table A2. Results from the logistic regression model for Norway, item 2.

			Credibility Interval (95% CRI)				
	mean	sd	2.5%	25%	50%	75%	97.5%
Uncorrected Prevalence	0.773	0.019	0.735	0.76	0.773	0.786	0.811
Corrected Prevalence	0.687	0.021	0.564	0.647	0.688	0.725	0.789
Difference	-0.086 (-11.1%)						

The mean and 95% CRI boundaries are already transformed from log-odds to probabilities.

693

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Table A3. Results from the logistic regression model for Denmark , item 1

			Credibility Interval (95% CRI)				
	mean	sd	2.5%	25%	50%	75%	97.5%
Uncorrected Prevalence	0.404	0.018	0.301	0.412	0.404	0.437	0.458
Corrected Prevalence	0.201	0.022	0.13	0.175	0.201	0.228	0.286
Difference	-0.203 (-50.5%)						

The mean and 95% CRI boundaries are already transformed from log odds to probabilities.

695

Table A4. **Results from the logistic regression model for Denmark , item 2**

			Credibility Interval (95% CRI)				
	mean	sd	2.5%	25%	50%	75%	97.5%
Uncorrected Prevalence	0.398	0.022	0.294	0.321	0.398	0.351	0.381
Corrected Prevalence	0.193	0.022	0.126	0.168	0.193	0.221	0.279
Difference	-0.205 (-51.6%)						

The mean and 95% CRI boundaries are already transformed from log odds to probabilities.

Table A5. Frequency of uteskole provision in Norway and Denmark

Provision	DK[1]	NO[2]
(4) Regularly, approx. half a day every two weeks	16.5%	16.6%
(5) Regularly, approx. half a day each week	29%	40.7%
(6) Regularly, approx. a whole day every two weeks	18%	7.8%
(7) Regularly, approx. a whole day each week	32%	32.2%
(8) More frequent than a whole day each week	4.5%	2.6%

[1] Recalculated from the data from Barfod et al. (2021). [2] Calculated based on the combined online and telephone data with N=869 schools.

Appendix 2 – Search strings for the systematic literature searches

Search strings for general whole project

Pubmed:

((“education outside the classroom”[Title/Abstract] OR “learning outside the classroom”[Title/Abstract] OR “outdoor education”[Title/Abstract] OR “outdoor learning”[Title/Abstract] OR “outdoor teaching”[Title/Abstract] OR “outdoor school”[Title/Abstract] OR “forest school”[Title/Abstract] OR “nature school”[Title/Abstract] OR “open-air school”[Title/Abstract] OR “experiential learning”[Title/Abstract] OR “expeditionary learning”[Title/Abstract] OR “environmental education”[Title/Abstract] OR “place-based education”[Title/Abstract] OR “field trip*” [Title/Abstract] OR “field-based learning”[Title/Abstract] OR “field stud*” [Title/Abstract] OR “school garden*”[Title/Abstract] OR “community garden*”[Title/Abstract] OR “school ground*”[Title/Abstract] OR “out-of-classroom”[Title/Abstract] OR “out-of-school” [Title/Abstract]) AND (curric*[Title/Abstract] OR school[Title/Abstract]))

Education Scourse, PsychArticles, SPORTDiscuss, SOCIndex, ERIC and GREENFile, via EBSCO; Teacher Reference Center, via EBSCO:

(TI “education outside the classroom” OR AB “education outside the classroom” OR TI “learning outside the classroom” OR AB “learning outside the classroom” OR TI “outdoor education” OR AB “outdoor education” OR TI “outdoor learning” OR AB “outdoor learning” OR TI “outdoor teaching” OR AB “outdoor teaching” OR TI “outdoor school” OR AB “outdoor school” OR TI “forest school” OR AB “forest school” OR TI “nature school” OR AB “nature school” OR TI “open-air school” OR AB “open-air school” OR TI udeskole* OR AB udeskole* OR TI uteskole* OR AB uteskole* OR TI friluftsliv OR AB friluftsliv OR TI draussenschule OR AB draussenschule OR TI draußenschule OR AB

draußenschule OR TI “experiential learning” OR AB “experiential learning” OR TI “expeditionary learning” OR AB “expeditionary learning” OR TI “environmental* education” OR AB “environmental* education” OR TI “place-based education” OR AB “place-based education” OR TI “field trip*” OR AB “field trip*” OR TI “field-based learning” OR AB “field-based learning” OR TI “field stud*” OR AB “field stud*” OR TI “school garden*” OR AB “school garden*” OR TI “community garden*” OR AB “community garden*” OR TI “school ground” OR AB “school ground” OR TI “out-of-classroom” OR AB “out-of-classroom” OR TI “out-of-school” OR AB “out-of-school”) AND (TI curric* OR AB curric* TI school OR AB school)

Scopus:

TITLE-ABS(“education outside the classroom” OR “learning outside the classroom” OR “outdoor education” OR “outdoor learning” OR “outdoor teaching” OR “outdoor school” OR “forest school” OR “nature school” OR “open-air school” OR udeskole* OR uteskole* OR friluftsliv OR draussenschule OR draußenschule OR “experiential learning” OR “expeditionary learning” OR “environmental* education” OR “place-based education” OR “field trip*” OR “field-based learning” OR “field stud*” OR “school garden*” OR “community garden*” OR “school ground*” OR “out-of-classroom” OR “out- of-school”) AND TITLE-ABS (curric* OR school)

Danish search terms in Tidsskrift:

udeskole* ELLER udeundervisning ELLER naturklasse* ELLER «stedbaseret undervisning» ELLER «udendørs læringsrum» ELLER «udendørs undervisning» ELLER «åben skole» ELLER «den åbne skole» ELLER skolehave* ELLER «haver til maver» ELLER «grøn* skolegård*» ELLER (elever OG feltarbejde*)

Norwegian search terms in Idunn:

(Uteundervisning OR uteskole OR ekskursjon OR "stedsbasert undervisning*" OR "stedsbasert læring*" OR "udendørs uddannelse*" OR "udendørs undervisning*") OR (friluftsliv AND skole)

Swedish search terms in SwePub:

uteskola OR friluftsliv OR naturskola OR platsbaserat lärande OR platsbaserad undervisning OR utomhuspedagogik OR utomhusundervisning OR utomhusutbildning

Swedish search terms in DivaPortal:

uteskola OR friluftsliv OR naturskola OR platsbaserat lärande OR platsbaserad undervisning OR utomhuspedagogik OR utomhusundervisning OR utomhusutbildning

German search terms in Fis Bildung via Fachportal Pädagogik:

Freitext: draussenschule ODER draussenunterricht ODER „draussen unterrichten" ODER „draussen lernen" ODER „unterricht im freien" ODER „lernen im freien" ODER naturschule ODER „natur schule" ODER ausserschulisch ODER outdoor

Additional search string for paper 2

TITLE-ABS-KEY (inclusi* OR "social inclusion" OR "social integration" OR "social participation" OR "social acceptance" OR "peer acceptance" OR "social belong*" OR "social interaction") AND TITLE-ABS-KEY (intervention OR program OR (play W/4 intervention) OR (game W/4 intervention) OR (play W/4 program) OR (game W/4 program)) AND TITLE-ABS-KEY (immigrant OR migrant OR minority OR foreign* OR "ethnic minority" OR bilingual OR multilingual OR "dual language" OR plurilingual) AND TITLE-ABS-KEY (child* OR pupil* OR student* OR primary AND school OR elementary AND school) AND NOT TITLE-ABS-KEY (disability OR handicap* OR

impairment) AND (LIMIT-TO (DOCTYPE , “ar”) OR LIMIT-TO (DOCTYPE , “re”)) AND (LIMIT-TO (LANGUAGE , “English”))

Appendix 3 – Documentation for ethical issues

Approval of the dissertation project by Sikt/NSD

Co-authorship declarations

Sikt

Assessment of processing of personal data

Reference number	Assessment type	Date
500199	Standard	02.07.2021

Title
Practice of Education Outside the Classroom and its Potential for Inclusion

Institution responsible for the project
Universitetet i Stavanger / Fakultet for utdanningsvitenskap og humaniora / Institutt for kultur- og språkvitenskap

Project leader
Gabriele Lauterbach

Project period
13.09.2016 - 31.10.2023

Categories of personal data
General

Legal basis
Consent (General Data Protection Regulation art. 6 nr. 1 a)

The processing of personal data is lawful, so long as it is carried out as stated in the notification form. The legal basis is valid until 31.10.2023.

Notification Form

Comment
BACKGROUND
The processing of personal data was originally collected for a project with TMU, Germany as the data controller in 2016/17 and carried out in accordance with the data protection legislation in force at that time. The data will now be processed for a phd-project at the University of Stavanger.

It is our assessment that the processing in this project will be in accordance with current data protection legislation, so long as it is carried out in line with what is documented in the Notification Form on this date with attachments, as well as correspondence with NSD. The processing may continue.

NOTIFY CHANGES
If you intend to make changes to the processing of personal data in this project it may be necessary to notify NSD. This is done by updating the information registered in the Notification Form. On our website we explain which changes must be notified. Wait until you receive an answer from us before you carry out the changes.

TYPE OF DATA AND DURATION
The project will be processing general categories of personal data until 31.10.2023.

LEGAL BASIS
The project have gained consent from data subjects to process their personal data. We find that consent met the necessary requirements under art. 4 (11) and 7, in that it was a freely given, specific, informed and unambiguous statement or action, which will be documented and can be withdrawn. The legal basis for processing personal data is therefore consent given by the data subject, cf. the General Data Protection Regulation art. 6.1 a).

PRINCIPLES RELATING TO PROCESSING PERSONAL DATA
NSD finds that the planned processing of personal data will be in accordance with the principles under the General Data Protection

Regulation regarding:
• lawfulness, fairness and transparency (art. 5.1 a), in that data subjects will receive sufficient information about the processing and will give their consent
• purpose limitation (art. 5.1 b), in that personal data will be collected for specified, explicit and legitimate purposes, and will not be processed for new, incompatible purposes
• data minimisation (art. 5.1 c), in that only personal data which are adequate, relevant and necessary for the purpose of the project will be processed
• storage limitation (art. 5.1 e), in that personal data will not be stored for longer than is necessary to fulfil the project's purpose

THE RIGHTS OF DATA SUBJECTS
Data subjects will have the following rights in this project: transparency (art. 12), information (art. 13), access (art. 15), rectification (art. 16), erasure (art. 17), restriction of processing (art. 18), notification (art. 19), data portability (art. 20). These rights apply so long as the data subject can be identified in the collected data.

NSD finds that the information that was given to data subjects about the processing of their personal data was sufficient with the data protection legislation in force at that time. We find that the information also is sufficient to gain consent and meeting the legal requirements for form and content in the current data protection legislation, cf. art. 12.1 and art. 13, however it lacks some information about the rights of the data subjects.

We remind you that if a data subject contacts you about their rights, the data controller has a duty to reply within a month.

FOLLOW YOUR INSTITUTION'S GUIDELINES
NSD presupposes that the project will meet the requirements of accuracy (art. 5.1 d), integrity and confidentiality (art. 5.1 f) and security (art. 32) when processing personal data.

To ensure that these requirements are met you must follow your institution's internal guidelines and/or consult with your institution (i.e. the institution responsible for the project).

FOLLOW-UP OF THE PROJECT
NSD will follow up the progress of the project at the planned end date in order to determine whether the processing of personal data has been concluded.

Contact person at NSD: Karin Lillevold
Good luck with the project!

Sikt

Assessment of processing of personal data

Reference number	Assessment type	Date
500199	Standard	31.03.2022

Title
Practice of Education Outside the Classroom and its Potential for Inclusion

Institution responsible for the project
Universitetet i Stavanger / Fakultet for utdanningsvitenskap og humaniora / Institutt for kultur- og språkvitenskap

Project leader
Gabriele Lauterbach

Project period
13.09.2016 - 31.10.2023

Categories of personal data
General

Legal basis
Consent (General Data Protection Regulation art. 6 nr. 1 a)

The processing of personal data is lawful, so long as it is carried out as stated in the notification form. The legal basis is valid until 31.10.2023.

Notification Form

Comment
NSD has assessed the change. No change was made.

NSD will follow up the progress of the project at the planned end date in order to determine whether the processing of personal data has been concluded.

Good luck with the rest of the project!

Sikt

Assessment of processing of personal data

Reference number	Assessment type	Date
500199	Standard	10.11.2023

Title
Practice of Education Outside the Classroom and its Potential for Inclusion

Institution responsible for the project
Universitetet i Stavanger / Fakultet for utdanningsvitenskap og humaniora / Institutt for kultur- og språkvitenskap

Project leader
Gabriele Lauterbach

Project period
13.09.2016 - 31.01.2024

Categories of personal data
General

Legal basis
Consent (General Data Protection Regulation art. 6 nr. 1 a)

The processing of personal data is lawful, so long as it is carried out as stated in the notification form. The legal basis is valid until 31.01.2024.

Notification Form

Comment
Data Protection Services has assessed the change to the duration of the project.

The period for processing personal data has been extended until 31.01.2024.

If the duration of processing personal data is further extended, it may be necessary to inform your participants.

We will follow up the progress of the project at the new planned end date to determine whether the processing of personal data has been concluded.

Good luck with the rest of the project!

Version submitted for approval by doctoral committee 2/12/2020

Co-author declaration

A co-author declaration must be enclosed with any application to have an article-based thesis assessed for the degree of PhD (or for the degree of Dr.Philos.) at the Faculty of Arts and Education at the University of Stavanger

Universitetet i Stavanger

The declaration must describe the independent research contributions of the student and the co-authors in the articles of the thesis. All the authors (first author and co-authors) must fill in and sign a declaration concerning the basis for the co-authorship (capital letters if handwritten).

In cases where the supervisor is also a co-author, the supervisor must fill in and sign a co-author declaration for his or her independent contribution as co-author. In such cases, it is important to distinguish between the supervision that is given and the basis for the co-authorship (see the research ethics guidelines for the social sciences, humanities, law and theology, NESH 2016)[1].

According to the research ethics guidelines, there are four criteria for legitimate co-authorship: The researcher must **1) have made a significant contribution to the idea and formulation *or* data acquisition *or* analysis and interpretation of data, *and* 2) have contributed to the preparation of the manuscript *or* critical revision of the publication's intellectual content, *and* 3) have approved the final version for publication, and 4) be able to vouch for and be held accountable for the work in its entirety** (NESH 2016, p. 27).

The research ethics guidelines emphasise that it is common in the humanities and social sciences to require "only those who have actually contributed to the analysis and the work on the text itself for a scientific publication to be listed as co-authors. It is therefore not sufficient to have contributed to the intellectual work on the article in a broad sense" (acquisition of data, critical revision and approval of the product). Such contributors "are credited or thanked in footnotes or a final note (*Acknowledgements*). All forms of honorary authorship are unacceptable. Authorship shall be limited to those who have made a significant intellectual contribution to the research. General guidance, the securing of funding or the acquisition of data does not give entitlement to co-authorship in itself" (based on ICJME[2]).

The declaration concerns the following article: Article 2: Does "Out" Get You "In"? ...

Candidate: Gabriele Lauterbach

☒ first author ☐ second author ☐ other, please specify: _____

The candidate's independent contribution:

a) has made a significant contribution to:
the idea and formulation OR ☐no ☒yes
the data acquisition OR ☐no ☒yes
the data analysis and interpretation ☐no ☒yes
AND

b) has contributed to:
the preparation of manuscript OR ☐no ☒yes
the critical revision of the publication's intellectual content ☐no ☒yes
AND

c) has approved the final version for publication: ☐no ☒yes
AND

d) can vouch for and be held accountable for the work in its entirety (though not necessarily all technical details) unless specified otherwise: ☐no ☒yes

As far as you are aware, has this article been used in the evaluation of other doctoral projects? ☒no ☐yes

If yes, what PhD project (name and author):

Hommersåk, 16.1.2024
Place, date

Gabriele Lauterbach
Signature of candidate

[1] https://www.forskningsetikk.no/retningslinjer/hum-sam/forskningsetiske-retningslinjer-for-samfunnsvitenskap-humaniora-juss-og-teologi/ [loaded 20/11/2020].

[2] International Committee of Medical Journal Editors (ICMJE) [...] Available at http://www.icmje.org/icmje-recommendations.pdf [loaded 20/11/2020].

Version submitted for approval by doctoral committee 2/12/2020

Co-author: Hildegunn Fandrem

☐ first author ☒ second author ☐ other, please specify:

I hereby declare that I fulfil the requirements of authorship according to the above specified criteria of the Vancouver Declaration.

As far as I am aware, this article has -not- been used in the evaluation of other PhD projects.
(please cross out "not" if relevant)

If yes, what PhD project (name and author):

Stavanger, 19/1-2024
Place, date

Hildegunn Fandrem
Signature of co-author

Co-author: Ulrich Dettweiler

☐ first author ☐ second author ☒ other, please specify: third author

I hereby declare that I fulfil the requirements of authorship according to the above specified criteria of the Vancouver Declaration.

As far as I am aware, this article has -not- been used in the evaluation of other PhD projects.
(please cross out "not" if relevant)

If yes, what PhD project (name and author):

Stavanger, 17.1.2024
Place, date

Ulrich Dettweiler
Signature of co-author

Co-author: _____

☐ first author ☐ second author ☐ other, please specify:

I hereby declare that I fulfil the requirements of authorship according to the above specified criteria of the Vancouver Declaration.

As far as I am aware, this article has -not- been used in the evaluation of other PhD projects.
(please cross out "not" if relevant)

If yes, what PhD project (name and author):

_____
Place, date

_____
Signature of co-author

Version submitted for approval by doctoral committee 2/12/2020

Co-author declaration

A co-author declaration must be enclosed with any application to have an article-based thesis assessed for the degree of PhD (or for the degree of Dr.Philos.) at the Faculty of Arts and Education at the University of Stavanger

Universitetet i Stavanger

The declaration must describe the independent research contributions of the student and the co-authors in the articles of the thesis. All the authors (first author and co-authors) must fill in and sign a declaration concerning the basis for the co-authorship (capital letters if handwritten).

In cases where the supervisor is also a co-author, the supervisor must fill in and sign a co-author declaration for his or her independent contribution as co-author. In such cases, it is important to distinguish between the supervision that is given and the basis for the co-authorship (see the research ethics guidelines for the social sciences, humanities, law and theology, NESH 2016)[1].

According to the research ethics guidelines, there are four criteria for legitimate co-authorship: The researcher must **1) have made a significant contribution to the idea and formulation *or* data acquisition *or* analysis and interpretation of data, *and* 2) have contributed to the preparation of the manuscript *or* critical revision of the publication's intellectual content, *and* 3) have approved the final version for publication, and 4) be able to vouch for and be held accountable for the work in its entirety** (NESH 2016, p. 27).

The research ethics guidelines emphasise that it is common in the humanities and social sciences to require "only those who have actually contributed to the analysis and the work on the text itself for a scientific publication to be listed as co-authors. It is therefore not sufficient to have contributed to the intellectual work on the article in a broad sense" (acquisition of data, critical revision and approval of the product). Such contributors "are credited or thanked in footnotes or a final note (*Acknowledgements*). All forms of honorary authorship are unacceptable. Authorship shall be limited to those who have made a significant intellectual contribution to the research. General guidance, the securing of funding or the acquisition of data does not give entitlement to co-authorship in itself" (based on ICJME[2]).

The declaration concerns the following article: Article 3: Education Outside the Classroom in Norway

Candidate: Gabriele Lauterbach

☒ first author ☐ second author ☐ other, please specify: _____

The candidate's independent contribution:

a)	has made a significant contribution to:		
	the idea and formulation OR	☐no	☒yes
	the data acquisition OR	☐no	☒yes
	the data analysis and interpretation	☐no	☒yes
AND			
b)	has contributed to:		
	the preparation of manuscript OR	☐no	☒yes
	the critical revision of the publication's intellectual content	☐no	☒yes
AND			
c)	has approved the final version for publication:	☐no	☒yes
AND			
d)	can vouch for and be held accountable for the work in its entirety (though not necessarily all technical details) unless specified otherwise:	☐no	☒yes

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If yes, what PhD project (name and author):

_____

Hommersåk, 16.1.2024

Place, date

Signature of candidate

[1] https://www.forskningsetikk.no/retningslinjer/hum-sam/forskningsetiske-retningslinjer-for-samfunnsvitenskap-humaniora-juss-og-teologi/ [loaded 20/11/2020].

[2] International Committee of Medical Journal Editors (ICMJE) […] Available at http://www.icmje.org/icmje-recommendations.pdf [loaded 20/11/2020].

Version submitted for approval by doctoral committee 2/12/2020

Co-author: Mads Bølling

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Appendix 4 – Supplementary material

Supporting information for article 2:
https://www.mdpi.com/article/10.3390/educsci13090878/s1.

Supporting information for article 3:
https://osf.io/r4c2m/