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Integrating Education for Sustainable Development into Everyday Practice: Exploring an International School's Experiences and Approaches through an Ethnographic Case Study

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Declaration

I, Jil Leonie Catharina Giannikos, declare that this thesis is entirely my own work based on my own investigations and findings. All external sources and information have been acknowledged, adhering to the APA 7th edition referencing style. A comprehensive reference list has been included, providing credit to all the works and materials I have utilized. This thesis has not been previously submitted, either in its entirety or in part, for any academic qualification.

Date: 14th of August 2023   *Signature*:

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Abstract

This master's thesis investigates the support provided to teachers in fostering Education for Sustainable Development (ESD) within schools. The study was carried out at a private international school in France following a unique school concept. An ethnographic design facilitated a comprehensive study of three months involving participant observations, non-participant observations, and interviews. The research adopts an instrumental case study approach, which focuses on illuminating the particular issue of educators transitioning from traditional teaching methods to an alternative concept. Key findings highlight four factors that support teachers, such as the implementation of a buddy system for collaboration and meaningful learning experiences among teachers. It also identifies six limitations, including the lack of clear guidance and sufficient professional development opportunities. The research further evaluates how the school aligns with UNESCO's (2021) ESD guidelines highlighting both areas of success and improvement. Here, the findings show a connection between the physical environment and the teaching experience and how it can negatively impact the teacher if the space does not align with the pedagogy. The study also found that it is unrealistic for one teacher to embody all the competencies that are relevant to an effective implementation of ESD. Instead, a diverse team can expose students to all competencies by collaborating and considering their own multiple intelligences and the ones of their students.

This qualitative study offers unique contributions by amplifying teachers' voices, illuminating their challenges, and highlighting the importance of supportive learning environments for ESD. Further research is essential for broader generalizability, optimizing the learning environment, and collaborative teacher education to enhance ESD implementation and sustainability.

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List of Abbreviations

CSCT	Curriculum, Sustainable development, Competences, Teacher training
DSP	Dominant Social Paradigm
EE	Environmental Education
ESD	Education for Sustainable Development
MYP	Middle Years Programme
PYP	Primary Years Programme
PBL	Project based learning
RQ	Research Question
SD	Sustainable Development
SDG	Sustainable Development Goal
TA	Thematic Analysis
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCE	United Nations Economic Commission for Europe

1. INTRODUCTION

The introduction section will describe two problems in educational development work and how these inspired the research question and objectives. Further, the significance of this research study will be highlighted and a brief overview of the structure of the thesis will be offered at the end.

1.1. Problem Statement

This thesis investigates the practical implications for teachers resulting from international proposals for educational development. Scholars are progressively emphasizing the urgency to shift development paradigms in order to effectively tackle climate change and other interconnected socio-environmental as well as economic issues that both present and future generations are destined to encounter. While education might not guarantee an inherently sustainable future, it is an essential element in promoting societal development and a lasting and sustainable future (Grosseck, Tîru, & Bran, 2019). During the 2030 Agenda for Sustainable Development (SD) in 2015, the United Nations Member States agreed that education needs to be included in the Sustainable Development Goals (SDGs). The fourth one is concerned with quality education for all (United Nations, 2015) and specifically target 4.c. that focuses on qualified teachers is of interest:

> "4.c. By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States" (United Nations, 2015).

Despite acknowledging the need for prepared teachers, the United Nations (2015) did not define here what a *qualified* teacher is and how to prepare them for a shift in education which aims to meets all their ambitious targets. Without clear guidelines and professional development that align with the SDGs, there will be a lack of teachers who can act as change agents at the forefront of this educational reform (Kandangama, 2018); (Parry & Metzger, 2023).

The premise of this thesis is that teachers need to be included in such educational shift, and this research aims to explore the challenges teachers face in the reality of the

classroom and how to support them. Further, the study aims to reveal and understand which skills are required for an educator committing to Education for Sustainable Development (ESD) which "aims to bring about the personal and societal transformation that is necessary to change course" (UNESCO, 2022).

A closely related but often overlooked element to teaching, is the physical learning environment. The architecture should align with the school's pedagogy and facilitate teachers (van Merriënboer, McKenney, Cullinan, & Heuer, 2017). The SDG 4 also includes the learning environment in the targets:

> "4.a. Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all" (United Nations, 2015).

While the target is focused on the children's experience in the classroom, it does not specify what an *effective* learning environment is. Further, the physical environment also impacts the teachers and their work which should be considered more.

To integrate ESD effectively, building and upgrading school buildings should be a collaborative process that includes teachers and their rich experiences (van Merriënboer et al., 2017). Inspired by this challenge, the aim was to examine the relationship between the physical school environment and how this supports or limits teachers in their engagement with ESD.

The above highlighted problems sparked the inquiry for this master's thesis. The research question and the relating objectives will be displayed in the following.

1.2. Research Questions and Objectives

This thesis aims to understand how schools navigate the educational shifts ESD entails with a specific focus on the experiences of teachers. A private international school in France was selected that prioritizes sustainability-oriented teaching approach in order to investigate the following main research question:

> *In which ways are teachers in the case study school supported and/or not supported to meaningfully engage with Education for Sustainable Development?*

Here, *meaningfully* engaging with ESD*, refers to the notion that teachers are converted into change agents that have a broad understanding and vision towards the 17 SD goals for 2030 (Kandangama, 2018) and internalized these on the practical, personal sphere influencing the political sphere of our society (Leichenko, Gram-Hanssen, & O'Brien, 2021).

To answer the RQ, the main objective was formulated*: To identify key factors that support or undermine teachers' efforts to meaningfully integrate Education for Sustainable Development*. To make the research at the school more tangible, the main research inquiry was broken down into three sub-questions with correlating sub-objectives:

Table 1:

Sub-Questions and Sub-Objectives

	Sub-Questions	Sub-Objectives
1	*In which ways do the school's approaches align/not align with the theoretical foundations of ESD?*	To gain an understanding of what makes the case study school distinctive from traditional teaching settings.
2	*What are the main barriers at the school to successfully engage teachers in implementing ESD?*	To gain an understanding of how to facilitate teacher engagement in educational changes and developments.
3	*Are the teachers at the school embodying competencies for ESD?*	To gain an understanding of the competencies teachers need to integrate ESD meaningfully.

After explaining what the research is aiming to answer, the significance of it will be argued for in the following.

1.3. Significance of the Study

Due to the global challenges that humanity and nature are facing, sustainable development work is urgent. Education can be a strong leverage point in shifting paradigms for the needed transformative change (Leichenko et al., 2021). A large body of literature, highlight the need

for including sustainability in education to promote such transformation. However, little attention is paid to the teacher's direct experiences with shifting from traditional teaching methods to new ones, and how they can be best supported in integrating sustainability in education. In addition, the physical environment and its impact on the teaching profession is often overlooked (van Merriënboer et al., 2017). By collecting empirical data at the research site, the experiences and voices of teachers are accentuated offering a bottom-up approach that is needed to bridge this research gap and gain insight into how to successfully support teachers.

Since the study was conducted at a private international school, where they have the fundings and means to explore non-traditional teaching methods, new curricular and unique learning environments, the findings are especially of interest for other private international schools. Even though there might be differences in the curriculum, the diverse backgrounds of the students and teachers often result in a similar multicultural community at the schools. Experiences from private schools, which often possess the resources to more swiftly adopt new educational methods, can offer valuable contributions to the broader educational landscape by offering empirical data regarding the factors that facilitate or limit teacher involvement in ESD. Private schools might have the advantage to implement new forms of quality education quicker due to the available money, but public schools can still consider and benefit from the empirically identified factors that support or limit teacher engagement in ESD. The study therefore has implications for higher education and how teachers are being prepared for their profession.

The case-study school generously allowed me to conduct this research with the prospect of benefitting from the results as well. My data can provide them with valuable insights into how they are already supporting teachers successfully and in which areas there is still room for improvement. In addition, the school will be compared against policy guidelines for ESD as suggested by UNESCO (2021a) which they can use to evaluate themselves.

Next, a brief overview of the study will be given before diving into it.

1.4. Roadmap of the Study

First, my personal experiences and changes during the ethnographic fieldwork will be elaborated on before presenting background information that are important to draw a profile of the case study school. Then, relevant literature is examined to provide a theoretical and conceptual foundation to the research work. The methods chapter describes the methodology guiding the research and explains the methods that were used for the sampling, data collection and analysis. Due to the ethnographic design and nature of this study, the findings and discussion were combined into one chapter. Finally, the conclusion answers the research inquiry and offers implications for future studies.

2. CASE STUDY BACKGROUND

This chapter offers an explanation of how I position myself in the study and displays unexpected changes that occurred during the three months long ethnographic fieldwork. Then, the school's profile will be presented followed by a description of the philosophies that are practiced at the research school.

2.1. Positionality

As a teacher myself, I am deeply passionate about the ongoing developments in the field of education. My journey in education began with a Bachelor's degree in International Teacher Education for Primary Schools (ITEPS), in Norway. Teaching practices were compulsory every year during my studies, which gave me the opportunity to engage with diverse, often modern curricula within international private schools. I got the impression that educational reforms often sound promising in theory, but sometimes impose unrealistic expectations on teachers, making it difficult to implement them effectively in the classroom.

My commitment to sustainable education has been long-standing, and led me to undertake the Green Educator course in Bali to explore this subject further. Amongst other things, the course highlighted the vital role of the physical learning environment in facilitating effective teaching and learning. I was inspired by how the architectural design of the school was intentionally aligned with the pedagogical approach, creating an enriching and supportive atmosphere for students and teachers.

These experiences have profoundly influenced my research interests, particularly in understanding the interplay between new educational practices, teacher support, and the physical learning environment. Thus, I was never an objective observer, but influenced by my previous experiences, and a specific research focus that I could relate to. Becoming a part of the staff, helped me to get an authentic impression of the work life at the school and understand on a deeper level the challenges my colleagues experience. I could form relationships with the other teachers, students and parents that would not have been possible as an outstanding researcher. The risks of going native will be explained in greater detail in the Method Chapter.

As I embark on this research journey, my positionality as a teacher-researcher drives my commitment to contribute meaningfully to the ongoing dialogue about ESD, its implications for the physical learning environment and the significance of including teachers in the conversation to ensure a bottom-up approach that is realistic for them.

2.2. Changes During the Fieldwork

After the first day at the research site and assisting in the preschool class (age 4 – 5), the teacher quit, leaving the students without a homeroom teacher. I offered to bridge the time until a solution could be found and became responsible for that class on my second day.

This unexpected change brought many opportunities for me, such as experiencing the life of a classroom teacher at the research site first hand and collecting authentic participatory-based data. However, it also brought significant responsibilities with it, such as lesson planning, contact with the parents, assessing the students, writing reports of each child, participating in staff meetings, and writing a blog about what we learned during that term. This was much more time-consuming than initially anticipated and distracted me from my original research intentions. Thus, the first two months, I focused on experiences as a classroom teacher in such unique school setting. Towards the end of my time at the school, a new classroom teacher could be found and I returned to my role as a researcher.

Further, the unique school building became a reoccurring aspect of interest during my research time and was therefore a new element that got included. After examining relating literature (van Merriënboer et al., 2017); (Strong-Wilson & Ellis, 2007), it became evident that the relationship between the physical environment and teaching is often overlooked, yet an important component that is worth paying attention to. Thus, the school's physical environment and the impact it has on the teachers got unexpectedly included in the research.

2.3. Profile of the School

When looking for a research site suitable for the ethnographic case study, the school's philosophy and concept played a crucial role. The school needed to have an approach to sustainability education that can be examined and compared against the theoretical

foundations of ESD. The small private, international school in France has a total of 17 teachers, the principal, who has a background in business development, and a parent association team consisting of five mothers. In contrast to other schools, there is no school board and no dedicated student counsellor. Two coordinators are additional contact persons for teachers and parents, one being responsible for the early years and primary school and one for the middle school section. The school accepts children aged from two years old to 15 years. The class sizes are kept relatively small, with a maximum of 12 children, allowing teachers to accommodate their students' unique intellectual, social, emotional, and physical needs (information retrieved from the school website). The school follows the English National Curriculum for maths and literacy and the International Primary (IPC) and Middle Years Curriculum (IMC) for all other academic subjects. The International Curriculum (IPC and IMC) provides a comprehensive framework for engaging and age-appropriate learning for students aged 2-14 years old (International Curriculum Association, 2022). Designed collaboratively by schools, this curriculum is continuously updated with the latest international research and evidence to maintain its position as a leading curriculum model (International Curriculum Association, 2022). It is designed to be adaptable, allowing for customization to suit local contexts wherever it is implemented globally (International Curriculum Association, 2022). In addition, the school is located right next to a beautiful, big forest that offers great opportunities for outdoor learning and is an important element of the school's daily life.

The following section will display the philosophies that the case study school is inspired by such as Maria Montessori, Steiner Waldorf, Ken Robinson or Howard Gardner, and further elaborate on important changes that happened during the fieldwork to offer full transparency.

2.4. Philosophies and Concepts of the Case Study School

The case study school started off as a Montessori school and adopted other approaches to education and learning philosophies over time. These approaches rather address holistic teaching strategies to accommodate for students' individual needs and talents, foster creativity to imagine positive change, or include the natural environment as crucial element. It is important to elaborate on these philosophies and principals in order to critically reflect how they embody ESD later in the Findings and Discussion Chapter.

2.4.1. Montessori

The innovative educational approach known as Montessori was established in 1907 by Maria Montessori, an influential Italian anthropologist and medical doctor. The International Montessori Training Institute (2020) describes their website the approach to education "as a hands-on, experiential pedagogy and each classroom level includes beautiful, precisely made manipulative aids to learning". The aim of Montessori education is to facilitate the natural unfolding of human development, guiding children towards becoming mature and responsible adults. It further seeks to foster the development of essential qualities such as "strength, courage, compassion, empathy, as well as a high level of knowledge and skills" (International Montessori Training Institute, 2020). It also emphasizes the cultivation of adaptability in the face of changing circumstances and a natural inclination towards collaborative and peaceful interactions. Therefore, the classrooms, or as they call it Montessori communities, are designed to include children within specific age ranges, typically spanning three years (International Montessori Training Institute, 2020).

Similarly, the Steiner Waldorf education also considers the development stage of each child carefully.

2.4.2. Steiner Waldorf

Steiner Waldorf Schools Fellowship (SWSF) is an association of independent schools offering Steiner Waldorf education across the UK and Ireland. Their approach is rooted in the teachings of Rudolf Steiner, a philosopher from the early 20th century. Steiner emphasized the importance of educating children in a manner that allows them to realize their authentic selves, become responsible citizens, and make positive contributions to society (SWSF, 2020). According to SWSF (2020), it is crucial to consider the age and developmental stage of each child when determining what and how to teach them. The ultimate goal is to nurture children's individuality and provide an education that empowers them to be a "force for good in the world" (SWSF, 2020). Steiner Waldorf education is widely respected across the globe for its ability to cultivate highly capable individuals who possess a strong sense of self and a diverse range of capacities. It is inclusive and beneficial for all children, regardless of their academic ability, social class, ethnicity, or religious background (SWSF, 2020). It acknowledges and addresses the needs of the child holistically, encompassing their academic,

physical, emotional, and spiritual aspects. SWSF (2020) emphasizes that it aims to instil a love for learning and a genuine enthusiasm for school. Therefore, artistic activities and the cultivation of the imagination are considered essential (SWSF, 2020).

Likewise, Ken Robinson dedicated his life work to the importance of imagination and creativity. His philosophy will be explained in more detail.

2.4.3. Robinson and the importance of imagination

Ken Robinson (2022) shines a light on the human's unique capability of imagination which sets us apart from all other life around us. It allows humans to be creative (putting imagination into action), think outside the box, and innovate. "Our extraordinary capacity for imagination has given rise to the most far-reaching examples of human achievements" (Robinson & Robinson, 2022, p. 91) but also led to the current existential crises. According to the author, imagination plays a crucial role in envisioning different possibilities, while creativity empowers us to actualize those possibilities. Cultivating creativity with a clear sense of purpose is seen as the key to addressing the challenges we face and bringing about positive change. Robinson and Robinson (2022) emphasize that students are unique individuals who possess diverse physical attributes, abilities, and personalities. Each student has their own strengths, inclinations, and ways of comprehending the world. As a result, education is seen as a deeply personal process; "It is about cultivating the minds and hearts of living people" (Robinson & Robinson, 2022, p. 41).

Howard Gardner does not emphasize imagination to that extent but believes in the uniqueness of individuals too and explored the theory of multiple intelligences.

2.4.4. Gardner and Multiple Intelligences

Howard Gardner formulated the Theory of Multiple Intelligences (MI) during the late 1970s and early 1980s (Gardner, 2022). This theory, as he displays it on his website *Multiple Intelligences Oasis*, challenges the conventional psychological perspective that defines intelligence as a single entity assessable by measures like IQ or short-answer tests. He contends that humans possess additional important intellectual capacities beyond these traditional measures. Gardner identified eight intelligences that need to be considered when

teaching: naturalist, spatial, bodily kinaesthetic, musical, logical- mathematical, linguisti, intrapersonal, and interpersonal. Catering for these eight intelligences led Garnder (2022) to two main educational implications: First, *Individuation* (also termed personalization) – teachers have to personalize their "teaching, mentoring or nurturing" (Gardner, 2022) to their students unique set of intelligences. Likewise, student assessment needs to be individualized so they can demonstrate their understanding and apply their knowledge and skills in unfamiliar situations. Second, *Pluralization* which challenges the teacher to vary and tailor the learning methods and activities to accommodate different ideas, concepts, theories, and skills (Gardner, 2022). This approach aims to differentiate the educational experience and cater to the diverse needs and learning preferences of students. According to Gardner (2022) this has the benefit of reaching more students and additionally fosters the ability to make meaning of something in multiple different ways which makes you an expert at it.

Therefore, differentiation and project-based learning was heavily emphasized by the principal and practiced at the research school. In turn, the projects that were often based on sustainability issues and the focus on outdoor learning, gained them the Eco-School label. This official label recognizes the efforts to include an environmental component that is important for ESD.

2.4.5. Eco-School

In 1992, the establishment of Eco-Schools arose in response to the identified needs during the United Nations Conference on Environment and Development (FEE, 2023). The Eco-Schools project, which is now implemented globally in numerous countries, is an "international umbrella program operated under the auspices of the Foundation for Environmental Education (FEE)" (Boeve-de Pauw & Van Petegem, 2018, p. 1251). After following seven essential steps, and regular external evaluations, schools can earn the certificate of a green flag.

Boeve-de Pauw and Van Petegem (2018) critically assessed the how effective the eco-school projects are through a large-scale study and found that the eco-projects have an educational impact. However, students mainly improved their theoretical knowledge over their applied knowledge (Boeve-de Pauw & Van Petegem, 2018). The authors concluded from their findings that students act *pro-environmentally* when they feel externally pressured

through the projects they are doing under the guidance of a teacher. They are not driven by intrinsic motivation. Boeve-de Pauw and Van Petegem (2018) emphasize the three pillars of policy-making for successful implementation: "shared leadership, common goals and supportive relations" (p.1264). This demands stronger involvement and commitment from the teachers.

After outlining what the school got inspired by, the literature review will place the study in its theoretical and conceputal landscape.

3. LITERATURE REVIEW CHAPTER

This literature chapter explores the role of education in our current time and how it can influence shifting paradigms for transformative change. Then, ESD will be defined in more detail and critiqued, followed by an international policy perspective. Since an educational reform that offers quality education across the globe, is the core of the fourth SDG, the international perspective offered by UNESCO is relevant. It draws from multiple global reports and "[…] extensive consultations with more than one million people" (UNESCO, 2021a, p. v). The crucial role of teachers, followed by what kind of challenges arise with this educational shift and how teachers can be supported in this transformation, is then presented. Inspired by the research findings, the role of the physical school environment and its importance for reinventing education will also be summarized.

3.1. Education and the Need for Shifting Paradigms

A major underlying issue with sustainable development and a related educational reform is the need for a paradigm shift. Sustainable development (SD) is a balanced approach that meets the needs of today while safeguarding resources for future generations, emphasizing social equity, economic progress, and environmental responsibility (United Nations, 2015). Karen O'Brien (2021) explains that paradigms represent the prevailing thought patterns that guide scientific theories, research methods, and societal organization. "Paradigms influence the way that problems are defined and addressed, including what is considered realistic, legitimate, and effective. They shape the ideas, concepts, images, metaphors, and memes that we use to describe reality" (O'Brien, 2021, p. 19). Further, Foley (2021) emphasizes that our concepts and beliefs are shaped and conditioned by historical processes which are influenced by the dominant social paradigm (DSP). The DSP was first coined by Milbrath (1989) and is defined as "a society's belief structure that organizes the way people perceive and interpret the functioning of the world around them" (p. 116). Ken Robinson for example, describes the current public school system in Europe as *industrial education* that focused on standardizing young adults. He claims that industrialism demanded manual workers and the education system had to respond to that need:

> Children are [...] being manufactured in a linear process along a conveyor belt; teachers are the factory workers, each responsible for their own section; and along the

way, there are a series of quality control checks. The whole process is routine, predefined, and regulated. (Robinson & Robinson, 2022, p. 53)

Van Poeck and Loones (2011) argue that SD work involve skills that cannot be attained through simple knowledge transfer or by breaking down reality into isolated parts and simplifying everything into a linear cause-and-effect chain.

Foley (2021) suggests that individuals may be unaware of how paradigms influence their behavior and argues that especially the dominant social paradigm (DSP) is important to implementing ESD. Further, Foley (2021) identified four key barriers in education that are influenced by the DSP:

Education itself: A lack of commitment to ESD quickly results in insufficient awareness and knowledge about sustainability, insufficient resources and slow changes in the current structures of education.

Norms of Disciplinarity: Currently knowledge is transmitted through a fragmented curriculum that prioritizes specific subjects. This approach restricts the opportunity for engagement with real-life problems, hinders the development of critical thinking skills, and limits reflexivity.

Interdisciplinarity: The disciplines need to be interlinked to create meaningful learning experiences.

Resistance to change: The main obstacle to "implementing organizational change" (Foley, 2021, p. 56) is resistance because it disturbs a sense of security and familiarity.

Leichenko et al. (2021) suggest an integrative learning process that "[…] uses the *Three Spheres of Transformation* model to visualize the interrelated nature of transformative change" (p. 3). The practical sphere, which is at the centre of the model, followed by the political and personal sphere, are all influencing each other. The practical sphere is addressing our daily behaviour and technical responses (Leichenko et al., 2021). If those are aligned with the principals of SD, tangible results can be observed. However, it can be difficult for individuals to take action if "[…] systems are not in place to support them" (Leichenko et al., 2021, p. 4). By focusing on the personal sphere students can delve into the exploration of how beliefs, values, and worldviews, including their own, shape their responses and interactions with changes occurring in the political and practical spheres

(Leichenko et al., 2021). O'Brien (2021) believes in the power of quantum social change which "is about each of us acting right now, within our own dynamic context and spheres of influence, to generate new patterns and relationships" (p.4). This research focuses on teachers and their spheres of influence.

The next section will define ESD, elaborate on its relevance to transformative change, and critiqued in greater detail.

3.2. What is Education for Sustainable Development?

The literature and research regarding ESD has been growing exponentially in the recent years. Since there are varying definitions and approaches to ESD, Grosseck, Tîru, and Bran (2019) analyzed 1813 papers on the topic that were published between 1992 and 2018 to better their understanding of ESD. The researchers describe ESD as an holistic approach that includes major SD challenges and show their complexity by teaching and learning about them in an interdisciplinary manner. Van Poeck and Loones (2011) explain that "ESD wants to equip individuals and groups with skills to make conscious choices in favour of a livable world, now and in the future, for ourselves and for others, here and elsewhere on the planet" (p. 5). This statement shows the connectedness of SD to time and space (Van Poeck & Loones, 2011). By focusing on attitudes, values and key competencies "[…] such as critical thinking, systematic thinking, self-awareness, problem solving, etc" (Grosseck et al., 2019, p. 2), people's mentaltities start to shift and enable them to deal with the challenges of the current time and our unpredictable future. ESD goes beyond just environmental concerns and includes a broader understanding of sustainability, encompassing biological, social, cultural and economic dimensions and emphasizes the interdependence of these aspects (Van Poeck & Loones, 2011). Therefore, ESD should focus on:

"1. Transferring new knowledge
2. Promoting system thinking
3. Value development
4. Dealing with emotions
5. Action-orientedness." (Van Poeck & Loones, 2011, p. 5)

These should be connected, integrated and expanded on through educational practices (Van Poeck & Loones, 2011).

However, with the growing popularity of ESD, it also became subject to critque.

3.2.1. Critique of Education for Sustainable Development

Despite experts' good intentions and collaborative work ESD has also been critically contested. Kopnina (2011) argues that ESD is mainly targeted towards socio and economic inequalities and lacks the inclusion of the *ecocentric perspective* and critiques that ESD signifies a shift towards a more pronounced focus on humanity. The author explains this with the anthropocentric bias existing among political and corporate elites (Kopnina, 2011). However, since environmental problems are caused by human action, Kopnina (2011) admits it is primarily a social concern leading to the paradox of ESD: The primary ethical paradox arises from the anthropocentric standpoint inherent in the discourse of sustainable development, which tends to disregard the ecocentric considerations found in earlier forms of environmental education. Further, the "lack of conceptual and consequently methodological unity within research and practice of ESD" (Kopnina & Meijers, 2014, p. 189) can lead to confusion and disagreement amongst researchers and those who try to implement ESD. Likewise, Parry and Metzger (2023) acknowledge the diverse range of terms describing sustainability-related education. These terms are often used interchangeably, despite the potential for distinct interpretations and nuances among them. Kopnina (2011) suggests returning to *environmental education,* which would overlook the essential socio-economic aspect of our crisis. Arguably, facing the challenges from the Anthropocene through ESD includes all three pillars: environmental, social, and economic (Parry & Metzger, 2023). Parry and Metzger (2023) also point out that ESD is currently the most used term and an acknowledged element of the SDGs.

The ideas of ESD will form a framework for this research and the case study school will be assessed against UNESCO's five proposals for ESD later in the Findings and Discussion chapter of this thesis. Thus, UNESCO's policy perspective will be elaborated on next.

3.3. Education for Sustainable Development – An International Policy Perspective

The Belgrade Charter in 1975 and Agenda 21 in 1992 already influenced the direction education took and contributed to the shaping of ESD. The goals for ESD for 2030 were "[…] approved by the UNESCO General Conference at its 40th Session and acknowledged by the UN General Assembly at its 74th Session in 2019" (UNESCO, 2020, p. 12)

The policy perspective of this research, is primarily based on the *New Social Contract for Education* suggested by UNESCO in 2021. UNESCO is a global leader in education and established *The International Commission on the Future of Education* in 2019 to envision novel approaches through which knowledge and education can shape the future of humanity and the planet. In the report, experts highlight that education has been pivotal in transforming human societies throughout history. Education exposes us to new realms of possibility and fortify our abilities to engage in dialogue and enact change. Therefore, education must undergo a transformative process to forge futures characterized by peace, justice, and sustainability (UNESCO, 2021a). The "rigid, uniform organization models" (UNESCO, 2021a, p. 6), which reinforced inequalities and disparities, must be assessed critically and replaced with an education system that fosters inclusion, collaboration, diversity, and individual student needs. UNESCO (2021) suggests five elements that are crucial to achieving that:

1. "Pedagogy should be organized around the principles of cooperation, collaboration, and solidarity" (UNESCO, 2021a, p. 4). Its purpose should be to cultivate students' intellectual, social, and ethical abilities, enabling them to collaborate harmoniously and reshape the world with empathy and compassion. Additionally, there is a need for unlearning, specifically to eradicate biases, prejudices, and divisive attitudes that hinder progress (UNESCO, 2021a).

2. The curricula must steer away from subject-based learning and promote interdisciplinary, ecological, and intercultural learning, enabling students to access and generate knowledge, and develop the capacity to evaluate and utilize it critically (UNESCO, 2021a).

3. To advance the professionalization of teaching, it is essential to recognize teachers as both knowledge producers and pivotal agents in educational and societal change. The ethos of collaboration and teamwork should permeate the teaching profession (UNESCO, 2021a).

4. Schools should function as inclusive environments that bring together diverse groups of people and provide them with opportunities and experiences that are not readily available elsewhere (UNESCO, 2021a). "School architectures, spaces, times, timetables, and student groupings should be redesigned to encourage and enable individuals to work together" (UNESCO, 2021a, p. 4). While digital technologies should be utilized to support learning, their role should complement rather than replace the importance of physical schools.

5. In the strive for life-long learning, society should embrace and enhance the educational opportunities that arise throughout our lives, extending beyond formal education and encompassing various cultural and social contexts (UNESCO, 2021a).

These five proposals outline the areas that need development work and show their interconnectedness. For example, role-modelling and teaching compassion, collaboration, and solidarity is challenging if the learning environment and curriculum do not align with these foundations.

To achieve all five goals, we need passionate and committed people in each area that collaborate on a realistic implementation and researchers concur on teachers' central role in driving this transformative process (Parry & Metzger, 2023); (UNESCO, 2021b); (Robinson & Robinson, 2022); (Khumalo, 2019).

3.4. The Role of Teachers in Education for Sustainable Development

Khumalo (2019) highlights in his article that "teachers are nation builders and without educating the nation, no country can develop socially, environmentally and economically" (p.22). Likewise, Parry and Metzger (2023) emphasize that teachers are "powerful agents of social change and serve as the translators of ESD policy into classroom practice" (p. 2). As a result, it is important to explore teachers' perspectives concerning sustainability and how

these views impact the implementation of sustainable practices (Parry & Metzger, 2023). Ken Robinson, an internationally recognized leader specialized in developing human potential, innovation, and creativity, believes that teaching is a form of art: "Great teachers use a wide repertory of approaches, from direct instruction to scaffolded activities, and like all genuine professionals, they use their judgment and connoisseurship to know which method to deploy depending on each specific situation" (Robinson & Robinson, 2022, p. 69). Recognizing teachers as change agents involves integrating what UNESCO (2021) describes as three dimensions of learning: Cognitive, social and emotional, and behavioural learning, which are all intertwined and complementary to each other.

Incorporating ESD into mainstream school curricula also calls for a new set of competencies a teacher should embody and thus, a fundamental reassessment of teacher training programs (csct-project, 2008). The CSCT (Curriculum, Sustainable development, Competences, Teacher training) project was initiated in direct response to the appeal made by the UNECE (United Nations Economic Commission for Europe) Ministers of the Environment in 2003. The following summarizes the five core competencies suggested by UNECE (2003):

1. Knowledge:

Effective education relies on three core elements: content knowledge, pedagogical knowledge, and pedagogical content knowledge (csct-project, 2008). Pedagogical content knowledge combines subject matter expertise with effective teaching methods tailored to the diverse needs of students. In the context of SD challenges, critical thinking as well as factual, conceptual and action knowledge are paramount, enabling students to analyze, question, and address global issues effectively. Teachers must have profound knowledge about SD challenges and have to be able to "[…] [select] educational goals for SD, taking into account the developmental stage and the prior knowledge of the pupils or students, and the diversity within the group of learners" (csct-project, 2008, p. 48).

2. Emotions:

Dealing with emotions encompasses thinking about, valuing, and reflecting on them, making decisions and acting on them (csct-project, 2008). Thereby, empathy and compassion are crucial and part of our emotional intelligence. To navigate emotions effectively, teachers must possess self-awareness and understand their own emotions without projecting them onto

students. Empathy towards students' emotions and feelings fosters stronger connections and enables teachers to address their needs with compassion. It is vital for educators to model constructive emotional expression and guide students in managing their feelings. Integrating real-life issues relevant to students' lives enhances engagement and relevance in the learning process. This includes fostering an emotional connection to our natural world. Lastly, resolving conflicts between individuals with different interests requires emotional intelligence and effective communication skills, promoting harmony within the classroom.

3. Ethics and Values:

Ethics and values form a crucial foundation for sustainable development, emphasizing the significance of equity and equality between humanity and nature. Our values, norms, beliefs, attitudes, and assumptions are impacting how we think, perceive the world and influence our decisions and actions (csct-project, 2008). In the educational context, it is essential for educators to be conscious of their own values and beliefs while refraining from imposing them on children (csct-project, 2008). By promoting respect and dignity in the face of social tensions, teachers can serve as positive role models. Encouraging students to question their beliefs and assumptions facilitates critical thinking and enhances their understanding, allowing them to clarify their thoughts and perspectives (csct-project, 2008). Additionally, transmitting the concept of European citizenship enables students to grasp the principles of responsible global citizenship and collective responsibility, further contributing to sustainable development efforts.

4. System Thinking:

System thinking involves understanding that we are interconnected elements within the living system known as *earth* existing in time and space (csct-project, 2008). To develop system thinking skills, educators must be adept at recognizing models and patterns within systems. Further, teachers should be able to analyze issues from multiple perspectives and contemplate short- and long-term consequences (csct-project, 2008). Holding the tension of controversy, empathizing with others, and considering the broader context is crucial in this approach. System thinking can be understood as a tool to see knowledge in a larger context but "is only useful when it is linked to values and ethics" (csct-project, 2008, p. 59). Additionally, guiding students in navigating power relations and conflicting interests equips them to address

complex real-world challenges effectively (csct-project, 2008). Moreover, teachers should be knowledgeable about establishing partnerships with other schools or organizations, facilitating idea exchange and collaborative learning for a deeper understanding of systemic complexities.

5. Action:

Action combines the previous four competences and culminates in the creation of meaningful contributions, active participation, and effective networking for SD (csct-project, 2008). These competences operate at four distinct levels which all need to be considered: "individual, classroom/school, regional, and global" (csct-project, 2008, p. 43). Educators should be able to envision alternative futures and devise creative solutions to the pressing challenges of SD. Becoming an 'agent for change' empowers teachers and students to take proactive roles in addressing environmental and societal issues. It is essential for teachers to possess the ability to articulate their own positions and demonstrate civic courage in advocating for positive change. Thereby, action should not solely be seen as a problem-solving tool but rather as educational value (csct-project, 2008). Teachers should offer learning opportunities in which students can "experience different perspectives of SD, find different solutions for topics of SD [and] identify the direct and indirect consequences […] of their actions" (csct-project, 2008, p. 74).

These five competencies are important in addressing the three spheres of transformation and hence indicates how teachers can promote transformative change through education. Leichenko et al. (2021) argue that promoting a feeling of empowerment and active involvement in the process of transformation holds equal significance for students as it does for teachers. Embracing the chance to participate in transformative change begins with the teacher and involves an ongoing journey of questioning, open communication, critical self-assessment, and taking meaningful actions (Leichenko et al., 2021).

The above listed competencies go beyond simple knowledge transmission as it is common for traditional education systems and highlight the gap that training programs need to fill to successfully prepare teachers.

3.5. Challenges and Barriers to Education for Sustainable Development

To address the research question directly this section presents ESD related literature that discussed challenges and barriers teachers experience when confronted with the educational transformation ESD requires.

After examining various studies from around the world (Kandangama, 2018); (Khumalo, 2019); (Jacobson, 2016); (Westin, 2007) it becomes apparent that there are several overlapping challenges associated with the integration of ESD. The three most relevant to this research, which are the need for qualified teachers, the lack of clear guidance, and teacher burnout, will be elaborated on.

3.5.1. Lack of qualified teachers

In their report, UNESCO (2021a) draws attention to the challenges associated with teacher recruitment. They note that the substantial growth in education systems over the last three decades has resulted in a broader pool of candidates being considered for teaching positions than ever before. This can lead to professionally unprepared teachers, "lowering pay and social status, and stretching support systems beyond capacity" (UNESCO, 2021a, p. 84). Another significant challenge is highlighted in the report, stating that by 2030 approximately 70 million new primary and secondary teachers will need to be employed in order to meet the targets of SDG 4 (UNESCO, 2021a). If substantial changes are not implemented, it will be challenging to attract dedicated individuals aspiring to become teachers in order to address the existing shortage (UNESCO, 2021a).

In-service teachers also have difficulties with the implementation of ESD. According to Parry and Metzger (2021), teachers struggle to convey the social-emotional and behavioral aspects of ESD and feel more at ease when teaching cognitive skills. This sentiment aligns with a recent UNESCO study that reviewed policy documents from 10 countries, revealing that ESD is s primarily associated with the instruction of scientific knowledge about the environment, while the social, emotional, and behavioral dimensions are often neglected (UNESCO, 2021b) The lack of a holistic understanding of sustainability makes it difficult for

teachers to "role model sustainable behaviour and engagement with the bigger issues [and] motivate their students" (Parry & Metzger, 2023, p. 7).

Consequently, there is a significant need for teacher training programs that provide clear guidance.

3.5.2. Lack of clear guidance

Kandangama (2018) conducted a study in a secondary school in Sri Lanka and discovered that teachers had a very low level of awareness regarding sustainable development concepts. Unfortunately, proper teacher training for ESD is yet hard to find (Kandangama, 2018) and in most countries, the professional preparation of teachers usually focuses on addressing only one of the pillars of ESD that were mentioned earlier: 1) environmental, 2) social, or 3) economic (Parry & Metzger, 2023). Several researches highlighted the issue of insufficient support for teachers and professional development training (Parry & Metzger, 2023); (Westin, 2007); (Jacobson, 2016). This also includes the lack of adequate resources such as content, guidelines, or material to facilitate teaching in a manner that is both engaging and innovative across the three dimensions of learning (UNESCO, Teachers Have Their Say, 2021b); (Parry & Metzger, 2023); (Kandangama, 2018).

Furthermore, Helou and Nabhani (2016) discovered that a lack of support and guidance from coordinators and administration in areas such as classroom management, lesson planning, and teaching content can contribute to teacher burnout (p.563).

3.5.3. Teacher burnout

Burnout is identified as a psychological syndrome that arises from a combination of physical exhaustion, excessive workload, and professional frustration (Helou & Nabhani, 2016). Helou and Nabhani (2016) identified three dimensions connected to burnout: "emotional exhaustion (EE), depersonalisation (DP), and the reduced personal accomplishment (PA)" (p.551). EE is characterised overwhelming fatigue resulting from the loss of emotional resources. DP is evident through the development of negative feelings and attitudes, accompanied by a sense of detachment from students. Reduced PA entails negative self-evaluation and a decreased sense of competence and achievement. This often leads to the

dangerous consequence of teachers leaving their profession (Helou & Nabhani, 2016); (Jacobson, 2016).

In her dissertation focused on teacher burnout, Jacobson (2016) points out that burnout among teachers is not a new phenomenon, what is noteworthy is the escalating rate at which teachers are experiencing burnout. This condition is often accompanied by "negative and cynical attitudes towards both colleagues and work in general" (p.20). Overall, Jacobson (2016) found five leading reasons for burnout amongst the teacher participants of her research:

- a heavy workload
- problems with classroom disciplines/management
- feeling isolated
- lack of resources
- lack of administrative support and respect

Especially, the last point can lead to feeling that all the work and efforts of the teacher are not being appreciated (Jacobson, 2016). A collaborative environment is key for in supporting teachers but Helou and Nabhani (2016) found a correlation between the lack of trust in the "positive intentions and attitudes of colleagues and administrative staff" (p. 553) and the levels of burnout. The level of burnout tends to decrease when trust and confidence increase (Helou & Nabhani, 2016). In addition, when teachers find themselves in conflict with their principals, they feel unsupported and burdened by unfair and unrealistic expectations placed upon them (Jacobson, 2016) which commonly leads to a higher EE (Helou & Nabhani, 2016). A supportive environment and a guiding leadership are especially crucial in the transition period from studying to entering the profession "and yet it is often neglected, both by policies and by the profession itself, and as a result sees the highest rates of attrition" (UNESCO, 2021b, p. 86).

The studies above illustrate that besides changing educational paradigms, there are several practical obstacles that must be addressed to assist teachers in transitioning to ESD. The following will shine a light on how teachers have been supported in the transition to ESD so far.

3.6. Supporting Teachers in Integrating Education for Sustainable Development

According to UNESCO (2021a), significant policy changes are required in the selection, preparation, and career paths of teachers, as well as in the overall organization of the teaching profession, in order for teachers to contribute to the new social contract for education. This includes "reducing class sizes, improving school safety, strengthening professional recognition and legitimacy, increasing institutional support, and fostering cultures of collaboration" (UNESCO, 2021a, p. 87). Overall, there is a need for a comprehensive redesign of teachers' careers and including them in the process of it.

3.6.1. Including teachers in the processes

In their article about the teachers' perspectives on barriers to learning for sustainability, Parry and Metzger (2023) recognize the need to include teachers' perspectives in evaluating the successful implementation of holistic, learner-centered sustainability education "on the ground" (p. 2). Overall, teachers and the relationships to their students is "at the heart of education" (Robinson & Robinson, 2022, p. 69) and schools commit a significant mistake when they fail to recognize the crucial role of teachers. Robinson and Robinson (2022) found that flourishing education systems foster well-trained and highly motivated teachers that are paid well. The authors also believe that "teachers [should be] trusted with their work and treated as the professionals they are" (Robinson & Robinson, 2022, p. 69). Likewise, UNESCO (2021a) suggests that when teachers are acknowledged as reflexive practitioners and generators of knowledge, they play a crucial role in advancing the knowledge necessary for the transformation of educational settings, policies, research, and practice, both within and outside their profession.

However, to contribute meaningfully to the development of ESD teachers need adequate training.

3.6.2. Teacher training

Parry and Metzger (2023) analyzed the findings of the most comprehensive international survey on teachers' readiness to teach ESD. This study showed that over 90% of the 58,000 teachers surveyed consider ESD-related concepts important and over 80% of them expressed a desire to learn more about these concepts (Parry & Metzger, 2023). Thus, there is a clear need to educate teachers about sustainable development challenges considering all three pillars (environmental, social and economic). According to Westin (2007), teacher training is considered one of the most crucial methods to impact the education system as it directly reaches the teachers of the future. This includes pre-service as well as in-service training for teachers (Parry & Metzger, 2023). Teacher programs need significant changes and educational institutions should go beyond offering career counselling (UNESCO, 2021a). They also need to provide ongoing support to educators "through lifelong learning opportunities to ensure they are kept apace with changes in their profession and the world of work" (UNESCO, 2021a, p. 42). Further, this includes that teachers are provided with adequate resources. Supplying teachers with the necessary books and teaching material several weeks prior to the academic year "will allow them time to read, research, and prepare their courses at a relaxed pace" (Helou & Nabhani, 2016, S. 565). Kandangama (2018) suggests to assign a person responsible for finding meaningful resources specifically for ESD.

Besides offering professional development training, researchers agree that collaboration amongst teachers is key for mastering ESD (Parry & Metzger, 2023); (Kandangama, 2018); (Boeve-de Pauw & Van Petegem, 2018); (UNESCO, 2021a).

3.6.3. Collaboration

UNESCO (2021a) already pointed out in their report that teaching needs to become a collaborative profession, "characterized by sufficient measures of freedom and support" (p.80). In order to promote collaboration among the staff, the role of the teacher needs to be reimagined and the curriculum restructured (UNESCO, 2021a). O'Brien (2021) suggests that all humans are connected through our inherent oneness: "It recognizes that we are entangled through language, meaning, and shared contexts, and that our deepest values and intentions are potential sources of individual change, collective change, and systems change" (p. 3).

Therefore, collaboration is not only important amongst teachers but includes families, local leaders, authorities, elders and communities. UNESCO (2021a) argues that the presence of "social workers, guidance counsellors, special education resources, librarians, and literacy specialists" (p. 82) can enhance and enrich the diverse learning dynamics for students and teachers. Boeve-de Pauw and Van Petegem (2018) could conclude from their Eco-School evaluation, that in schools where teachers feel supported by their colleagues and school leaders tend to achieve better outcomes in creating engaging and meaningful lessons for their students.

In general, successful leadership plays a significant role in implementing ESD and supporting teachers on their journey.

3.6.4. Leadership

Westin (2007) identified school principals as crucial actors within the education system as they serve as pedagogical leaders who create opportunities for the implementation of ESD and also Khumalo (2019) highlights the "relationship between school leadership practices and school performance" (p. 23). Additionally, Helou and Nabhani (2016) found that teachers express the desire to be motivated by the principal, to receive constructive feedback, and occasionally get recognized and praised for their work. These supportive actions from principals can foster a positive work environment and enhance teachers' job satisfaction. However, "financial and moral rewards seem to be important for teachers" (Helou & Nabhani, 2016, S. 554) too, which includes fair salaries. Overall, a healthy *effort-reward balance* would be key to prevent teacher burnout and encourages teacher to be more innovative and involved in their job (Helou & Nabhani, 2016); (Jacobson, 2016). Jacobson (2016) emphasizes that this means that principals should listen carefully to teachers' concerns and collaboratively find solutions.

Westin (2007) who conducted his research on means, drivers and barriers of ESD in Stockholm brings attention to the national policies for SD that schools are often bound to. The researcher concluded that we need to "give school heads knowledge and capability to lead their schools in accordance with the national policy documents (where support for ESD is stipulated)" (Westin, 2007, p. 108). Jacobson (2016) on the other hand, focuses less on professional trainings for the school leaders, but rather on sharing the responsibilities and

actively involving teachers in decision making. This would contribute to "teacher growth and student achievement" (Jacobson, 2016, p. 122). Khumalo (2019) supports this vision and calls for *transformative leadership.* The principal is supposed to promote and foster the school's vision, increase teachers' motivation and commitment "through collective action […], which empowers those who participate in the process" (Khumalo, 2019, p. 26).

After identifying ways that support teachers in the transition to ESD meaningfully, the role of the physical school environment will be investigated and elaborated on.

3.7. The physical School Environment

In this section, the role of schools' architecture will be examined. Corresponding to that inquiry, the Reggio Emilia approach, which sees the environment as the third teacher in the classroom, will be described followed by an explanation of the role of the natural environment for education.

3.7.1. School buildings

In traditional classroom setups, the teacher is typically positioned at the front of the room near the whiteboard. However, this arrangement poses challenges in effectively managing students who are seated towards the back of the room (UNESCO-UIS, 2012). The implementation of participatory learning methodologies, which are a part of ESD, becomes challenging when learners are confined to rectangular classroom spaces, disconnected from the natural world, and "seated in fixed row-and-column seating arrangements" (UNESCO-UIS, 2012, p. 41). After analysing and comparing studies from three different countries (Kenya, Spain, and Singapore), UNESCO-UIS (2012) found that the school and classroom environment play a crucial role in shaping the quality of the learning experience and the levels of learning achievement. Similarly, Tondeur et al. (2017) examined classroom biographies of nine different teachers in Belgium to better understand the "interplay between school environment, the actors involved, [and] educational practices" (p.281). The researchers concluded that in order to transform education schools should create environments that promote and align with the desired educational change since they have a significant influence on each other. UNESCO-UIS (2012) recommends that schools'

architecture should consider natural light, healthy ventilations and comfortable temperatures. Overall, it should "reflect their connection to the cultural and natural features of the surrounding environment" (UNESCO-UIS, 2012, p. 38) tying it to local knowledge, traditions and resources.

Tondeur et al. (2017) identified two main catalysts to achieve such change. On the one hand, "negative evaluations from school inspectorates" (Tondeur et al., 2017, p. 291) which puts pressure on school boards and on the other hand active engagement of teachers. Teachers' motivation to get involved in shaping their classroom spaces can be fostered when recognizing that the physical environment plays a "powerful role in facilitating or inhibiting teachers as they structure learning opportunities for their students" (van Merriënboer et al., 2017, p. 266). This can include simple changes such as the introduction of new hardware, like new desks, which often provides teachers with increased flexibility to experiment with different classroom configurations that best suit their teaching style and needs. Overall, teachers exhibit a strong sense of ownership over their classrooms, turning them into personalized spaces that they attach meaning to (Tondeur et al., 2017). To support teachers, Tondeur et al. (2017) suggests training about how to use their classroom spaces most meaningfully and in alignment with their teaching strategies: "Such training seems to be a necessity, as most teachers indicated [...] that they were not introduced to (flexible) classroom management during their teacher training" (Tondeur et al., 2017).

Yet, such training might not be enough. Collaboration among relevant stakeholders and specialists plays a crucial role (van Merriënboer et al., 2017). Therefore, van Merriënboer et al. (2017) suggest a *participartory design porcess* consisting of three phases. Firstly, specifying the pedagogy, secondly considering seating arrangements and physical spaces, and thirdly the construction of the school building.

Phase 1: Specifying the pedagogy:

The school's primary objective is to clarify their modern pedagogical approach, aiming to foster new educational trends and successfully implement educational innovations (van Merriënboer et al., 2017). The dominant partners involved in this process include school students, teachers, and school management, who play crucial roles in shaping and delivering the approach, ensuring its effectiveness and relevance in creating a dynamic and progressive learning environment.

Phase 2: Seating arrangements and physical spaces

The second phase focuses on the organization of "the physical learning environment, in which instructions and learning take place" (van Merriënboer et al., 2017, p. 266) and considers the pedagogical decisions made in the first phase. The primary goal is to create a school building that effectively supports teaching and learning. Thus, the expertise, experience, and input of all relevant stakeholders is important including school management, teachers, students, architects, interior designers, and ICT specialists, as their perspectives are crucial in designing a conducive and functional learning space.

Phase 3: Constructing the school building

The design and construction of a school building should prioritize the continuous development of education and incorporate flexibility. Schools must be designed to facilitate change and adapt to the evolving needs of education in various settings (van Merriënboer et al., 2017). The dominant partners involved in this phase are "architects, interior designers, educational publishers, and ICT specialists" (van Merriënboer et al., 2017, p. 259), whose collective expertise is essential in creating a school building that can effectively support dynamic and innovative educational practices.

This design process ensures the active involvement of teachers and the needed collaboration amongst the stake holders. Some even describe the school environment as the *third teacher* "given its inherent nature as a living space and active contributor to the educative process" (Tondeur et al., 2017, p. 281).

3.7.2. Reggio Emilia approach

The idea of the *third teacher* is rooted in the Reggio Emilia approach (RE-approach). In 1860, a preschool was established in Reggio Emilia, Italy by a charitable financial institution to cater to the children of impoverished families. The unique approach of the school was further shaped and influenced by Loris Malaguzzi (Reggio Emilia Approach, 2022). Based on this theory there are three educators in the classroom: a) the teacher, b) the child, c) the environment (Strong-Wilson & Ellis, 2007). By adopting this perspective, which sees the environment as an educator, we can recognize "how our surroundings can take on a life of their own that contributes to children's learning" (Strong-Wilson & Ellis, 2007, p. 40). Hence, the RE-approach has eight key principals that need to be considered:

1) aesthetics, 2) transparency, 3) active learning, 4) flexibility, 5) collaboration, 6) reciprocity, 7) bringing the outdoors in, 8) relationships (Reggio Emilia Approach, 2022); (Strong-Wilson & Ellis, 2007). When a classroom fosters autonomy, social affiliation, and encourages creative exploration and expression, it is "more likely to become a child's favorite place" (Strong-Wilson & Ellis, 2007, p. 45) for learning. Therefore, the RE-approach draws on how young children use their imagination to "transform their environment in ways that adults around them had not planned for or did not anticipate, thus creating *children's spaces*" (Strong-Wilson & Ellis, 2007, p. 44) instead of *spaces for children*.

Another important element to ESD is the relationship between humans and the natural environment, considering the crucial ecocentric perspective to education.

3.7.3. The natural environment

In their research, Partoune, Grodos, Bernard, and Meunier (2022) highlight the importance of schools considering "the intrinsic qualities of their surroundings" (p.19). They emphasize that "experimental learning in, through, for, and about the environment" (Partoune et al., 2022, p. 4) as a living element is essential, as it allows children to meet their deep needs. This includes the need for physical activity, playful learning, having fun, opportunities for autonomy and exploration, immersive sensory and emotional connections with the environment, fostering innate curiosity, and encouraging independent problem-solving (Partoune et al., 2022). Kopnina (2011) suggests outdoor education centers for "developing awareness through practical activities and investigation" (p. 75). These centers are based on the idea that distinct experiences of the natural world acquired in early childhood shape environmental attitudes (Kopnina H. , 2011). However, a healthy and conscious relationship with our environment is also crucial during the middle years of children's development (White, 2004). White (2004) reflected on the schoolyard designs and found that outdoor play environments offer children many educational prospects, especially in terms of developing social skills and environmental awareness.

Overall, these sources emphasize the importance of considering the environment as an educator and recognizing the significant role it plays in children's learning and development. The design of school surroundings, the availability of outdoor educational opportunities, and

the promotion of regular contact with nature are crucial for holistic education and sustainable development.

4. METHODS CHAPTER

Figure 1: *Research Process Overview*
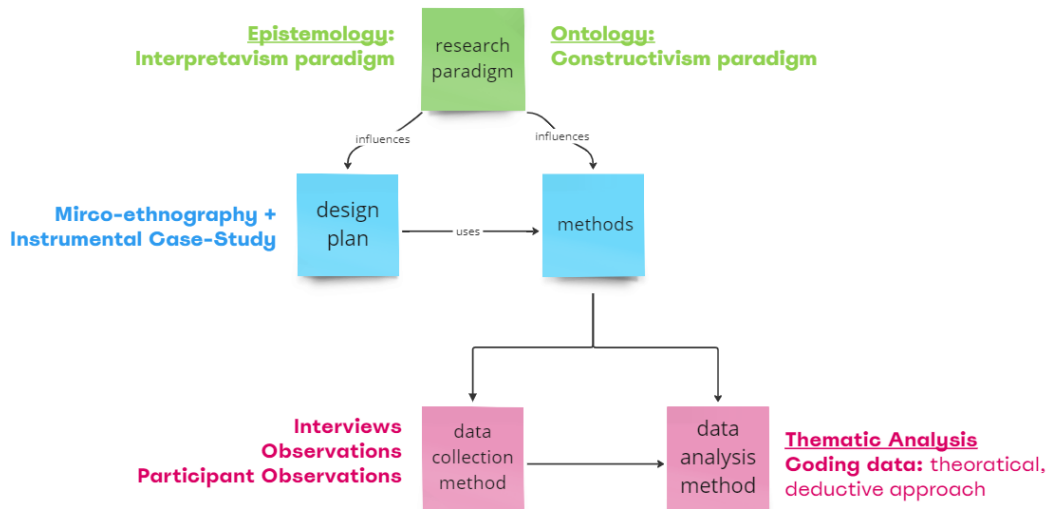
The figure introducing this chapter, offers a brief overview of the research process. The underlaying paradigm for this study was constructivism since "social reality is an ongoing creation of social actors" (Bryman, Sloan, Foster, & Clark, 2021, p. 29) and individuals play an active role in constructing their social realities. Considering the epistemology of this research, an interpretivism paradigm is guiding the analysis phase.

The chapter will begin with an elaboration on the design plan, followed by a display of the sampling and data collection methods. A transparent description of the occurring limitation and ethical consideration is offered before diving into the analysis process. Lastly, the trustworthiness of this study is reflected on critically.

4.1. Design Plan

Figure 2: *Design plan*
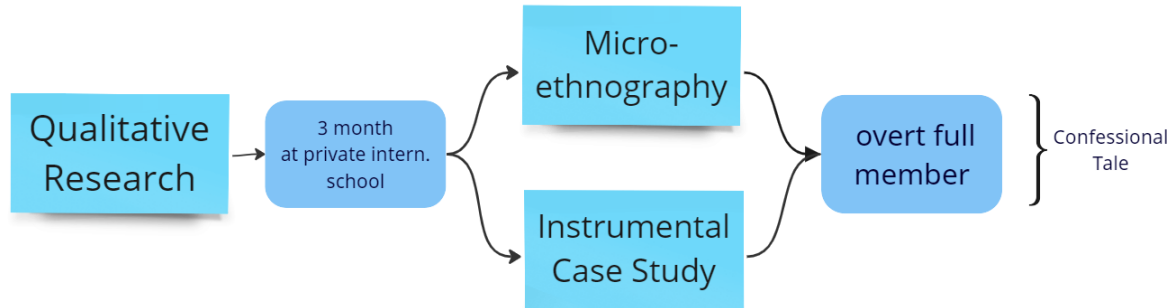
Figure 2 offers a visual representation of the research's methodology. Each step will be explained in greater detail in this section, starting with a justification for choosing a qualitative approach and explaining how the circumstances at the research site led to a micro-ethnographic, instrumental case-study.

4.1.1. Qualitative methodology

Guided by the main research question and objective, a qualitative approach was chosen. The primary concerns of qualitative research can be summarized as gaining a deep understanding of the perspective of the individuals being studied and "providing full description and emphasizing context" (Bryman et al., 2021, p. 354). Being a teacher myself and thus not foreign to the field of education, this approach felt natural and was thus a logical consequence. Another suitable element of a qualitative design is flexibility. The researcher submerges themselves into the setting, observes, and responds to the circumstances they face (Bryman et al., 2021, p. 357). Likewise, during my three months at a small international school in France, I was not only welcomed as a researcher but became part of the team when I took on the role of being a classroom teacher. This allowed me to immerse in the school culture completely and become part of the team.

Consequently, I developed an ethnographic design since it involves the "process of joining a group, watching what is going on, making extensive notes and writing it all up" (Bryman et al., 2021, p. 392).

4.1.2. Ethnographic design

The aim of this particular fieldwork was to contribute to the cultural theme of ESD. A cultural theme "is a general position, declared or implied, that is openly approved or promoted in a society or group" (Creswell, 2012, p. 468). UNESCO's definition of and approach towards ESD, served as a broad focus at the beginning of the research and was narrowed down during the process. As Creswell (2012) states, ethnography can be split into three categories: the realist, case study, or critical one. This research focuses on how a specific group of educators transitioned from traditional teaching to the alternative approach of the international school in France that aligns with many ideas of ESD, making it a case study. More specifically, an instrumental case study "because it serves the purpose of illuminating a particular issue" (Creswell, 2012, p. 465).

Furthermore, I took the role of an overt full member, which means that I am an accepted member of the group while being open about my status as a researcher (Bryman et al., 2021, p. 400). Even though this provides me with unique insights by immersing myself in their social world, it also holds the risk of *going native* and "[losing] the ability to critically reflect on the collection and analysis of data" (Bryman et al., 2021, p. 401). Like Bryman et al., (2021) forebode, I was experiencing a range of emotions during my fieldwork. I started with enthusiasm, and built meaningful relationships, and also experienced frustration as well as physical and mental exhaustion. In general, qualitative research is often critiqued for being too subjective, difficult to replicate, and lacking generalizability and transparency (Bryman et al., 2021, p. 369) . All of these arguments hold their truth; thus, reflections and the thick description of my biases, experiences, and emotions are key.

Van Maanen (1988), as cited in (Bryman et al., 2021, p. 409), identified three ways of writing ethnographic research: the realist tales, confessional tales, and impressionist tales. This research reflects a confessional tale since I was "fully implicated in the data gathering and writing-up processes" (p.409) while being open about the difficulties and carefully reflecting on my own role. Therefore, I decided to use the personal pronoun for the methodology, findings, and analysis chapter of this thesis. Overall, the benefits of qualitative research are convincing and more suitable than a quantitative approach, given the guiding inquiry and research question.

Unfortunately, the time at the research school was too short to make and observe change on the ground. Due to that, my research can be understood as micro-ethnography. The focus is on a "particular aspect of everyday or professional life" (Bryman et al., 2021, p. 393); in this case, the teachers' experiences regarding the transformative shift that is happening in education due to the pressing and severe challenges that our planet and society is currently facing.

Next, I will elaborate on the sampling context and the methods that were used to elect suitable participants.

4.2. Sampling and Data Collection

Figure 3: *Sampling and Data Collection Overview*
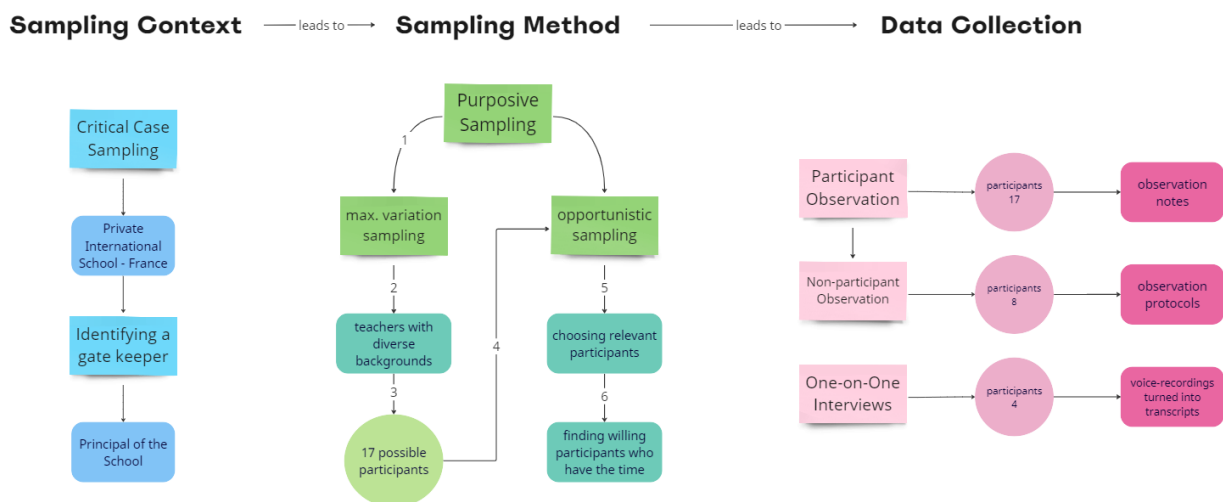
In this section, the focus lays on the sampling and data collection methods that were used in this research. Figure 3 shows an overview of each individual step, beginning with the sampling context which describes how the research site was chosen and the gate keeper identified. Further, the sampling methods will be explained which are key in choosing participants before introducing the data collection methods.

4.2.1. Sampling context

Figure 4: *Sampling Context*
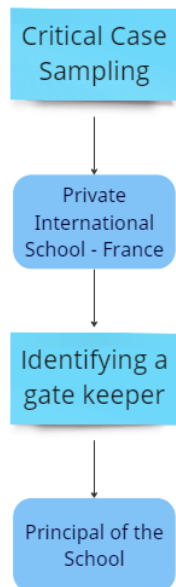
The research site was chosen carefully, considering the "features that are central to the phenomenon of interest" (Bryman et al., 2021, p. 379). Such critical case sampling helped me to narrow down my focus and align it with the research question. Since I inquire to understand *the key-factors that can support teachers to meaningfully integrate ESD* (main objective)*,* I needed a school practicing elements of ESD. Thus, the small international school in France was a conscious decision (see figure 4) since the school's profile and values overlap with features that UNESCO (2021a) suggests for ESD. In the findings and discussion chapter, I will elaborate on this and justify it in more detail.

To gain access to the research site the main gatekeeper needed to be identified since they have a big influence on "whom [I] get to talk to and interview" (Blaxter et al., 2010, p. 159). For my case study, the principal of the school was the most pertinent gatekeeper (see figure 4) who I consciously approached to get access to research participants. I provided extensive information about the nature of my study, my intentions, why their school is of interest, and how they can benefit from it. After a short email exchange, an hour-long interview via zoom followed in which the details of the internship and research project were clarified.

From the critically chosen single site, a group within had to be identified (Creswell, 2012). For my ethnographic, instrumental case study, the teachers at the private school in France became the focus representing teachers working in other non-traditional school settings.

4.2.2. Sampling method

Since I had a specific target group in mind, suitable participants were elected through purposive sampling. However, even though the participants have their non-traditional work environment in common, non-probability sampling, such as purposive sampling, "does not

allow the researcher to statistically generalize to a population" (Bryman et al., 2021, p. 378). Instead, analytical generalization is more suitable by comparing the outcome of this research to the pertinent theory (Bryman et al., 2021) in the Findings and Discussion section later.

Creswell (2012) and Bryman, et al. (2021) differentiate between types of purposive sampling maximal variation sampling and opportunistic sampling, and highlight that they often can be combined. The principal's philosophy in hiring teachers resulted in a rich variety of educators working together from different backgrounds, experiences, and teaching styles. This natural diversity provided me with *maximal variation sampling* (see figure 5)*,* which aims to "present multiple perspectives of individuals to represent the complexity of our world" (Creswell, 2012, p. 207). In my case, it was specifically interesting to gain insights into how educators with diverse backgrounds and teaching styles perceive working in the same new environment. Since every teacher at the school stood out with their unique background, all 17 colleagues were possible participants.

Figure 5: *Sampling Method*
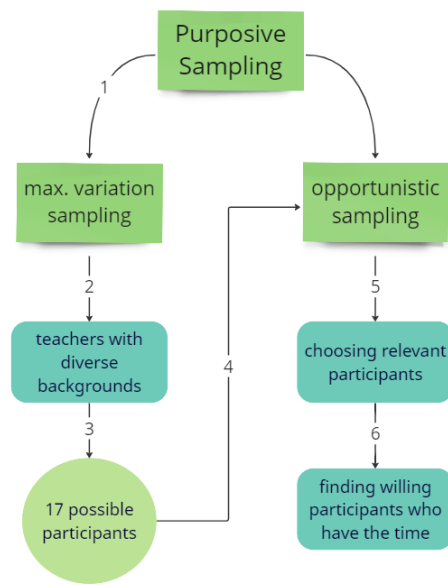
*O*pportunistic sampling focuses then on participants who can provide relevant data that directly contribute to answering the research objectives (Creswell, 2012). Additionally, it considers how unpredictable the opportunities are during fieldwork and that it often depends on the participants' availability and willingness (Bryman et al., 2021). Many teachers at the research site were already busy with their normal routines and tasks and often only had limited time between their lessons. This made finding a peaceful time and place for the interviews more difficult. In addition, some teachers were uncomfortable with the prospect of being observed or interviewed and decided very early on that they would rather not participate in the research.

Since the research was conducted at a small private school with only 17 teachers, the sample size for this case study was limited. However, a small sample size can be meaningful if it benefits the overall research style, data collection, and analysis (Bryman et al., 2021);

(Creswell, 2012). The methods of participant observation, non-participant observation followed by interviews allowed for extensive data with time-consuming analysis processes, thus it made sense to keep the number of participants small. In fact, Creswell (2012) points out that a "large number of cases can become unwieldy and result in superficial perspectives" (p.209).

Figure 6 offers an overview of all the methods used and how many participants were involved in each method. Further, the figure shows how the data was collected and documented, using tools such as observational protocols or voice recordings which then could be coded during the analysis process. The following section aims to explain the data collection process in more detail.

Figure 6: *Data Collection Methods*
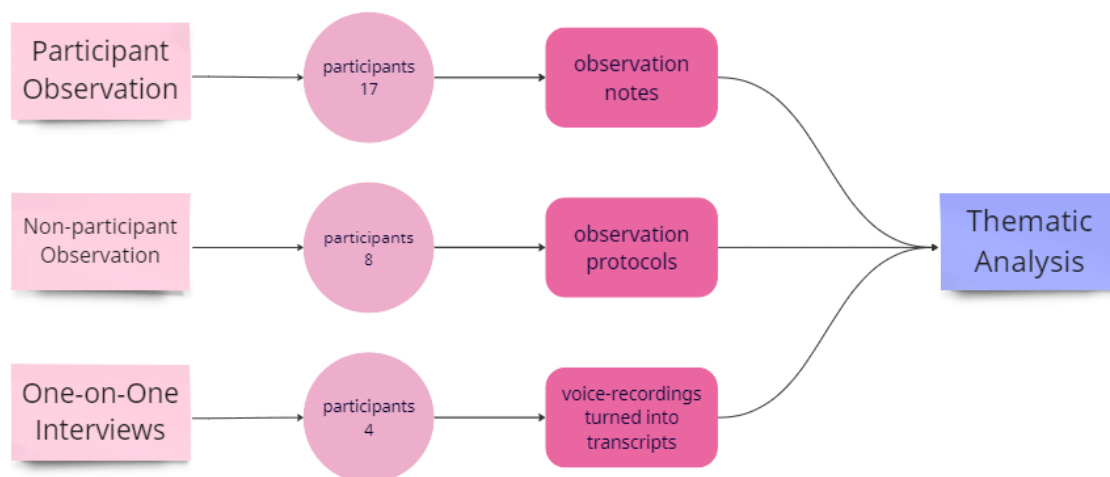
4.2.3. Participant observation

Due to the dropout of a teacher, I found myself in a situation that allowed me to become a participant observer. As classroom teacher for the preschool children, I could "assume the role of an 'inside' observer who actually engages in activities at the study site" (Creswell, 2012, p. 214). I already elaborated on the ethical challenges of going native, but Bryman et

al. (2021) also highlight the advantages of participant observation. For example, I could better relate to the experiences of my colleagues and understand the school culture by being an official staff member. Furthermore, it allowed me to "identify links between behavior and context" and "uncover unexpected topics and issues" (Bryman et al., 2021, p. 448) that come with working as a teacher in a non-traditional school setting.

The reflections of my teaching experience, helped me narrow down the data that was collected data thus far and clarify what I wanted to research more about. Since making observational notes while being actively involved is challenging, I took the time to write small observations down or record memos about my empirical findings afterward.

4.2.4. Non-participant observation

As stated previously, I spent the first two months on participant observation and only used the last few weeks for classroom observations of my colleagues and interviewing them. As shown previously in figure 6, eight participants had signed the consent letter and welcomed me into their lessons. The nature of observation changed as I shifted to a nonparticipant observer (Bryman et al., 2021); (Creswell, 2012,). Instead of teaching myself, I sat in the back of the classroom and recorded notes on my laptop or iPad. Using an observation protocol, the teacher's behavior was "[...] recorded in as much detail as possible with the aim of developing a narrative account" (Bryman, et al., 2021, p. 258). As suggested by Creswell (2012), I documented the chronology of the lesson, the overall classroom setting, and "verbatim quotes of individuals" (p.227). In addition, I always made sure to chat with the teachers afterward to exchange questions and give feedback to each other. I highlighted what stood out to me positively and asked for clarification on things that needed more elaboration.

Throughout my stay at the research site and by continuously expanding my knowledge of ESD, I formulated concrete questions that I aimed to explore through interviews.

4.2.5. Interviews

Guided by the three main objectives, I created a set of questions that explicitly aim to answer each of them. With 4-9 open-ended questions per objective, I developed a guide to conduct semi-structured interviews. These allow me to "address more specific issues" (Bryman et al., 2021, p. 428) and establish some consistency which later facilitates the data analysis. Furthermore, it gave me the chance to "depart from the interview guide where necessary in order to get the best data from each interviewee" (Bryman et al., 2021, p. 433). As Creswell (2012) suggested, I prepared meaningful probes in the form of little information cards. Each card focused on one competence with a short definition as described by the CSCT project (2008) and bullet points that explain each competence in more detail, helping the participant reflect on them.

In addition, I offered two interview options to the participants. The school prepared for the annual Christmas show, and thus the teachers' schedules were often tight. Hence, I suggested emailing the interview guide to those who could not find the time for one-on-one interviews. Unfortunately, often the participants lack motivation and commitment to fill out the online interview (Bryman et al., 2021), especially after my departure. Despite two friendly reminders and even positive replies, no written interview was sent back to me and eventually I had to finish my coding and analysis phase without them. Nonetheless, the interviews that were in person gave me the chance to pick up on verbal and nonverbal cues and part from the guide when it seemed relevant (Bryman et al., 2021) . Since the interviews were audio recorded, I could give my full attention to the interviewee and let the conversation flow. However, the process of transcribing the recordings is tedious and time-consuming, and data can get lost if it is not audible. The table below is an overview of all the methods used and how many participants it involved.

4.2.6. Ethical Considerations

When conducting social research, it is essential to gain informed consent and take measures that prevent harming participants (Bryman et al., 2021). Thus, when contacting the gatekeeper for the first time, I explained my project and intentions in detail to be as transparent as possible. In the interview, we discussed that I could conduct action research to implement change that enhances ESD practices; then observe and reflect on the outcomes. This way, both sides would benefit from the research intervention (Creswell, 2012, p. 232).

However, the nature of my research changed abruptly due to the fallout of a teacher resulting in an ethnographic approach.

To offer a fuller picture, I sent the principal an introduction video of myself that she could present to parents, students, and staff members before my arrival. When working with children, even though they are not specifically my research focus, it is crucial to inform the parents about the new person their children will interact with on a daily basis. Therefore, I suggested handing out an information and consent letter to the parents, even though the principal was the main "gatekeeper allowing access to children" (Bryman et al., 2021, p. 156. However, she preferred to send out an email herself with the necessary information about my role at the school for these three months.

Before I could start with any data collection, I registered my research project at the Norwegian Agency for Shared Services in Education and Research *(Sikt)* (former Norwegian Centre for Research Data *(NSD)*). Sikt offers many services, one of them to "strengthen Education and Research in terms of information security, privacy, and data processing" (Sikt, 2022), which helped me ensure that the research procedure and data collection were ethical. For example, the website provided me with a letter of information and consent template that I adjusted to my specific research. The principal approved this letter which was then handed out during the next staff meeting. The coordinator of the primary years, who organized such meetings, specifically put time aside for me to give full "disclosure of the purpose of the research" (Creswell, 2012, p. 231). After a brief presentation of my project, the teachers had the opportunity to pose questions such as why subjects like Maths or English are interesting to observe regarding my research objectives. Giving room for questions allowed the staff members to make "an informed decision about whether or not they want to participate" (Bryman et al., 2021, p. 118).

Furthermore, I highlighted essential points from the information and consent letter, such as the importance of protecting their anonymity by using pseudonyms (Bryman et al., 2021); (Creswell, 2012). At the beginning I randomly assigned letters from A-H to the individual teachers, which could then be used throughout this thesis. In addition, their data will be stored responsibly and deleted after the research project is completed (Bryman et al., 2021). However, since the school is very small, anonymizing their identity was insufficient, so the school and its location also had to be concealed. Therefore, information gained from their website, such as their philosophy or values, could not be directly cited but only referred to.

Lastly, since I quickly became an official classroom teacher for the preschool grade, I was confronted with the ethical challenges of going native. The lines between being a member of the staff and a neutral researcher blurred as the personal relationships deepened. Thus, "boundaries [needed] to be established to define the research relationship" (Creswell, 2012, p. 231), and after two months, I requested that a replacement as an official classroom teacher would be hired so I could go back to my role as a researcher and focus on data collection. In the next section, I will elaborate on the main methods that were used.

In the following, the analytical framework will give an overview of how the data was processed and scrutinized.

4.3. Data Analysis

Guided by the approach of Braun and Clarke (2006), *Thematic Analysis* (TA) was used to inspect the data corpus. This method aims to identify patterns within the relevant data set which then can be summarized into individual themes that are relevant to the research inquiry. In that process, the researcher has an *active role* as s/he creates the links between data items and how they are being understood and interpreted (Braun & Clarke, 2006). It is important to be transparent and clear about the analysis process and what personal assumptions might inform it. Therefore, I had to clarify the theoretical framework of my thematic analysis. As a social researcher, my epistemological approach is *interpretivism,* which focuses on the "subjective experience of social action" (Bryman et al., 2021, p. 25) and the interpretations of it. This involves the careful consideration of the social and cultural context in which this knowledge is produced and how my personal experience relates to it.

The outline provided by Braun and Clarke (2006) guided me through each phase of the thematic analysis:

1. familiarizing yourself with your data
2. generating initial codes
3. searching for themes
4. reviewing themes
5. defining and naming themes
6. producing the report (p.87)

Figure 7 offers an overview of my analysis process with the numbers indicating which phase of the outline by Braun and Clarke (2006) I was involved with.

In the first step, I transcribe my interviews, read through all my reflection notes from when I worked as a teacher at the research school (participant observation) as well as through the classroom observations I conducted at the end of the research. When I started to code the relevant data set, I was guided by a *theoretical, deductive approach* looking for information that might be relevant to the specific research question. At this stage, I included everything that seemed of interest in a big Excel table and only narrowed it down when I started to look for prevalence among the codes. I color-coded the individual data extracts to visualize which codes could lead to meaningful themes. Since I was "identifying and examining the underlying ideas, assumptions, and conceptualizations" (Braun & Clarke, 2006, p. 84) of the data extracts, my analysis was conducted on a *latent level*.

Figure 7: *My Analysis Process*
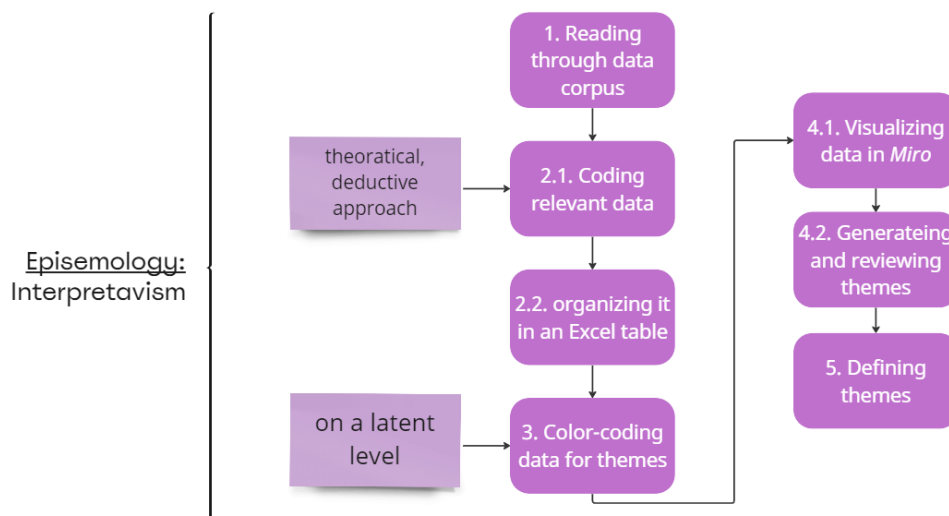
When enough data extracts related to the same code, I considered them for a theme. Using the virtual whiteboard platform *miro* allowed me to visualize and assign the most pertinent codes to the emerged themes, naming these and providing a clear definition of each theme. At this stage, I took a step back to reflect on the main message my data is telling and revised my research question and the objectives accordingly. This helped to narrow down my

research even further, filtering out irrelevant data and themes to avoid unnecessary repetition (see figure 8). The following four themes remained as the main focus:

1. School building and location (physical learning environment)
2. School concept and philosophy (internal factors)
3. Relevant teaching competencies/skills
4. Factors that supported teachers at the case study school
5. Factors that limited teacher engagement at the case study school

Figure 8: *Development of Themes*
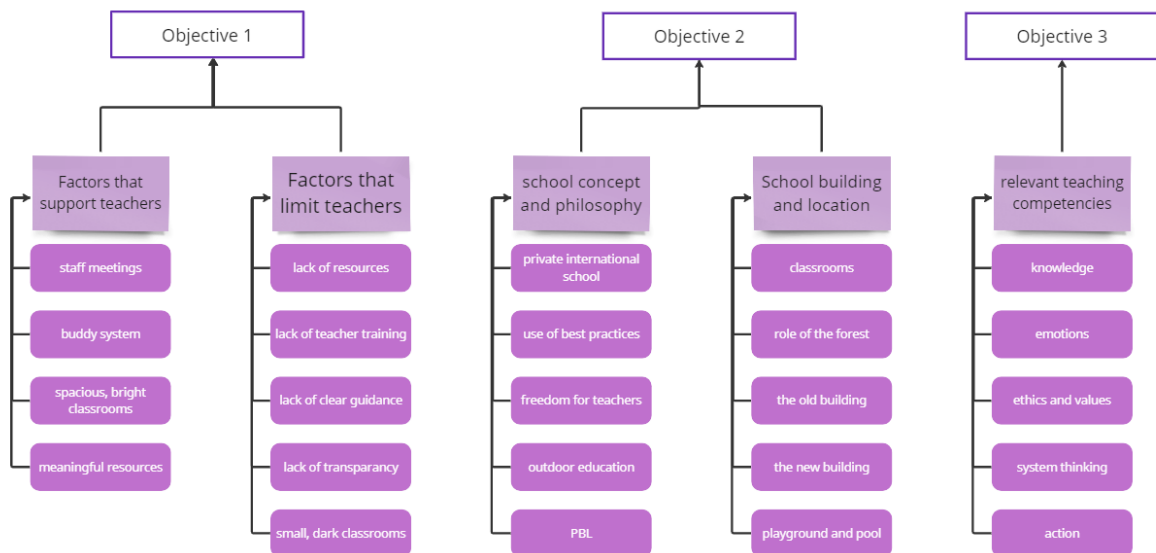
These will be elaborated on in more detail in the findings and discussion chapter.

4.4. Trustworthiness and Limitations

In contrast to quantitative research, the concepts of reliability, replicability, and validity often do not seem to be suitable for qualitative studies since "these criteria assume that it is possible to have a single, absolute account of social reality" (Bryman et al., 2021, p. 364). Instead, Lincoln and Guba (1985) suggest assessing a research project's trustworthiness,

which has four aspects comparable to quantitative studies: Credibility, transferability, dependability, and confirmability.

4.4.1. Credibility

Credibility has similarities to internal validity and cares about how believable the findings are. Thus, Bryman et al. (2021) suggest that a valuable research approach involves spending an extended time in the research field and cross-verifying data through multiple source. I achieved the first through participant observation and becoming part of the school team. I tried to ensure triangulation by collecting different kinds of data and following up on questions that occurred during the data analysis. In addition, the philosophy, values, and school concepts that were promoted on the school's website were compared against the data to increase triangulation. However, to ensure that the participants stay anonymous, the website will not be clearly referenced throughout this thesis, but only referred to since the research school is very small and individual characters could be identified quickly.

4.4.2. Transferability

Analogous to external validity, transferability investigates if findings apply to another context. Therefore, thick descriptions are supposed to paint a picture of the "contextual uniqueness and significance" (Bryman et al., 2021, p. 365) of the research school. This way, the reader can make their own judgment if the findings can be transferred to another context/school setting (Lincoln & Guba, 1985). The school's unique structure and philosophy make it hard to generalize from this case study to another but the findings and discussion chapter will highlight how the research findings contribute to the cultural theme of ESD.

4.4.3. Dependability

To ensure the dependability, I tracked every single step of the study and displayed them in this chapter, as Lincoln and Guba (1985) suggested, so that peers could assess the appropriateness of the study. The table below offers a quick and clear overview of all individual steps:

Table 2

Timeframe of the Field Research

Timeframe	Description
29.08.2022	Starting as a researcher and assistant teacher for preschool class at case study school. <u>My main role:</u> assistant teacher and researcher
30.08.2022	My mentor teacher quit and I replaced her temporarily until a new teacher can be found. <u>My main role:</u> classroom teacher and a participant observer
03.10. − 28. 10. 2022	Classroom observations of colleagues begin <u>My main role:</u> Classroom teacher, participant observer, non-participant observer From the 28th, I stepped down from my role as a classroom teacher and the lessons and responsibility needed to be split among the staff.
07.11. 2022	New classroom teacher starts and takes over my class. Transition work: Collaborating with the new classroom teacher to make the transition for students and parents as smooth as possible, finishing the reports of all students, writing the blog for the term. <u>My main role:</u> assistant teacher, participant observer, non-participant observer
08.11. − 25.11.	The main focus is research again and start to interview teachers and the principal. <u>My main role:</u> non-participant observer and researcher, assistant teacher
25.11. 2022	End of research and time at the case study school.

4.4.4. Confirmability

In quantitative research, objectivity plays a significant role. Yet, "complete objectivity is impossible" (Bryman et al., 2021, p. 366), especially in an ethnographic study. Therefore, I carefully picked an analysis process suitable to examine my data. In addition, to ensure that my research is not too clouded by my experience of working as a teacher, I assumed the role of a researcher towards the end of the study and stepped out of my role as a participant observer.

4.4.5. Limitations

To ensure transparency continuously, the main limitations of this research need to be highlighted again. The leading challenge was finding the balance between becoming part of the school culture and not losing my research focus. Furthermore, the concept and philosophy of the school are very unique which makes it harder to generalize to other studies. In addition, the chosen research site was a private, international school that, due to the high school fees, has opportunities to offer quality education that goes beyond what is publicly offered to the majority. Therefore, analytical generalization was chosen that compares the findings with the relevant theory rather than other research sites.

5. FINDINGS AND DISCUSSION CHAPTER

In contrast to quantitative research, where data can be presented in numbers, this qualitative study resulted in extensive descriptions of classroom observations, reflection notes and interview transcripts. To avoid long repetitions, the findings and discussion are therefore fused together. The main RQ was inquiring *in which ways teachers in the case study school are supported and/or not supported to meaningfully engage ESD.* The data answering this question can be presented in a figure and will be briefly elaborated on with a few examples. Each supporting and limiting factor will then be interpreted and and discussed against relevant literature that was presented before. Therefore, the three sub-questions will be used as subheadings for this chapter, allowing for an in-depth answer. The data will be marked with abbreviations indicating where it is coming from. Thereby, *PO-Data* stands for participant observation data*, NOP-Data* for non-participant observation data, and *I-Data* for the data extracted from interviews.

5.1. What factors are identified at the school that support and/or limit teacher engagement with ESD?

The findings were identified through the thematic analysis of participant and non-participant observations as well as the interviews. As shown before, the TA identified five key themes that are further explained in the following sections. The main objective focuses on *identifying key factors that support or undermine teachers' efforts to meaningfully integrate ESD.* Therefore, *supporting factors* and *limiting factors* at the research site were of interest and are visualized in figure 9 below.

Figure 9: *Supporting and Limiting Factors in Teacher Engagement in ESD*
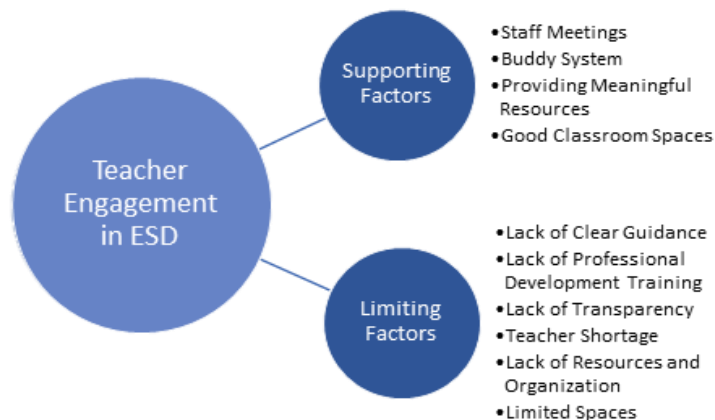
5.1.1. Factors that supported teachers

Four codes could be found at the research school relating to the theme *Supporting Factors* (see figure 9). Each code/factor will be elaborated on by giving 1-2 data extracts as example.

Staff meeting.

Participant Observation Data: The staff meetings were the primary source of teacher support offered at school. During that time, teachers could usually express their needs, exchange teaching ideas, or have exercises guided by the primary and middle school coordinators. This included topics such as differentiation or how to give cohesive feedback to the students across all grades (using green pens to show where the students are doing great and using pink to highlight areas of improvement).

The buddy system.

Participant Observation Data: The buddy system was the idea of the primary years programme (PYP) coordinator which was introduced during a staff meeting. He paired teachers together who could support and learn from each other, since the skill sets of the staff are so varied which the coordinator wanted to take advantage of. The system was a source of

support because it intendet to promote collaboration amongst the teachers for lesson planning, to get inspition from each other instead of pointing fingers at each other.

Providing meaningful resources.

Classroom Observation Data: The teachers could ask for resources, such as workbooks for their students or themselves, to use as guidelines if they are teaching unfamiliar subjects. In addition, the teacher who was responsible for the eco-school projects often worked with tools such as saws, screwdrivers, drills, and hammers. Under the supervision of a teacher, the children were taught to use these safely.

Participant Observation Data: If needed and approved by the principal, special materials for sensory play, like water jelly beads or slime, could be ordered.
When the school went on a fieldtrip, food, drinks and other important resources were supplied. Transportation was also being taken care of in advance.

Good classroom spaces.

Classroom Observation Data: It became evident that the teachers in the bigger classrooms had the opportunity to create atmospheres that would benefit their teaching strategies. Teacher B, for example, had much space for different stimulating resources. This included musical instruments, a small kitchen with plastic fruits, art material, and simple letter and number games/puzzles. Even though there was enough engaging material, it did not feel overwhelming. Everything had its dedicated spot to avoid cluttered corners. The space was bright and filled with natural sunlight contributing to an inspiring learning environment.

5.1.2. Factors that limited teacher engagement

In this section, the six codes/factors that limited teacher engagement in ESD at the case-study school will be explained by using the most pertinent data examples.

Lack of clear guidance.

Interview Data: On their website, the school promotes social-emotional learning and differentiation for the students' needs. When I asked the principal about specific guidelines that would align the diverse teaching styles with the overall school philosophy, she often referred to common sense and that there is not much material available: "I have been handling it by giving a lot of freedom to each teacher. Maybe I haven't given out guidelines around that because I think a lot of it, again, it comes down to common sense" (Interview, principal, 2022).

Participant Observation Data: During staff meetings, it became evident that it is not common sense for many teachers and that they would need some clear guidelines. These initiatives were often taken by the coordinators themselves, as described earlier.

Lack of professional development training.

Interview Data: Providing professional development training, specifically in regards to the sustainability challenges of our future, would be desired by some teachers: "I'm looking for training. If [name of the school] can provide such training, I will be very happy to be part. Perhaps having more training to be updated [...] because there are a lot of new things coming every year. I think I can say that about education and projects and action that you can put in your class" (Interview, Teacher C, 2022).

However, the principal explained that they are limited in what they can provide by their budget and the French regulations they are bound to. The training offered by the French government focuses on improving PowerPoint, Excel or Word skills or learning about mindfulness. Additionally, she emphasized that these would only be taught in French which not every teacher speaks at the school. Hiring a specialist from their own money is very costly and has to be considered carefully.

Lack of transparency.

Participant Observation Data: At times, important information were not shared, resulting in extra challenges. For example, when teachers or parents were not informed about the

children's learning difficulties, or about colleagues or students who called in sick, often causing them to improvise solutions on the spot.

Participant Observation Data: It was not clearly communicated to the parents what happened with the contact teacher of the preschool class until weeks later. The principal did not want me to share information about this yet until a solution was found. In addition, she was not transparent to my colleagues and me when a new homeroom teacher would be hired. When the primary section requested her to join a meeting regarding that concern, she did not respond to the emails or come to the meeting. This resulted in confusions, frustration and extra workload, which increased stress and fights among the affected teachers.

Teacher shortage.

Participant Observation Data: As in many other places, the research school experienced a lack of qualified teachers and assistances. A classroom teacher for the primary section was missing, ideally another assistant teacher would have been needed, and in the middle school section the literacy teacher had to cover geography lessons without prior experiences. Without enough qualified teachers, the implementation of ESD gets increasingly challenging and brings the risk of putting the remaining workload/lessons on other teachers.

Lack of resources and organisation.

Interview Data: Some teachers complained about a lack of resources and that they have to research many things for themselves or come up with less fortunate alternatives, such as showing videos from their laptops: "I don't have that in my class *[a smartboard].* Soo, I am using my laptop I put it here *[on the lab],* because I really like showing videos or making videos or games" (interview, teacher F, 2022).

Participant Observation Data: The available resources were spread throughout the school without a clear structure to it. This often resulted in losing a lot of time searching for resources across the whole school. A clear structure for the resources would allow teachers to work more efficiently and reduce stress.

Limited spaces.

Classroom Observation Data: Some classrooms were inconvenient or unsuitable for certain activities *Participant Observation Data:* because of limited space. In the new building, most rooms were so small that the students could barely move around and could mainly sit behind their desks. This limited the teachers in their creative approaches to creating engaging hands-on activities.

Participant Observation Data: Not having a dedicated staff room where teachers could work in peace, exchange thoughts, or collaborate meaningfully could result in losing precious connection and preparation time for lessons, which are key for ESD.

After briefly showcasing the data, an interpretation in relevance to ESD will be highlighted in the following sections by discussing the sub-questions one after another.

5.2. In which ways do the school's approaches align/not align with the theoretical foundations of ESD?

Two themes relate to the first sub-objective, which aims to *understanding what makes the case study school distinctive from traditional teaching settings.* Data revealing the unique *internal structure* (1. theme) and *physical learning environment* (2. theme) of the case study school will be compared against the guidelines for ESD given by UNESCO in their New Social Contract for Education (2021), since it is widely recognized and part of the sustainability goals for 2030.

As displayed in the theory chapter, the "proposals for renewing education" (UNESCO, 2021a) are split into five elements, each discussed under its own subheading.

5.2.1. Collaboration and inclusiveness at the school

Firstly, pedagogy should revolve around the core values of collaboration, cooperation, and solidarity with a conscious intention to unlearn "bias, prejudice, and divisiveness" (UNESCO, 2021a, p. 4). As an international community, with teachers and families coming together from all around the world, the school promotes an inclusive and respectful

environment. Children are encouraged to embrace and appreciate different cultures, uphold principles of fairness and equality, recognize the worth of every individual, and understand the importance of preserving our natural surroundings (information retrieved from school's website). This is reflected in the theoretical knowledge transmitted to the students, the books they use at school, and it is practiced daily in the way they interact with each other and the environment *(PO-Data)*. Discrimination and bullying are not tolerated and are acted upon immediately *(school's website and reflected in PO-data)*. In addition, the teachers and students are encouraged to collaborate with each other in multiple ways. Two or more classes often come together for activities in the forest or eco-projects at school *(PO-Data)*. This way, the students are exposed to different age groups and foster collaboration skills, and teachers can also support and learn from each other *(PO-Data)*.

During the staff meeting in November 2022, collaboration and inclusiveness were demonstrated *(PO-Data)*. The main topic of discussion was the inclusion of a Russian Christmas story in the yearly Winter-play, shortly after Russia's full invasion of Ukraine in 2022. Preparing for the Christmas show is a massive act of collaboration among the school community, including teachers, students, and parents. However, one teacher raised the concern about celebrating the Russian culture considering the latest events, resulting in controversies yet a calm discussion during the meeting. The teachers listened carefully to each other, and one of the coordinators pointed out that the school has Russian students who should not feel targeted as an enemy as they do not represent what is happening between the countries. Finally, it was decided that the Russian tale needs to stay included, and if parents complain, we should redirect them to the principal. It is part of the school's philosophy to promote multiculturalism and create a safe space for everyone.

Despite the appreciation of different cultures and traditions at the international school, they still "exclude, marginalize, and reproduce inequality" (UNESCO, 2021a, p. 97). By being a private school with high tuition fees (ranging from 16.300 -25.00€ per year), only a certain social class can take advantage of the school's unique offers. Often children from already privileged households have access to quality education with smaller classes where teachers accommodate their individual needs. Less privileged families have to resort to public education, which often lacks the funds and means to provide such individual care for each student. This reinforces the cycle of inequality.

5.2.2. Ecological, intercultural, and interdisciplinary learning

UNESCO (2021a) suggests an alternative to subject-based learning and emphasizes the benefits of ecological, intercultural, and interdisciplinary learning to foster "active citizenship and democratic participation" (p.4). At the research site, the teachers were mainly following the IPC and IMC curricula. Even though this means that they teach the subjects individually, the curriculum adopts a thematic approach where subjects are interconnected and organized around a central theme (International Curriculum Association, 2022). This approach enables students to understand how subjects are both independent and interdependent, enabling them to understand the broader context of their learning (International Curriculum Association, 2022). By making connections across different subjects, students can explore a theme from multiple perspectives, encouraging holistic understanding and facilitating meaningful discussions. At the research school, a theme lasted approximately six weeks and was completed with a blog post on their website about the term's highlights and learning achievements *(PO-Data)*. Each teacher explained the main learning goals, described the most engaging activities, and included pictures that show the students' learning to their parents *(PO-Data)*.

In addition, the school adopted best practices and philosophies that complement its curriculum. In the beginning, the principal was inspired by the Montessori approach *(I-Data)* because of its hands-on, experimental pedagogy while paying close attention to the students' individual strengths and needs (International Montessori Training Institute, 2020). Especially in the pre-and primary school years, the classrooms are equipped with Montessori tools that are intentionally designed to foster the independence of young children *(NPO-Data)*. The unique social and emotional, intellectual, and physical needs of students play another big role at the school *(information retrieved from school's website; PO-Data)*. The Steiner Waldorf School Fellowship (2020) accentuates an individual approach to each student so they can grow into their authentic selves. Thus, the class sizes are relatively small with a maximum of 12 students to ensure that teachers can differentiate for each of them. In the interview, the principal revealed that the children are assigned to classes based on their ability and not necessarily their age:

> "So it's not because you're born in March 2010 that you need to be in year eight because you might be more able but less emotionally mature. Maybe you would

benefit from being the oldest in the class. You know, there are all these different factors that we think about that will help allocate you in a group. And so, when we look at classrooms, there is a bit of a wide age range, typically 18 months, but it could be two years for certain classes."

As Robinson and Robinson (2022) state, education is deeply personal and in order to raise citizens who are equipped to tackle current and future sustainability challenges, their creativity needs to be cultivated and put into action. Especially in the pre-and primary school years, the children are encouraged to explore their imagination through play and hands-on activities *(information retrieved from school's website; PO-Data)*. Twice a day, the children go to the forest for 30 minutes with their teachers to make music, create art, dance, do sports, play freely, or discover the magic of mother nature *(PO-Data)*. Here, the students are learning in, for, and about their natural environment, expanding their ecocentric perspective.

Gardner (2023), who was another inspiration for the international school, critiques the idea that intelligence can be measured by IQ because it fails to capture the eight different ways humans can express and showcase their intelligence (Gardner, 2022). Everyone holds body-kinaesthetic, naturalist, musical, logical-mathematical, interpersonal, intra-personal, linguistic, and spatial intelligences (Gardner, 2022) showing individual strengths and weaknesses in each area resulting in their own unique profile. Hence, the teacher has to individualize and differentiate their teaching to each student and at the same time use a variety of learning methods (*pluralization)* to explore a multitude of concepts, skills, and ideas (Gardner, 2022). Differentiating teaching and learning strategies was another important aspect based on the diverse learning needs and multiple intelligences of the students: "I'm trying to […] to find a fine sort of line throughout every class with a common denominator. And one of them you mentioned was differentiation. It's essential" (Interview: Principal, 2022).

The approach of project-based learning at the school ties all these ideas together and puts the theoretical knowledge of many subjects into action using the imagination and creativity of students and teachers *(NPO-Data)*. Such "intercultural and interdisciplinary learning […] supports students to access and produce knowledge while also developing their capacity to critique and apply it" (UNESCO, 2021a, p. 4). To achieve lasting change Leichenko et al. (2021) suggest to teach with and through the Three Spheres of Transformation: the practical, the political and the personal sphere. In the subject of *Design and Technology,* middle school students, together with their teacher, work on sophisticated

projects often themed around sustainability *(NOP-Data)*. The projects reached from planning and constructing a log press for firewood made of recycled paper, over building insects hotels out of woods, to water installations such as a Spiral Water Wheel and a Sludge Pump. Often, the aim is to guide students to critically reflect on sustainability issues, on the values and worldviews they are rooted in (personal sphere), and how it impacts the systems and structures they are in (political sphere). By taking action and collaborating on these projects, the teacher inspires change on the practical sphere.

The combination of these projects and following the seven steps of the eco-school initiative gained them the green flag certificate. Boeve-de Pauw and Van Petegem (2018) concluded from their large-scale study that these projects do not spark intrinsic pro-environmental behavior among the students but rather pressure them. In addition, the researchers found that it mostly fosters theoretical knowledge and less applied knowledge. At the research school, however, Teacher A was extremely committed and passionate about his projects:

> You can bring lots of project-based learning. So out of this book [The Mystery of the London Eye] we did lots of stuff like mathematics, not just angles, speed, what problems have in our rotation or something goes clockwise or anti-clockwise, depending from what side of the river Thames you're looking at art, poetry, apart from normal literacy stuff that you can get out of it. There's lots of cross curricular links you can make.
> (Interview: Teacher A, 2022)

By this, he tried to ensure that he covers as many of the multiple intelligences as possible to make every student feel included and foster their applied knowledge.

5.2.3. Rethinking the teaching profession

Without qualified teachers, the implantation of the best educational concept would not be possible. Their profession needs to be rethought and redesigned starting with recognizing teachers as change agents (UNESCO, 2021b). Therefore, teachers need freedom and autonomy to teach creatively and according to their students' needs (Robinson & Robinson, 2022); (UNESCO, 2021a). The head of school welcomes and encourages the individual teaching styles and diverse backgrounds of her staff members, making the learning experience for the students even more varied:

> What I find very important is having variety. […] I like the fact that some teachers are super strict and then others are super cool because some kids will work better with one or the other, or at least they're exposed to different realities. […]. I have a mad scientist teacher down there who's deconstructed himself and who's mad, and he has trouble with structure. But it's fine because I have some very 180 degree other way teachers as well who are very strict and square. […] it prepares them for the future. (Interview: Principal, 2022)

Furthermore the principal recognizes each teacher as a unique individual, just like her students:

> Ideally, I want to manage people the least possible way, let them all be their own individuals, because I want them to treat the kids that way, you know? So, I kind of want to mirror the image of how I treat individuals, which is why I give a lot of room for freedom. And I think I need to make sure teachers feel this and then teachers need to make sure the kids feel it. So, it's sort of like domino effect all the time. (Interview: Principal, 2022)

In example, the projects of Teacher A often stretch over weeks and include working with wood and using power tools *(NOP-Data; OP-Data)*. Most of the times, the principal gladly provides all the necessary resources. This was a great way to include a teacher's perspectives on "holistic, learner-centered sustainability education" (Parry & Metzger, 2023, p. 2) on the ground.

At the same time, collaboration, teamwork, and being included in "public debate and dialogue on the future of education" (UNESCO, 2021a, p. 4) are essential ingredients. As elaborated earlier, the school encourages collaboration among the teachers and students. The MYP and PYP coordinators even took it upon themselves to introduce a *Buddy System* which pairs two teachers together to collaborate and learn from each other *(PO-Data)*. The majority of the teachers were open to this approach, and one commented during an interview:

> I think it is a good idea because you can see how other teachers work, how they plan the lessons. For the buddy system, I work with [teacher A]. I think I will be able to learn about to bring my maths class more outside and to be more ...like ...realistic? I told you in Spain we don't have those resources we don't have enough, we don't have enough money so ... with this part, with the action plan with [teacher A], I can learn. (Interview, Teacher F, 2022)

However, another teacher highlighted during her interview that she was paired with the homeroom teacher for the pre-schoolers instead of someone who was teaching the same subject as her. She mentioned that they do not have the opportunity to discuss a lot because

she works with several grade levels and does not see the benefit of collaborating with someone with a different teaching reality *(I-Data)*. Unfortunately, the school has no dedicated staff room, so teachers rarely get the chance to exchange their thoughts, ideas, and struggles with their colleagues in a calm space *(PO-Data)*. Feeling supported by their colleagues can increase motivation and cultivate a more creative and engaging learning atmosphere (Boeve-de Pauw & Van Petegem, 2018) which could be increased by providing a common area for teachers "to naturally foster collaboration" (UNESCO, 2021a, p. 82).

Further, collaboration at schools includes families, local leaders, social workers, librarians, specialists for literacy or special needs, and many more (UNESCO, 2021a). The private international school works closely together with the students' families and listens carefully to the parents *(PO-Data)*. In general, five mothers are representing the parent association team, but there is no school board, leaving the principal with the majority of the responsibilities *(information retrieved from school's website; PO-Data)*. The school does not have a dedicated student counselor even though the social-emotional well-being of the students is emphasized on the school's website. The principal expects the teachers to use their common sense when handling conflict *(I-Data)*. Having clear guidelines or collaboration with a specialist might be beneficial in that area. Unfortunately, I could not collect any data on how much or if teachers are participating in the debate about the future of education, and the time period of three months might not be enough to reflect on it and give it justice.

5.2.4. Creating learning environments for and of the future

As described before, schools need to be inclusive and safe spaces for everyone and nurture "an ethic of solidarity and reciprocity through intergenerational, intercultural and pluralistic encounters" (UNESCO, 2021a, p. 95). This section will focus on how this is reflected in the school's architecture and how to create an environment that is "different from the usual structure of the school and classroom" (UNESCO, 2021a, p. 97). Van Merriënboer et al. (2017) emphasize that the school's philosophy and teaching methods need to align with their physical learning environment. The research site stands out with its unusual building choices. The school is divided into two buildings, one older building in which the pre- and primary school children are placed and a newer building for the middle school classes *(NPO-Data)*. The old building of the school used to be a big family home in a calm neighbourhood, right next to a huge forest. Some classrooms even have old fireplaces that are now used as storage

spaces *(NPO-Data)*. When the school expanded, a smaller building was constructed for the middle school students. Similar to what UNESCO-UIS (2012) suggests, most of the classrooms in the old and new buildings take advantage of natural light through big window fronts that also allow fresh air in when needed. Only two classrooms in the old building were lacking natural light making them feel dark and small *(NPO-Data)*. However, comfortable temperatures were missing during the winter months in both buildings. The classrooms were cold and not heated sufficiently with the good intention to save energy *(PO-Data)*. The teachers as well as students tried to compensate by layering sweaters, scarves, and beanies. There was an increase in sick leave among the students and teachers, which is common during the cold seasons but might have been increased by the classroom temperatures *(PO-Data)*. Several teachers, including myself, asked the leadership to turn up the heat to allow for comfortable learning environments, which was not taken seriously during the time I was at the school. Heating such an old building, and one with many huge windows might be costly but a challenge that is worth looking into.

Furthermore, the classroom arrangements are directly impacting the learning experiences of students and teachers. With the new trend of ESD, rectangular classrooms with fixed seating rows are insufficient and not reflective of the participatory learning methodologies that come with such educational reform (UNESCO-UIS, 2012). During non-participant observations, I could pay closer attention to the physical environment. The newer school building is a modern construction where everything feels very bright due to big sliding glass doors at the back of each classroom leading to a long terrace. The building has a large, open common area that can be used by all teachers interchangeably for their lessons and projects. This space includes a kitchen in the back and a smartboard in the front. The desks are easy to move around, allowing for creative and suitable setups that complement the learning activity. Besides one exception, the other classrooms in that building are tiny, fitting a maximum of six students with no flexibility to move around or change the seating arrangements. The walls were quickly filled with posters that demonstrate what they have been learning so far, which made the already small rooms feel even more crowded and busy. For engaging activities where students move around, teachers have to take turns in the bigger, more suitable common area or teach lessons outside. Thus, on the one hand, the small rooms are limiting, on the other hand, it might encourage teachers to think outside the box and consider the outdoors more often as an extension to the classroom.

The more spacious classrooms in the older building were reserved for the younger students (pre- and primary school years). Just like Tonder et al. (2017) suggested, the teachers developed a sense of ownership over their rooms and personalized them and were motivated to get involved in their classroom design and setup, while teachers with smaller rooms, displayed less engagement *(NPO-Data)*. The preschool teacher had a well-equipped classroom that provided a variety of stimulating resources for the students. The classroom was also bright, with plenty of natural sunlight streaming in, creating an inspiring setting for learning. The classroom did not feel overwhelming or cluttered, despite having a range of engaging materials *(NPO-Data)*. The Reggio Emilia approach even recognizes the classroom as a third teacher acknowledging the impact they have on children. Classrooms should be *children's spaces* where they use imagination to transform their environments and explore their autonomy (Strong-Wilson & Ellis, 2007). In this case, the teacher gave her students an inviting framework to explore their learning space, take materials from wherever they want with the only rule to put them nicely back to their designated space when they are done *(NPO-Data)*. Her classroom was fostering collaboration among the students, autonomy, creative expression, and social belonging as suggested by Strong-Wilson and Ellis (2007). Tondeur et al. (2017) recommend training for teachers who are not so intuitive with creating meaningful classroom setups that align with their pedagogy. The *participatory design process* suggested by van Merriënboer et al. (2017) ensures the inclusion of teachers and their collaboration with relevant stakeholders to rethink the learning environments suitable for ESD. Firstly, the school has to specify its pedagogy, before school management, teachers, students, architects, and interior designers can come up with how the physical space and the seating arrangement can support that pedagogical vision. Constructing the school building should be last on the agenda (van Merriënboer et al., 2017).

Next, I want to reflect on how the architecture is encouraging or limiting collaboration. As mentioned earlier, the school is missing a staff room that allows teachers to have a calm space to work and exchange thoughts and ideas. However, the common area in the new building, the kitchens in both buildings, the school's pool and the outdoors are spaces where collaboration could be observed. During the weekends, the pool is open for families to use, bringing the school community even closer together. Further, the children have been baking together in the kitchens, created art projects in the common area, worked on their eco-projects on the playground, and explored the forest together hunting for mushrooms *(NPO-Data; PO-Data)*. Kopnina (2011) critiques that the ecocentric perspective

is often missing in modern education, focusing more on humanity. At the research school, however, their local environment, specifically the nearby forest plays a significant role in their school philosophy: "This awareness of their environment is something that we really try to foster and make them make them understand that they're part of something bigger" (Interview: Principal, 2022). Countless participant observations reflected what Partoune et al. (2022) found in their research: Children enjoying physical activities and playful learning in the forest, exploring it with their senses, and making emotional connections with their natural environment.

5.2.5. The expansion of educational opportunities and strive for lifelong learning

In New Social Contract for Education, UNESCO (2021a) highlights that education should extend beyond the confines of traditional school settings and schedules, embracing a multitude of learning opportunities. During the research time, the school did a fieldtrip to "France Miniature" where scaled-down replicas of famous French landmarks and attractions are featured *(PO-Data)*. The goal was to expand the children's knowledge about France and connect them to their local environment in a playful way, since they have different backgrounds and come from all around the world. The three months at the school, were probably not long enough to make a fair judgment of how well and often such opportunities were taken advantage of.

Furthermore, UNESCO (2021a) suggests that education should never end, since learning does not either. Education, specifically adult education, must be dynamic and inspired by the "more open and flexible models of early childhood education" (UNESCO, 2021a, p. 107) and adults should be empowered and supported in their strive for lifelong learning. Even though research participants expressed during the interviews a desire for professional development training that would allow them to expand their teaching method and skills, the school does not offer many opportunities. During the interview, the principal explained the reason behind it:

> There are budgets, and every year the school spends thousands of euros putting the money in a sort of box. It is a virtual box, but it is French law. […] So, it has to be French training. But it is not the kind of training I would like the staff to do. But this is the only training I can do using that budget because we spend thousands and

thousands of euros every year just for nothing.
(Interview, principal, 2022)

In the past, she also had invested in trainers coming to school, which costs a lot of money that cannot be reimbursed: "So we always consider it very carefully because if we have one trainer come, it uses up the whole school budget, and so we would apply it to the whole school" (Interview, principal, 2022).

After comparing the research school against the ESD guidelines, I want to discuss the remaining challenges and offer suggestions of how to assist teachers.

5.3. What are the main barriers at the school to successfully engage teachers in implementing ESD?

Many of the common challenges discovered in the literature regarding ESD overlapped with the data collected at the case study school. Some of them were already elaborated on, such as the need for professional development training or that some classrooms are not as suitable for ESD as the others at the school. How to facilitate teacher engagement in educational transformation will be considered with every remaining challenge, to address the second sub-objective.

5.3.1. Paradigm shift and the need for clear guidance

Robinson and Robinson (2022) characterize the European school system as an industrial form of education. According to them, the system treats children as products, processed in a linear manner on a conveyor belt while teachers play the role of factory workers. In order to change such monotonous, predetermined, and heavily regulated system, a paradigm shift has to happen. Especially the dominant social paradigm is crucial for ESD implementation since it directly influences the belief structure of societies and how problems are being addressed (Foley, 2021); (O'Brien, 2021). Inspired by Ken Robinson's philosophy, the principal explained how she approaches education: "

[Society is] formatting kids a certain way. And so, one thing I strongly believe in this school is not necessarily formatting kids. We're taking them as they are. They have strengths, they have weaknesses, and we will work on weaknesses and we will really

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make the strengths become blossom into something extraordinary.
(Interview: Principal, 2022)

The head of school does not believe in mass-producing students measured by standardized tests but rather sees everyone as individual with unique characteristics. Intuitively, the school addressed two of the four main barriers (1. Education itself, 2. Norms of disciplinarity, 3. Interdisciplinarity, 4. Resistance to change) to ESD identified by Foley (2021) that are connected to the dominant social paradigm. Firstly, a curriculum that is organized in individual subjects is not recommended since it lacks the connection to real-life problems and critical thinking (Foley, 2021). However, through their approach of project-based learning, the school offers a meaningful learning experience that challenge multiple intelligences at the same time *(PO- Data)*. Secondly, the research school found a balance to the subject-based curriculum and shows their interconnectedness by focusing on an overarching theme for approximately six weeks. Likewise, Foley (2021) highlighted the importance of interdisciplinary structures in education.

Unfortunately, the school was not fully committed to the concept of ESD or the fourth SDG (barrier one), because the majority of staff members were unaware of them. Thus, even though their intuitive approach to rethinking education resulted in great implementations at the school, teachers are often being advised to just use their common sense but are missing resources and profound SD knowledge *(I-Data; PO-Data)*. Foley (2021) points out that the primary obstacle lies in the resistance to change (barrier four), which is often stemming from an inherent fear of the unknown and a sense of instability. Teachers need to demonstrate a willingness and openness to this change. This can be easier for some than others. At the research school, some teachers were good with the behavioural and emotional aspects to SD, some were better in transmitting the SD knowledge that others were lacking *(NPO-Data)*. As the principal suggested during the interview, teachers should be seen as individuals because, just like the students, they have a range of different needs. As explained before, many teachers showed openness to being more engaged in educational transformations but expressed the need for guidance and training *(I-Data)*. Thus, I argue that it is important to differentiate for the teachers too and train them in the areas where they need more support. The buddy system is a great start but professional training specifically for SD that is supported by the government is needed. Training and life-long learning opportunities that considers the Three Spheres of Transformation and address *all* pillars to SD (environmental, social and economic) could assist teachers (Leichenko et al., 2021); (Parry & Metzger, 2023);

(Kandangama, 2018) in losing their fear of change and could ultimately help shifting paradigms.

Teacher training is in general crucial for a multitude of factors. The findings and literature show a lack of qualified teachers and that many are leaving the profession due to burnout.

5.3.2. Teacher shortage, burnout and transformative leadership

The principal of the international private school is in a relatively privileged position to carefully select teachers who complements the team and offering a fair salary. Nonetheless, the school experienced a teacher shortage with one classroom teacher quitting spontaneously and ideally an extra assistant teacher and geography teacher for middle school would be needed *(PO-Data)*. For teacher recruitment, the principal considers not only the applicants' academic achievements, but rather the range of multiple intelligences they can offer and if it fits to the school *(I-Data)*. In order to meet the targets of the SDG 4 by 2030, 70 million primary and secondary teachers need to be hired (UNESCO, 2021a) while at the same time teachers experience burnout syndromes in an escalating rate (Jacobson, 2016). As a consequence, this has led to an expanded candidate pool for teaching positions, encompassing individuals who may not be adequately prepared professionally (UNESCO, 2021a). This situation can result in decreased pay and social status for teachers, as well as overwhelming support systems that are pushed beyond their limits (UNESCO, 2021a), showing the need for a paradigm shift, and governmental support and initiative.

Jacobson (2019) found several factors that contribute to teacher burnout. Some of these could also be observed and experienced at the research school such as an *increasing workload* when teachers are missing *(PO-Data)*. During sick leave, the colleagues usually found a good way to collaborate and sharing the extra workload. In the case of the missing classroom teacher, I carried most of the work, but since I needed time for my research parallel to it, other teachers were affected as well *(PO-Data)*. On the 28th of October I stepped down as classroom teacher completely to be able to follow my original intentions of being a researcher and assistant teacher. Since no replacement could be found until the 7th of November 2022, there was one week of accelerating stress and workload among the teachers, resulting in tension and fights among each other *(PO-Data)*. With the intention to avoid these conflicts, the primary section requested the principal to join a meeting to discuss and

collaborate on a solution, yet she did not respond to the emails or come to the meeting. During the interview with the principal, she elaborated on her leadership style:

> I tend to leave the weekly meetings for the school, for the teachers amongst themselves, and not always be intervening. But when there's a need, I'll intervene. And then I know you guys have for this building [the primary section] Thursday meetings. Again, I tend to not be there unless there is a need for me to be there because I let you guys manage yourselves more. I'd like to make everyone more independent to me, you know, more autonomous.
> (Interview, the principal, 2022)

Giving teachers freedom and autonomy can be beneficial in many areas, but open communication and transparency could have reduced stress and confusion in this situation. According to Jacobson (2016) a *lack of administrative support and respect* can be another factor contributing to burnout and it is crucial for principals to actively listen to teachers' concerns and work together to identify collaborative solutions. Several researchers point to the connection between school performance and leadership practices (Khumalo, 2019); (Westin, 2007); (Helou & Nabhani, 2016). On the one hand, Westin (2007) suggests supporting leaders by offering training to them that align with national policy documents, on the other hand Jacobson (2016) believes that the emphasis should be placed on sharing responsibilities and actively involving teachers in the decision-making process. Khumalo (2019) shares a similar perspective and advocates for *transformative leadership*, where the principal plays a key role in promoting the school's vision and enhancing teachers' motivation and commitment through collective action.

Jacobson further points out how the *lack of resources* can increase stress. While the school provided a lot of meaningful material for teachers and students, especially the technological resources such as smartboards and computers were rare. Only three out of ten classrooms had smartboards, often resulting in teachers having their laptops on their labs, students closely gathered around them to show them something online *(NOP-Data)*. The printer was regularly out of order and the resources were stored and scattered throughout the whole school with nearly no structure to it *(PO-Data)*. Many arts and crafts materials were split among the preschool classrooms and the resource room. Maps and other materials could often be found in the newer middle school building. This lack of organization often caused me and other teachers to lose precious preparation time *(PO-Data)*. Furthermore, Teacher F expressed during her interview that she misses the support of family and friends, making her

feel like she has to "start from zero". Such *feeling of isolation* can contribute to slowly burning out (Jacobson, 2016).

Lastly, I want to discuss if the teachers at the school, based on the findings, exemplify the competencies suggested for ESD.

5.4. Are the teachers at the school embodying competencies for ESD?

The third sub-objective of this thesis was to gain an understanding of the competencies and skills teachers need to integrate ESD meaningfully. The five competencies identified by the CSCT-project (2008) were the guideline for collecting data correlating to them.

5.4.1. Knowledge

In order to effectively educate students about sustainable development (SD), teachers need to possess three key types of knowledge: content knowledge, pedagogical knowledge, and pedagogical content knowledge (csct-project, 2008). Content knowledge needs to go beyond foundational knowledge in specific subject areas, but refers to a deep understanding related to SD, ensuring that teachers are well-versed in the concepts, issues, and complexities surrounding sustainability (csct-project, 2008). The majority of the teachers showed confidence in their pedagogical and theoretical knowledge in the subjects they specialist in *(NPO-Data)*. Each teacher has a different approach, some are influenced by Montessori, others a more structured and traditional *(NOP-Data)*. Only one teacher was challenged to teach geography without having studied it and relied more on guiding resources than other teachers. However, when Teacher F was asked during the interview if she feels like she has enough knowledge about sustainability issues, she shortly and clearly answered with no. Likewise, Teacher C does not feel confident about her SD-knowledge and said: "I think we need to be more training about this because the world is constantly... and I don't know if you say moving, but you know, and there's a lot of issues about it" (2022). When I introduced my research project on the first day to the staff, the majority of the teachers had never heard about the 17 sustainability goals, nor about ESD. This concept was also new to the principal,

who explained that she is leading the school intuitively and based on personal experiences of best practices.

5.4.2. Emotions

In the context of education, emotions play a significant role in shaping students' thinking, reflection, and values. Empathy and compassion are particularly important in guiding decision-making and actions related to education (csct-project, 2008). To effectively address emotions in the classroom, the CSCT project (2008) highlights that teachers should first develop self-awareness and the ability to recognize and understand their own emotions and feelings. It is crucial for teachers to refrain from imposing their emotions on students and create a safe and supportive environment that allows students to express their emotions freely (csct-project, 2008). When I started working as a teacher at the research site, the principal took me aside to explain to me how they handle emotions at the school. She emphasized that she wants positive emotions and good behaviour to be role-modelled by the teachers and that negative emotions should stay out of the classroom. I understood her intention, but was conflicted about it because I believe it is important to show students how to handle negative emotions constructively instead of pretending that I do not feel them, ever. Unfortunately, I experienced a heavy loss during my three months in France and realized that this affects my ability to teach. I offered to turn it into a teaching opportunity by talking about loss and death, because I would not be able to fully hide my sadness. Instead, I was advised to take a leave of absent for a full week. Similarly, Teacher F reported the following:

> So when we are told to leave our own emotions out of the classroom.. I am not saying that you should if you are a total mess you should come to school and show that in class but sometimes I think it's important to show them that we have emotions, no? You have to explain to them why you are feeling like that. There are things that maybe they even relate to. When for example this thing happened with […] my dog, in good health to show that these things happen and it's sad and it's ok to feel sad. But I don't think we have these opportunities. [...]. I don't think they want us to do that. We should always show them that we are happy.
> (Interview: Teacher F, 2022)

Furthermore, the CSCT project (2008) suggests that teachers need to demonstrate empathy and compassion by understanding and acknowledging the emotions and feelings of their students. This involves actively listening to students, considering their perspectives, and

responding with sensitivity and support (csct-project, 2008). Teacher F naturally approaches students with such compassion and patience:

> I don't really know what is inside of them and what is making them cry you know. So, I always try to understand the reason for crying as best as I can and trying to help them to understand their own emotions, why they are feeling that way.
> (Interview: Teacher F, 2022)

Furthermore, teachers should also help students develop emotional intelligence by teaching them how to express and manage their emotions constructively (csct-project, 2008). Based on the CSCT project (2008), this includes providing guidance on emotional regulation techniques and promoting healthy coping mechanisms. By equipping students with these skills, teachers empower them to navigate their emotions effectively and build positive relationships. On a regular basis, Teacher B practices mindfulness with her students and even offers a small morning session once a week to her colleagues. The breathing techniques of mindfulness and practicing to be in the moment can help to regulate emotions. In general, Teacher B is very aware of how she uses her voice and the words she uses. She is in control of her own emotions and role models the children how to deal with theirs as well. When the kids get too loud, she calmly says "it is my turn to talk now, if you all talk you cannot hear me" (Classroom observation: Teacher B, 2022).

Lastly, teachers should be skilled in resolving conflicts that may arise between individuals with different interests (csct-project, 2008). They need to promote peaceful and constructive ways of addressing conflicts, helping students develop conflict resolution skills and fostering a sense of respect and understanding among diverse individuals (csct-project, 2008) . The school does not follow a specific guideline of how to handle social emotional learning (SEL). The principal trusts on teachers' intuition and common sense:

> I've been handling it by giving a lot of freedom to each to each teacher. Maybe I haven't given out guidelines around that because I think a lot of it, again, it comes down to common sense. I don't know if one could write guidelines around that because it's case by case.

However, programs like *Kelso's Choice*, "the leading tool for teaching conflict management skills for children Pre-K through 5th grade" (Cerebellum Corporation, 2021), can guide and support teachers like parents.

5.4.3. Ethics and values

In the pursuit of SD, both equity and equality between human beings and nature are crucial aspects to consider (csct-project, 2008). Teachers have an important role in promoting these values within the educational context. To begin with, teachers should have a clear understanding of their own values and beliefs without imposing them on children (csct-project, 2008). The principal is clear of her values and vison for the school and believes in the importance of role-modelling them instead of only teaching about them:

> We encourage the use of these electric bikes for our stuff. We, you know, we reimburse them fully for those ones who opt for that sort of option. So, I think it's more in our behavior that we we would be eco or not.
> (Interview: Principal, 2022)

Teachers can be a big source of inspiration for their students and often leading by example if more effective than pushing personal believes and values on the students. Furthermore, teachers should also be aware of social tensions that may arise in the classroom or society at large (csct-project, 2008). As described earlier, teachers displayed this competence in the staff meeting during which they discussed the Christmas show and the controversy about the Russian tale.

The CSCT-project (2008) further suggests encouraging students to question their own beliefs and assumptions is another important aspect. By challenging students to critically analyze their thinking and explore different perspectives, teachers help them develop a broader understanding of complex social and environmental issues (csct-project, 2008). During the subject *Global Perspective,* the students were challenged to research a human rights issue of their choice, prepare a presentation, and educate their peers about it. After the presentation of one student Teacher E pointed out that "we are looking at this from our privileged eyes and the context is always super important". The process of critical thinking and self-reflection allows students to clarify their thoughts and engage in meaningful discussions (csct-project, 2008).

5.4.4. System thinking

System thinking is a crucial aspect of education as it involves recognizing our interconnectedness with the living system of the Earth, both in terms of space and time (csct-project, 2008). The CSCT-project (2008) explains that teachers should encourage students to think in models and patterns and recognize them within systems. This involves developing the ability to see the interconnected relationships and interdependencies that exist within various systems, whether it's social, ecological, or economic (csct-project, 2008) . Having an overarching theme that each teacher has to connect their subject to, helps them to show their students how everything is interconnected. Especially, Teacher A understood how to combine multiple subjects in one project to help students gain a deeper comprehension of how different elements within a system influence one another.

Moreover, holding the tension of controversy and looking at the larger context is another important aspect of system thinking (csct-project, 2008). Teachers can guide students in exploring complex issues and encourage them to consider different perspectives and the short- and long-term consequences of various decisions and actions (csct-project, 2008). As briefly mentioned before, Teacher E was responsible for the subject *Global Perspective* in the middle school. She exemplified profound knowledge and created engaging lessons for her students. In addition, overarching themes such as "celebrations from around the world" allows teachers of any subject to discuss local and global perspectives in their classroom. Since it is an international school, they have the advantage of including the backgrounds of their students to connect to their realities and introduce it to the others. This helps students develop critical thinking skills and a more holistic understanding of the systems at play.

Furthermore, teachers should be knowledgeable about establishing partnerships with other schools or organizations to facilitate the exchange of ideas and experiences (csct-project, 2008). Collaborative efforts can broaden students' perspectives and provide them with real-world examples of how systems operate and how they can be influenced, explains the CSCT project (2008). Yet, in an interview, Teacher F explains how this can be difficult if you move from your home country to a new place where you have no connections yet and are unfamiliar with certain local systems and structures:

> I would love to do more things but I don't do them because sometimes I don't really
> know how and for example if I want to do an activity.. resources for example..[...] if I

need, I don't know, for example cans or water bottles or anything. I know that in
Spain, I have my family and my friends that I would say: 'ahh collect this, collect
water bottles because I need them'.
(Interview: Teacher F, 2022)

In France, she felt like she has to start from zero. Many teachers at international schools leave
their country of origin behind and might experience similar struggles.

5.4.5. Action

The action competency combines all the other four and puts it into practice meaningfully. It is
essential for teachers to help students understand that action itself is a valuable educational
endeavour, not solely a means to solve problems (csct-project, 2008) . By encouraging critical
thinking, teachers enable students to analyze complex issues, evaluate different viewpoints,
and develop informed opinions (csct-project, 2008) . This empowers students to take
thoughtful and purposeful action towards sustainable development. As described before,
Teacher A embodied that competence with passion. He believes in project-based learning as a
holistic approach that interconnects subjects, "hoping they will use that in real life application
sometimes further down the line" (Interview: Teacher A, 2022). With the middle school
children, he recreated 'Archimedis' screw, Spiral Water Wheel and Sludge Pump out of
scavenged materials among which were vacuum tubing, wooden sticks, bamboo and plastic
bottles" (Teacher A's personal document). In this project alone he combined theoretical
knowledge of physics, design and technology and put it into practice by combining it with
carpentry and communication skills. The children had a wonderful opportunity to showcase
their creations to younger peers. They took the initiative to explain the principles behind their
designs, demonstrating how they functioned and where different pumps could be utilized in
real-life scenarios. Additionally, the middle school children actively encouraged the younger
students to engage, explore, and experiment with the various constructions displayed in their
own little science museum (Teacher A's personal document). Bringing the different age
groups together fosters their collaboration skills beyond their own classmates.

5.4.6. Evaluation

The findings show, that no teacher could meet all the ESD competencies as described by CSCT (2008) and that they themselves find it unrealistic:

> I don't know if it's possible to be excelling in every single those competencies, but of course you will have your strength and weaknesses, just like the school. When you at school you have your favorite subject. Same thing can happen as competencies here that you can, uh, excel and bring more to the table. That's why here we have a rotation of teachers going from one place to another, from one age group to another age group doing similar but adapted activities.
> (Interview: Teacher A, 2022)

By employing teachers who possess complementary competencies, students have the opportunity to be exposed to a wide range of skills and expertise through various staff members. This is achieved through a collaborative and rotational approach, where each teacher brings their unique strengths and competencies to the learning environment. As a result, students benefit from a holistic and diverse educational experience that encompasses all the necessary competencies.

Finally, the answers to the subheadings will be summarized in the conclusion chapter followed by reflections on the research process and offering recommendations for further research options.

6. CONCLUSION CHAPTER

To conclude this research, the guiding question needs to be answered:

In which ways are teachers in the case study school supported and/or not supported to meaningfully engage with Education for Sustainable Development?

As shown in the previous chapter, the case study school follows an unusual concept. It is not based on the guidelines of UNESCO (2021a) by any means but the school's profile overlaps with important criteria, which is why it was chosen. The findings revealed that the school is demonstrating a commitment to collaboration, inclusiveness, ecological learning, and interdisciplinary education. The emphasis on creating a safe and inclusive environment, fostering creativity, and addressing multiple intelligences in students is commendable.

However, there are challenges that remain unsolved, and addressing them would further support teachers and enhance the school's ESD practices. One significant challenge is the need for a paradigm shift in education. Education can be a strong leverage point for transformative change and thus, the practical, political and personal sphere of transformation, need to be addressed in professional development training, so that teachers can promote this shift in the classroom. The idea of quantum social change emphasizes that everyone matters and should act within their own sphere. While the school has intuitively embraced PBL and an interdisciplinary approach, there is a lack of awareness among teachers regarding ESD and its underlying principles. Often, the fear of the unknown results in resistance to change and thus it is crucial to differentiate for teachers and their individual needs. Providing professional development opportunities specifically tailored to the areas where teachers require support would empower them to fully integrate sustainability education into their teaching practices.

Rethinking the teaching profession at the school involves recognizing teachers as change agents and granting them freedom and autonomy to teach creatively and respond to their students' needs. The principal values individual strengths and promotes autonomy, but additional support systems and resources are essential to reduce stress and promote teacher well-being. Adequate training and professional development opportunities should be provided to address the growing demand for qualified teachers and prevent burnout among educators.

Additionally, the physical learning environment of the school needs further attention. The school considers the natural, local environment as extension to the classroom and includes the ecocentric pillar that is often missing in ESD. Nonetheless, including teachers in the discussions about improvements of classroom setups, temperature control, and collaborative spaces would enhance the overall learning experience and support teachers in ESD implementation.

The findings indicate that no single teacher possesses all the competencies required for ESD, as defined by CSCT (2008). Teachers themselves acknowledge the challenge of meeting all these competencies and consider it unrealistic. To address this, the school employs a collaborative and rotational approach, hiring teachers with complementary competencies. This strategy ensures that students have the opportunity to benefit from a diverse range of skills and expertise from different staff members. By integrating each teacher's unique strengths, students receive a holistic and comprehensive educational experience that covers all the necessary ESD competencies. At the same time, the principal emphasizes teaching approaches that are essential to align with the overall philosophy and concept of the school. For successful implemention, the teachers would need more clear guidance and support.

In summary, collaboration during staff meetings or through the buddy system, and the availability of useful resources and classrooms facilitated teacher engagement. In contrast, the lack of ESD knowledge among the teachers and the need for a paradigm shift call for clear guidance and professional development training. A lot of stress for the teachers could have been avoided at the research site through open and transparent communication. Further, a better organisation of resources and providing classroom spaces that align with the school's philosophy would allow teachers and students to take ownership over the space and use it meaningfully as the 'third teacher'.

6.1. Reflections and Further Research Recommendations

As so often, the qualitative research was messy and demanded a lot of flexibility. Nonetheless, it resulted in unique opportunities and an unexpected ethnographic research approach that required more participatory involvement from me. Even though the participatory observations provided me with rich insights, the study would have benefited

from interviewing more teachers. Unfortunately, time was limited and not enough willing participants could be found.

In general, this qualitative research has been a journey of exploration and discovery, providing unique insights and contributing valuable new knowledge to the field. One of the key contributions of this research lies in including teachers' experiences in the study and shedding light on their perspectives and challenges by giving them a platform to be heard and acknowledged. Further, the findings emphasize the often overlooked significance of creating learning spaces that support and inspire teachers in their ESD efforts.

However, this study is just the beginning, and there are further avenues for exploration and improvement. To enhance the generalizability of the research, it is crucial to assess a broader range of schools with a primary focus on supporting and empowering teachers in their ESD endeavours. This will offer a more comprehensive understanding of how teachers can be effectively supported and integrated into the paradigm shift necessary for ESD. More in-depth research will also provide valuable insights into how the learning environment can be optimized to foster teachers' commitment to ESD principles. Looking ahead, collaboration between higher education institutions and teachers could be instrumental in developing better preparation for ESD in teacher education programs. A bottom-up approach that involves teachers in shaping their professional training will ensure that real-world challenges and practical implications are considered, strengthening the implementation of ESD in educational settings.

In conclusion, this research has taken significant efforts in understanding how teachers can be supported and empowered to drive transformative change for ESD. By continuing to build upon these insights and recommendations, we can create a more sustainable and inclusive educational landscape that equips both teachers and students with the skills and knowledge needed to shape a better future for all. Let us embrace this journey of transformation together and make a lasting impact on the path to sustainability.

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