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“Small streams make big rivers”

Possibilities and limitations in implementing Education for Sustainable Development in Finnish lower secondary schools

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KOTIPELTO, SUVIPILVI: “Small streams make big rivers” – Possibilities and limitations in implementing Education for Sustainable Development in Finnish lower secondary schools

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The purpose of this master’s thesis was to investigate the implementation of Education for Sustainable Development (ESD) in Finnish lower secondary schools. The research was interested in what kind of resources were available for subject teachers, principals, and education experts in implementing ESD. Furthermore, the aim of the research was to investigate subject teachers, principals, and education experts’ possibilities and limitations of their actions, which was conceptualized through the theory of professional agency. Lastly, the thesis examined what supported the possibilities in implementing ESD and what kind of support was still missing.

The qualitative data consisted of thematic semi-structured interviews with subject teachers, and a principal in lower secondary schools in the Turku area, as well as education experts at the Finnish National Agency for Education. The interviews were conducted in the spring 2021, and the data was analysed using thematic analysis.

The main findings indicated that teachers, principals, and education experts had a significant number of various resources available. However, their own activity and initiative played a considerable role in what kind of information they found and how they used it. The perceived professional agency was rather strong with all the interviewees, and they described having good possibilities to influence and implement ESD. For the teachers, the main ways of influencing manifested in the direct interaction with the pupils whereas the possibilities to influence for the principal and education experts were more indirect. Some of the most important possibilities to influence for all the interviewees were through raising awareness and understanding, maintaining discussion about sustainability topics, and encouraging ESD activities. Furthermore, the small things in everyday life and acting as an example were often experienced the most effective ways to influence the ESD in schools.

The biggest limitations to the professional agency for teachers, principals, and education experts were created by the lack of time, money, and resources, as well as the need for prioritizing other topics over ESD. The teachers’ professional agency was supported by their autonomy and independency. Moreover, one of the strongest supporting factors for all the interviewees were their colleagues and other professional networks. However, the teachers wished for more time and opportunities for collaboration as well as clearer learning materials for ESD. The principal hoped for a more active input from the local actors in creating collaboration around ESD topics, whereas the education experts discussed the lack of national coordination of ESD, and hoped for a transformation in which ESD would be the centre of the focus rather than an aspect separately implemented in the education systems. Future research should examine how to support the needed change in society and the education system in Finland to achieve sustainability.

Keywords: Education for Sustainable Development, Sustainable Development, Sustainable Development Goals, Professional Agency

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List of Abbreviations

CSD – Commission on Sustainable Development
DESD – Decade of Education for Sustainable Development
EE – Environmental Education
EDUFI – Finnish National Agency for Education
ESD – Education for Sustainable Development
EU – European Union
GAP – Global Action Plan
IPCC – Intergovernmental Panel on Climate Change
JPI – Johannesburg Plan of Implementation
MINEDU – Ministry of Education and Culture
NCM – Nordic Council of Ministers
NCSD – National Commission on Sustainable Development
OAJ – Trade Union for Education
OECD - Organisation for Economic Cooperation and Development
PMO – Prime Minister's Office
SD – Sustainable Development
SDGs – Sustainable Development Goals
UN – United Nations
UNCED - United Nations Conference on Environment and Development
UNESCO – United Nations Educational, Scientific and Cultural Organization
WCED – World Commission on Environment and Development
WSSD – World Summit on Sustainable Development

1. INTRODUCTION

Global issues, such as poverty, inequality, and climate change, require a change in our lifestyles but also a shift in the way we act and think about the world. The topic of Sustainable Development (SD) has become more crucial than ever, and it is one of the biggest challenges in our society today, both on a global and national level. Achieving change in society and creating sustainability requires new skills and values to be transferred onto every level of society (UNESCO, 2017). The need for the change has also been highlighted in several global policy agendas such as the United Nations' (UN) Sustainable Development Goals (SDGs) and in the United Nations' Educational, Scientific and Cultural Organization's (UNESCO) global strategy for Education for Sustainable Development (ESD) (UN, 2015; UNESCO, 2014).

Consequently, SD has created new challenges for schools and teaching which requires reimagining learning, teaching, and even the whole education systems (Värri, 2018). Education plays a huge role in improving SD as it is a tool to provide knowledge for a more sustainable lifestyle and an effective measure to increase critical thinking (UNESCO, 2017). Therefore, ESD is seen as an effective factor in managing the global challenges of sustainability (UNESCO, 2014). Its main goal is to develop the education systems to help individuals to improve the necessary skills, knowledge, and attitudes for creating SD, as well as taking actions towards sustainability (UNESCO, 2014).

Indeed, ESD has been shown to be effective in shaping students' attitudes and understanding about the complexity of SD (Boeve-de Pauw, Gericke, Olsson, & Berglund, 2015). In Finland, ESD is a strong part of the national core curriculum (EDUFI, 2015). However, the implementation of ESD remains fragmented and varies between schools and teachers (Saloranta, 2017). This is often due to the lack of teachers' competence or knowledge of the topic (Pepper & Wildy, 2008; Uitto & Saloranta, 2017). Thus, the implementation of ESD requires teachers to acquire and learn new information, and ways of working (Laininen, Manninen, & Tenhunen 2006). Therefore, it is important to investigate what kind of support teacher receive for implementing ESD, as well as what kind of support they need to implement the different aspects of ESD more efficiently in schools.

Moreover, Saloranta (2017) argues that the school principals are a forgotten resource in research considering ESD implementation. Even though, the principals have a significant role in creating a supportive environment in school, as well as supporting and encouraging the teachers to take actions towards SD, they are rarely included in the ESD

related studies (Saloranta, 2017). Furthermore, the research on the views of education experts in implementing ESD at the government level is missing in the Finnish context.

The aim of this thesis is to examine what kind of resources are available for teachers, principals, and education experts related to ESD implementation. This thesis is also interested in the professional agency of teachers', principals', and education experts' in implementing ESD. Hence, the focus is on what kind of possibilities and limitations they recognise for their professional agency, and what supports implementing ESD in their work. Lastly, the research aims to give insight on what kind of support is still missing and needed.

The next chapter of this thesis offers a short introduction to the history and background of the concept of SD, which is followed by the literature review chapter examining the development of ESD both at a global level and in the Finnish context. Furthermore, the theoretical approach of professional agency in relation to ESD implementation is presented. The fourth chapter introduces and justifies the chosen research methodology, and the fifth chapter analyses the research results. Lastly, the main findings and their implications to previous research is discussed.

2. BACKGROUND: SUSTAINABLE DEVELOPMENT

Climate change is one of the most prominent signs of human effects on the Earth and the environment. According to the Intergovernmental Panel on Climate Change (IPCC), the global average temperature has increased approximately 1.0°C since the pre-industrialization era due to the human emissions of greenhouse gases, more specifically the carbon dioxide (CO_2) (IPCC, 2018). The significant rise in the temperature threatens both the land and marine ecosystems and biodiversity, resulting in both animal and plant species loss and extinction, as well as the sea temperature and sea level rise (IPCC, 2018). Moreover, the climate change also affects people and societies by threatening the food and water security (IPCC, 2019; International Union for Conservation of Nature, 2016).

Furthermore, global warming poses the increased risk for the spread of infectious diseases such as malaria and cholera (Patz et al., 2003). Therefore, the effects of climate change are complex, and it also affects people´s health and well-being, resulting in issues with poverty, equality, and justice, especially in the countries in the Global South (UNPD, 2007). The IPCC (2018) has stated that the global warming should be limited to

1.5°C to avoid irreversible damage to the environment and human development. Thus, the current CO_2 emissions must be drastically reduced, which requires rapid actions (IPCC, 2022).

Most effects to the environment can be tracked to be the result of human impact that started at the industrialization (IPCC, 2021). Indeed, the industrial revolution as well as the era of colonialism drastically changed the societies, economies and the environments resulting in the new global economy order characterized by capitalism which, in a nutshell, is based on private actors owning and controlling property (Nightingale, Karlsson, Böhler, & Cambell, 2019). Therefore, labour is purchased for wages, and the system is dependent on the continual circulation of capital, including money, land, equipment, and natural resources, and the end goal is to achieve constant growth and profit (Jahan & Mahmud, 2015). Thus, the role of consumption and the effective production cycles have a significant meaning in the capitalist processes (Jahan & Mahmud, 2015). In addition, capitalism is also based on power relations, and it creates discourses through which people understand the world around them (Koch, 2011).

In the past, capitalism and economic growth have created vast improvements in human welfare reducing poverty around the globe (Elliot, 2013). Indeed, the economic growth and capitalism have been viewed to be essential in achieving well-being and wealth in society (Lippit, 2005). Similarly, the spread of neo-liberal policies since the 1970s have been emphasized in developing social welfare (Harvey, 2005). Consequently, values such as cost-efficiency, competition, and freedom of choice have been the driving forces in the global economy and policy (Harvey, 2005). However, economic growth has argued to have a limit after which it has a less positive impact on well-being, resulting in several SD problems, such as situations of conflict, hunger, insecurity, and violence (Wilkinson, 2005; UNCSD, 2012).

Indeed, the recent economic development and globalization have created large gaps between and within countries, and income inequality is increasing worldwide (Elliot, 2013; Korkman, 2017). Some argue that the global neo-liberal policies and the capitalist world-order are the reason for the largest gaps in wealth in human history (Elliot, 2013; Lippit, 2005). Consequently, the strive for endless improvements in material well-being threatens the planetary boundaries and the natural resources, making the current lifestyles unsustainable (JYU.Wisdom community, 2021). Therefore, the need for continuous economic growth and material well-being have been questioned, and according to the UN (2012), a fundamental transformation for more sustainable practices in consuming, producing, and using resources is needed.

As argued above, the need for sustainability emerged from the concerns of human impact on the earth and the environment. Thus, sustainability must be understood as something that guides the actions in societies but also the way the societies understand their interconnectedness with the environment and the nature (Nightingale et al., 2019). Moreover, sustainability is a political global order in which national and international agencies create policies around it (Nightingale et al., 2019). In global policy, the notion of SD first emerged in 1972, in the UN's Conference on the Human Development, in Sweden (UN, 1972). Furthermore, SD came to prominence in the 1980's in a document called "Our Common Future", better known as the Brundtland report (Brundtland, 1987). In the report, SD was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987, p. 43). This report (Brundtland, 1987) has been considered having a significant influence of putting SD on the global policy agenda and being the starting point for SD becoming a common goal in society. Indeed, the report is available in more than 24 languages (Finger, 1994), and this definition of SD is still probably one of the most quoted and used.

However, sustainability and SD can be defined in multiple different ways. Therefore, a clear consensus about the meaning of these concepts is missing and they are often used as synonyms. Nightingale et al. (2019) argue that SD is not an achievable state itself, but rather a global narrative, that can take different forms in different times and places. Various global actors, such as the UN, the Organisation for Economic Cooperation and Development (OECD), and the World Bank, have a significant part in producing these narratives, and they greatly influence the policy making both globally and nationally (Leach, Scoones, & Stirling, 2010). Ergo, the narratives guide our view in how to create SD and justify the practices that are adopted in the name of sustainability (Nightingale et al., 2019). Hence, the concept of SD encompasses both a political and a normative view of what should be done to achieve sustainability in society (Nightingale et al., 2019).

In general, a consensus exist that SD encompasses three different pillars or dimensions which are ecological, social, and economic sustainability. Ecological dimension usually refers to biodiversity, ecosystem resiliencies, environmental issues and protection, as well as the consciousness for climate change, sustainable resource use, and the vulnerability of the environment (Harding, 2006). Social dimension often includes the idea of well-being, which usually refers to the quality of life, the possibilities of survival, health, and social relationships (Gough, 2017). Moreover, Bostrom (2012) argues that social sustainability is closely intertwined with issues such as needs, justice, equality, human rights, as well as the possibilities of a community to influence their society and

raise social capital. Also, cultural sustainability is often included in the social dimension, but some scholars argue for the importance of the cultural aspect as a fourth separate dimension (e.g., Siivonen, 2016). According to Dessein, Soini, Fairclough, and Horlings (2015), it is important to note that cultural sustainability does not only refer to the restoring of material cultural products and heritage, such as buildings, paintings etc. but also to the immaterial cultural aspects, such as values, attitudes, and worldviews. Lastly, the economic dimension often encompasses the idea of continued economic success in the market economy (Daly, 2015). However, the economic sustainability can also include the idea of economic responsibility, i.e. operating the economy in a sustainable way without affecting the other dimensions negatively, but rather protecting the social and environmental aspects (Daly, 2015).

Nevertheless, all the sustainability dimensions are dynamic concepts that can change regarding the time and the place in which they are defined (Nightingale et al., 2019). Furthermore, the relationship and the emphasis between the dimensions have been highlighted differently throughout the history (Nightingale et al., 2019). Thus, the different narratives about SD are also based on how the relationship between the different sustainability dimensions are viewed (Nightingale et al., 2019). Figure 1 demonstrates the different manifestations of the sustainability dimensions and their relationships in which they can either be viewed as independent pillars or as interconnected realms.

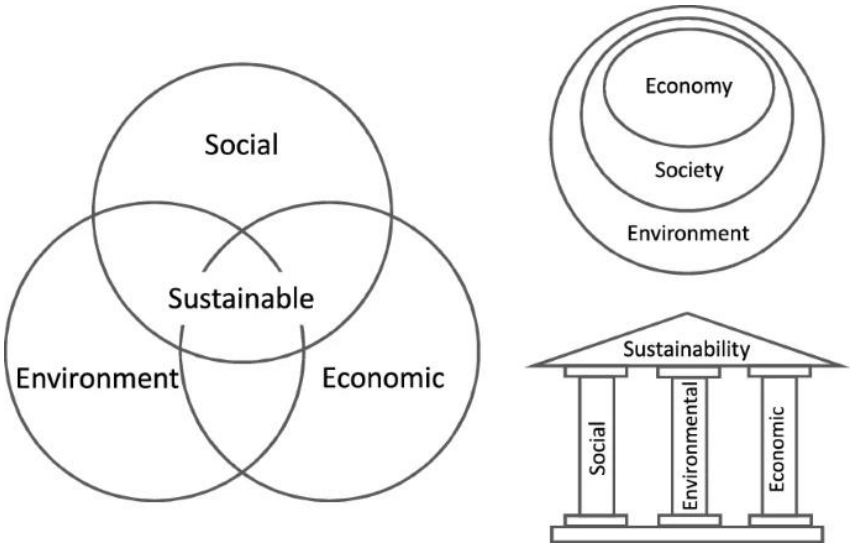

Figure 1. Different representations of the SD dimensions (Purvis, Mao, & Robinson, 2018, p. 682).

Essentially two opposing narratives about SD exist, and they are based on how they understand the relationship between the nature and environment, and the society. Firstly, the nature can be viewed as a separate part of the society, in which natural resources can be utilized for human well-being (Ayres, Van den Bergh, & Gowdy, 2001). Hence, the different dimensions are seen as separate realms in creating sustainability (Ayres et al., 2001). Most often, the development in this narrative is viewed through economic sustainability, and economic growth is seen as the main driver for well-being (Ayres et al., 2001). As argued above, this has been one of the major narratives of SD, especially, in the past, and economic growth has seen to be the main promoter for sustainability.

Secondly, the society and nature can be viewed as inseparable realms, in which nature has an intrinsic value (Purser, Park, & Montuori, 1995). Thus, the goal is to improve economic and social dimensions in a way that also considers the ecological conditions and the planetary boundaries (Purser et al., 1995). Consequently, all the sustainability dimensions are viewed to be intertwined, and actions taken to improve one dimension, also affect the other forms of sustainability (UN, 2022). This narrative has received more attention in the past few decades, and the holistic view of SD is seen as a more efficient way to achieve sustainability in today's societies (Purvis et al., 2018).

Therefore, building our future on a sustainable ground, requires maintaining social, cultural, and economic well-being without over-exploiting the natural resources and the environment (UNCSD, 2012). However, this kind of development requires a full societal transformation and revolution (Purser et al., 1995). In this transformation, education and training have been viewed to be key instruments in providing the needed skills and knowledge for citizens to build a sustainable future and way of living (UN, 2015).

3. LITERATURE REVIEW: EDUCATION FOR SUSTAINABLE DEVELOPMENT AND PROFESSIONAL AGENCY

As argued in the background chapter, the need for SD emerged from the concerns of human effects on the environment, and it has a long history in global policy. Consequently, the urgent need for SD on a global level also resulted in the creation of the concept of ESD, when education was recognised as an essential factor in supporting sustainability (UN, 1992). Moreover, the concept of ESD was created to develop the ideas of Environmental Education (EE), which mainly focused on environmental issues, and include other SD issues in the educational discourse (UNESCO, 2005).

The concept of EE has been used since the 1960s, and its roots are in environmental concerns and movements (McKeown & Hopkins, 2007; Wolff, 2004). Even though EE also includes various other SD topics, its main emphasis has traditionally been on environmental issues and ecological sustainability, as well as increasing environmental consciousness, mostly on local level (Wolff, 2004). In contrast, the notion of ESD encompasses a more holistic view on SD, considering all four sustainability dimensions equally (UNESCO, 2005). Thus, ESD is based on the ideas and values of sustainability, such as equity, social tolerance, justice, poverty reduction, economic growth, biodiversity, and environmental protection (UNESCO, 2005). Furthermore, ESD adds the global level to the discourse, also including topics such as human rights, gender equality, cultural diversity, North-South relations, and sustainable consumption (UNESCO, 2014).

However, EE and ESD are still to this day used as synonyms, and a clear consensus about the differences of these concepts is missing (Gough, 2006). The concepts have also been used interchangeably in various contexts, such as curriculums and policy documents (Gough, 2006). In this thesis the concept of ESD is used, as it is a prominent term in the current global policy. Moreover, the ESD as a concept offers, in principle, a more holistic view on the sustainability issues than EE (UNESCO, 2017).

ESD is not a pedagogical model itself, but rather a combination of various pedagogical methods. It is based on aspects such as student-centred and collaborative ideas of learning, and it strives to integrate inquiry-based approaches to teaching (UNESCO, 2017). In addition, ESD highlights the active engagement of the students, as well as the interactions between the individuals and their physical environments (UNESCO, 2017). Therefore, instead of the more traditional teaching strategies, ESD requires participatory teaching methods, including project-based learning, in which the students have an active role in investigating and responding to different challenges or issues (Björneloo, 2004; Corney, 2006). Therefore, the ESD aims for students to develop the skills for critical and independent thinking, engage in decision-making, and take actions for a more sustainable future (Tilbury & Wortman, 2005).

The next chapters will introduce the most significant events for the development of ESD at a global level, and the formation of the Finnish framework for ESD. Because the ESD policies are strongly tied to the development of the international and national SD policies, the next chapters will present how the framework for ESD, alongside with the SD policies, have developed in both international and national policies as well as the national core curriculum in Finland. Furthermore, the last chapters of the literature review will discuss the differences of ESD implementation between schools and different subject teachers,

and introduce the challenges, possibilities, and limitations of implementing ESD in schools in relation to the professional agency theory.

3.1. Outlining Education for Sustainable Development Globally

The concept of ESD was introduced to the global policy agenda for the first time in 1992 in the UN's Conference on Environment and Development (UNCED), better known as the Rio de Janeiro Earth Summit, in which education and training were recognised as critical tools in supporting SD (UN, 1992). The purpose of the summit was to re-evaluate economic growth, reduce social inequality, and secure the preservation of natural resources (UN, 1992). In addition, the UNCED highlighted the interdependence of the different sustainability dimensions, stating that different social, economic, and environmental factors evolve together, and actions taken in one dimension also affect the other sustainability sectors (UN, 1992).

The UNCED also aimed to create a comprehensive plan for guiding international actions and cooperation for environmental and developmental issues in the twenty-first century (UN, 1992). Thus, the UNCED resulted in the creation of Rio Declaration on Environment and Development, which established 27 principles designed to guide specifically economic and environmental development worldwide, and it was signed by 175 countries (UN, 1992). Subsequently, The UN's Commission on Sustainable Development (CSD) was founded to monitor the effective implementation of these principles (UN, 2013).

Furthermore, another substantial result of the Earth summit was the formation of the Agenda 21, a concrete action plan focusing on including the dimensions of SD into politics, research, and various other sectors of society (UN, 1992; UNCED, 1992). Moreover, the role of education and training in promoting SD was specifically discussed in chapter 36 of the Agenda, in which the objectives and measures for implementing ESD were also defined (UNCED, 1992). The main objectives included for example integrating development and sustainability issues into all aspects and forms of education from early childhood education through adulthood training, as well as establishing SD training opportunities and programmes for teachers, educational administrators, and other educational staff (UNCED, 1992). In addition, the action plan suggested that countries should prepare national strategies and actions for developing education as well as establishing national advisory bodies for ESD (UNCED, 1992).

The implementation of Agenda 21, and the commitment to the Rio Declaration, were reinforced ten years later at the World Summit on Sustainable Development (WSSD)

held in Johannesburg, South Africa (UN, 2002a). The summit concluded that population growth, economic development, and technological and industrial improvements were harmful for the environment (UN, 2002a). In addition, the WSSD expanded the understanding of the scope of SD by highlighting that the human rights, poverty, the environment, and the use of natural resources were strongly interconnected (UN, 2002a). Therefore, the summit placed an even stronger emphasis on the social and cultural sustainability dimensions than hitherto (UN, 2002a).

The two most significant outcomes of the WSSD were the political declaration known as the Johannesburg Statement on Sustainable Development, and the Johannesburg Plan of Implementation (JPI) (UN, 2002a). The former outlined a future vision for implementing SD by tracing the development of earlier SD policies, and the challenges the member states had faced in implementing them (UN, 2002b). Hence, the declaration included political commitments regarding how to apply SD into practice more effectively than ever before (UN, 2002b). Furthermore, the JPI reinforced the commitment to the Rio principles, and the implementation of Agenda 21, also highlighting the importance of education in creating awareness for SD (UN, 2002c). For instance, the JPI recommended preparing and initiating an international education project to support education in creating sustainability (UN, 2002c). Consequently, the preparation resulted in the UN's Decade of Education for Sustainable Development (DESD) in 2005–2014 (UNESCO, 2005).

The lead agency for promoting DESD was the UNESCO, and it stated that ESD would promote behavioural change by enabling both present and future generations a more environmentally sound, economically viable, and socially just society (UNESCO, 2005). Thus, the DESD aimed for the values and aspects of SD to be integrated into all levels and forms of education and learning (UNESCO, 2005). During the DESD multiple stakeholder partnerships, collaborations, and national coordinating groups were formed to support shaping ESD policies, as well as to reinforce global ESD research and the implementation of ESD at the local level (UNESCO, 2014).

The UNESCO's report on the effects of DESD shows that the decade of work was successful in strengthening the ESD partnerships as well as integrating sustainability themes as common goals in formal education in several countries (UNESCO, 2014). Moreover, the implementation of ESD in informal education and training resulted in enabling the private sector to respond to several sustainability issues more effectively (UNESCO, 2014). Nevertheless, significant challenges, especially related to recognizing the full potential of ESD, were still reported after the DESD by the member states and

other stakeholders (UNESCO, 2014). Indeed, the final report stated that regardless of the great success of DESD, the need for ESD to be institutionalized and implemented systemically still existed (UNESCO, 2014). In addition, the report concluded that the ESD implementation and practices required more research and innovation, and the effectiveness of ESD actions needed further monitoring and evaluating (UNESCO, 2014).

Consequently, after the DESD was finished, the work was continued in 2015, as the UNESCO launched The Global Action Plan (GAP) on ESD, which was active until 2019 (UNESCO, 2016). The objective of the GAP was to build upon the work of the DESD programme and offer a concrete and tangible contribution to the post-DESD era, aiming to generate and enhance ESD, as well as accelerate the progress towards sustainability (UNESCO, 2016). Most importantly, the GAP strengthened the global network for ESD, and focused on forming topical themes for ESD discourse based on the global issues it was intended to tackle (Vaughter, Noguchi, & Li, 2022). Furthermore, the themes and ESD discourse were strongly affected by the Agenda 2030, which was launched by the UN during the same year as the GAP (Vaughter et al., 2022). Hence, the ESD discourse formed around topics such as poverty alleviation, and climate change, as well as the sustainable consumption and production (Vaughter et al., 2022).

Correspondingly, the UN's Agenda 2030 includes 17 SDGs with 169 targets, all of which are intertwined and examine SD through the four different sustainability dimensions (UN, 2015). The SDGs work as a guideline for UN's member nations in creating sustainability locally, and the main aim is to create a world free from hunger, poverty, disease, fear, and violence by the year 2030 (UN, 2015). Moreover, the UN (2015) states that everyone should have equal rights to life and equal access to quality education and healthcare, regardless of where they live in the world. In addition, the Agenda aims to change the traditional development policies into a more holistic SD policy making, and it applies to every country in the world (UN, 2015). The SDGs are agreed upon by the UN member states, and even though they are not legally binding, they still have a huge influence on policy making at both international and national levels (UN, 2015).

Attaining these goals, requires participation and cooperation from every sector in society, including the government, private sector, civil society, and the citizens (UN, 2015). An urgent need for global partnership in achieving these goals also exists (Biermann, Kanie, & Kim, 2017). Furthermore, the importance of ESD has been emphasized in the SDGs, specifically under the Goal 4, 'Quality Education', and its target 4.7 (UN, 2015). The target states as follows:

> By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development. (UN, 2015, p. 19)

According to the UN (2015), obtaining a quality education is the foundation in fostering SD, as the access to inclusive education can help equip locals with the skills and knowledge that are required to tackle the global challenges. Especially ESD is seen as the key instrument in achieving all the SDGs, as it empowers individuals to make healthier choices for their lifestyles, to break form the cycle of poverty, and reduce inequalities (UN, 2015). Furthermore, ESD is essential in promoting tolerance between people, as well as reinforcing peace between and within societies (UN, 2015). Thus, ESD strongly contributes to improving the issues of SD, and UNESCO (2014) states that ESD should be integrated into all levels and types of education, including formal, non-formal, and informal education.

The UNESCO's current global ESD framework, ESD for 2030, is based on the previous work and results of the DESD and the GAP (UNESCO, 2020). Moreover, the framework directly contributes to all the SDGs, having a considerable importance on the SDG 4 and its target 4.7 (UNESCO, 2020). Therefore, the priority focus for action in ESD for 2030 concentrate on advancing and developing five key areas which are: 1) ESD policy, 2) local level implementation, 3) learning environments, 4) the competency of educators, and 5) the empowerment of the youth (UNESCO, 2020). In addition, the framework builds upon the previous strategies encompassing suggestions for future SD policies in the said focus areas, and it calls for transformative action and structural changes in creating sustainability in society (UNESCO, 2020).

Even though UNESCO and the UN have published multiple documents that offer general guidelines for implementing ESD in different learning settings, a universal model for ESD implementation is missing (UNESCO, 2017; UN, 2015; UNESCO, 2020). This is because ESD needs to be modified and adapted to the context and culture in which it is implemented (UNESCO, 2017). Ergo, the issues and the objectives of ESD should be generated based on the local context including the social, economic, cultural, and ecological circumstances (UN, 2015). The method in which the principles of ESD are generated in national policy making and the curriculum planning, will depend on how

education is conceptualized, and how the role of education is viewed in a society (Jickling & Wals, 2008). Thus, ESD can take various forms in different countries and contexts.

3.2. Education for Sustainable Development in Finland

Finland is an interesting and unique case for the implementation of ESD as Finland is known for its high quality, free and equal nine-year comprehensive school, and research-based teacher education. Moreover, the Finnish education system is based on enhancing the needed skills in society, diminishing inequality, and securing lifelong learning (Finnish Government, 2019a). Therefore, as an educational pioneer, Finland has a great opportunity to demonstrate how lifelong learning and high-quality education, integrated properly to all levels of society, can create the needed change in the world (Laine et al., 2018).

3.2.1. The Development of National Framework

Finland has a long history of environmental policies since the 1970s and has been quick to adopt international SD policies since the 1990s (Jänicke & Jacob 2006). Indeed, the formation of the Finnish environmental and SD policies have been strongly affected by the global non-governmental organisations such as the UN, the OECD, and the European Union (EU), and Finland has been committed to the global strategies since the beginning (Niestroy, Schmidt, & Esche, 2013). Consequently, Finland was also one of the first countries to establish a National Commission on Sustainable Development (NCSD) in 1993 to commit to the goals agreed upon the Rio Earth Summit (Niestroy et al., 2013).

At the time, the Finnish NCSD was considered unique compared to other countries because of its multidisciplinary and cross-sectional nature, which was based on open dialogue between the different sectors of the society, including the government, economy, and civil society (Niestroy et. al 2013). Furthermore, The Finnish NCSD was also one of the most influential actors in the creation and development of the first national SD strategy, “Government programme for Sustainable Development” (Ministry of the Environment, 1998). The strategy was based on the policy recommendations published in 1995 by the Finnish NCSD in its report “Finnish Action for Sustainable Development”, which was prepared by a group of several national ministries (Ministry of the Environment, 1998).

In addition, the Agenda 21 and the principals of the Rio Declaration have also been formulated at a regional level which have significantly impacted the Finnish SD policy development (Ministry of the Environment, 2003). For instance, the prime ministers of the Baltic Sea Region countries established Baltic 21 -programme in 1996, which was based on the principles of the Rio Declaration and aimed to integrate SD as well as the Agenda 21 in the policy making both regionally and locally in the said countries (Kern, 2011). Few years later, in 2001, the Nordic Council of Ministers (NCM), adopted the first Nordic SD strategy, which set long-term development goals focusing on six key sectors: 1) energy, 2) transport, 3) agriculture, 4) business and industry, 5) fisheries, and 6) forestry (NCM, 2001). Furthermore, the strategy promoted the importance of education in creating sustainability in the key areas, having one of its central goals in integrating the aspects of SD and life-long learning in the Nordic educational systems (NCM, 2001).

Moreover, education was added as a separate part in the Baltic21 -programme in 2002, which resulted in the creation of the programme for Agenda 21 for Education in Baltic Sea Region – the Baltic21E (MINEDU, 2002). The purpose of the new programme was to integrate the different aspects of SD fundamentally into the education systems of the Baltic sea region (MINEDU, 2002). Furthermore, the DESD had a significant influence on the ESD policy development in Finland by accelerating the creation of national strategic framework for ESD and resulting in the publication of two separate strategy documents in 2006 (Finnish NCSD Sub-committee for Education, 2006; Ministry of Education, 2006).

The first strategy was prepared by the Ministry of Education, and it included both the implementation of Baltic 21E -programme and the Finnish strategy for the DESD (Ministry of Education, 2006). In addition, it considered all levels of education and included proposals for action on each educational level (Ministry of Education, 2006). For basic education, the strategy stated four goals: 1) promoting SD in schools should be included in the norms in the schools, 2) ESD needs to be a part of the normal teaching in schools as well as the foundation of the life in schools, 3) educators must have the needed knowledge to implement SD in their teaching, and 4) the learning methods, and environments should be favourable for implementing the principles of SD (Ministry of Education, 2006).

The second strategy was formulated by the Finnish NCSD's Sub-Committee for education, and it aimed to strengthen the SD practices in education and training in collaboration with multiple actors (Finnish NCSD, Sub-committee for Education, 2006). It also highlighted the need for providing support for teachers and other educators for implementing ESD (Finnish NCSD, Sub-committee for Education, 2006). Thus, the

strategy focused on four main themes: 1) additional support for development, 2) the development of competences and skills 3) the improvement and broadening of learning environments, and 4) monitoring and evaluation (Finnish NCSD Sub-committee for Education, 2006). Furthermore, the strategy stated that the education and training, for all educators and teachers, must include the skills, knowledge, and competence that are necessary in improving SD (Finnish NCSD Sub-committee for Education, 2006). It also implied the need for improving the learning materials and having cross-sectional collaboration, also with the actors outside of school (Finnish NCSD, Sub-committee for Education, 2006).

Additionally, when the Agenda 2030 was accepted by the UN member states in September 2015, Finland was one of the first countries to report their plans regarding the implementation of the agenda in July 2016 (PMO, 2017; UN, 2015). In Finland, the implementation and monitoring of the agenda 2030 is the government's responsibility, and it is enforced through The Society's Commitment to SD (PMO, 2017). The Commitment was first developed in 2013 and later updated in 2016 to align with the goals and targets of the Agenda 2030 (PMO, 2017). Hence, Finland is also committed promoting ESD, and in its national reports on the implementation of the Agenda 2030, Finland has emphasized education having fundamental influence in achieving the SDGs (PMO, 2017; PMO, 2020).

Today, SD is widely accepted goal in the Finnish society, and it is one of the key issues of the current Government (Finnish Government, 2019b). Therefore, Finland is strongly committed in enhancing SD and the Government Programme (2019) states that Finland has a global responsibility to act as a pioneer in achieving the SDGs. In addition, the Government aims to pay special attention to the central principles of SD policies, and it recognises the need for long-term actions (Finnish Government, 2019b). Moreover, the Finnish SD policy recognises that promoting SD requires decision-making that is consistent and coherent, and supports global partnerships and ownership (Finnish Government, 2019b). Furthermore, Finland recognises the need for multisectoral cooperation, and multiple administrative organs have been established in Finland (fig. 2), and the network for the implementation of SD consists of various actors, in public, private and third sectors (Berg et al., 2019).

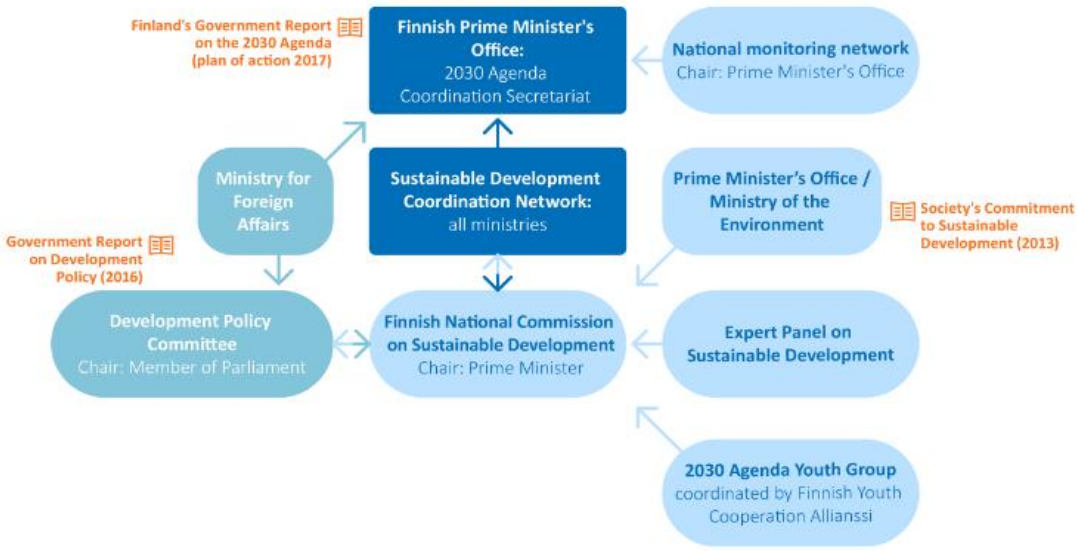

Figure 2. Sustainable Development Coordination Model in Finland (Berg et al., 2019, p. 16)

In addition to the Finnish NCSD, one of the prominent actors for implementing the SD policies since 2016 has been the Prime Minister's Office (PMO) which also has an important role as The Coordination Secretariat for SD (PMO, 2017). Furthermore, all the ministries in Finland have a valuable task in implementing SD policies in their own areas of responsibility (PMO, 2017). The ministries also form together a SD Coordination Network which collaborates with the Coordination Secretariat in supporting the implementation of SD policies (Berg et al., 2019). Moreover, the Agenda 2030 youth group was enforced in 2017 to strengthen the cooperation with the Finnish youth in national planning and in the execution of the SDGs (Agenda 2030 Youth Group, 2021). In 2020, the Finnish NCSD also established the Climate Policy Roundtable to further enforce the cooperation between all the key stakeholders in preparing and developing effective climate actions (Ministry of the Environment, 2022).

Specifically, for ESD, the most significant governmental actors are the Ministry of Education and Culture (MINEDU), and the Finnish National Agency for Education (EDUFI). Also, several non-governmental organisations on the third sector, such as the OKKA foundation for Teaching, Education, and Personal Development, the Trade Union for Education (OAJ), and the LUMA Centre Finland are influential actors in the implementation of ESD (Anttila, 2014). Furthermore, Finland has various school programmes, such as the Eco-School Programme (Vihreä Lippu), and KiVa Antibullying Programme, that support the implementation of ESD in different dimensions, including the ecological, social, and cultural sustainability (Vihreä Lippu, 2022; KiVa, 2022).

The government bodies are responsible for drawing outlines and the framework in which ESD should be implemented. For instance, the MINEDU is responsible for outlining state policy and strategies for education as well as guiding the subordinate agencies and institutions (MINEDU, 2020). The special responsibility of the MINEDU is to promote the goals regarding the social and cultural sustainability dimensions, including for instance improving education and people's well-being (MINEDU, 2020). Thus, the MINEDU has a significant influence in strengthening cultural change, which is necessary for a transformative shift towards comprehensive SD (MINEDU, 2020). Moreover, the MINEDU promotes the implementation of the Agenda 2030 with legislative, economic and information guidance, and the promotion of SD is generally included in the legislation and guidance documents concerning the whole administrative branch of the ministry (MINEDU, 2020). Furthermore, the UNESCO committee is operating under the MINEDU, and it has an essential task in strengthening, and supporting the international cooperation between Finland and UNESCO (MINEDU, 2022).

In addition, EDUFI is responsible for developing Finnish education at all levels from early childhood to higher education, as well as constructing and formulating the national core curriculum for preschool education, basic education, and upper secondary education (EDUFI, 2021). The EDUFI also prepares the framework for the curriculum to be implemented at the municipal and school levels, and it offers guidance and support in the process (EDUFI, 2022). These practices of formulating the national core curriculum as well as designing the foundation for local curricula, are distinctive and unique features for the Finnish education system (Åhlberg et al., 2015).

3.2.2. ESD in National Core Curriculum

Essentially, a national core curriculum functions as a steering document for education and as an instrument of social and cultural reproduction (Vitikka, 2004; Lundgren, 2006). Therefore, the curriculum includes the current believes and definitions of knowledge and skills, as well as the objectives and contents of learning, learning environments, and various work practices (Vitikka, Krokfors, & Hurmerinta, 2012). In addition, it defines the aims and criteria of learning, reflecting the latest views and perspectives on teaching and learning processes, and it encompasses the cultural environment in which it is formulated, including the values and educational contents that are considered meaningful in society (Vitikka et al., 2012).

The development of national core curriculum in Finland is conducted in cooperation between authorities both at the national and local levels, which has also been recognised enabling and facilitating educational reform and change (Vitikka et al., 20212). Moreover, the national core curriculum works as a framework for designing the local curricula (EDUFI, 2022) Thus, the objectives and contents of teaching and learning as well as the values and structure of education are drawn from the national curriculum based on the local circumstances (EDUFI, 2022). The contents of the national core curriculum define how education is organised, and what aspects are emphasized in schools (Vitikka et al., 2012). Ergo, the national core curriculum for basic education is a significant guiding instrument for also improving SD (Anttila, 2014). Moreover, the national core curriculum also acts as an important instrument for teachers in developing their pedagogical practices and teaching (Vitikka et al., 2012).

The Finnish education system has a long tradition with EE, and it has been part of the national curriculum since the 1980s (Åhlberg, 1988). Furthermore, ESD has been part of the national core curriculum since 2004 as the curriculum stated that the basic education was based on human rights, equality, democracy, biodiversity, and preserving the viability of the environment as well as accepting multiculturalism (The Finnish National Board of Education, 2004). In addition, the curriculum in 2004 added the different SD dimensions as well as the topic of sustainable lifestyles into the main contents of the curriculum (The Finnish National Board of Education, 2004). However, the national core curriculum for basic education was profoundly reformed in 2013, and the importance of SD, especially the competence of global citizens, was further emphasized as part of the basis of the learning (The Finnish National Board of Education, 2004; EDUFI, 2015).

Consequently, the basic values in the current curriculum include multiple SD related issues such as equality, democracy, sustainable way of living and eco-social understanding, and cultural diversity (EDUFI, 2015). Moreover, the objective of the curriculum is to enhance the abilities within the basic education to acknowledge the changes in the surrounding world, and to enforce the significance of education in creating sustainability (EDUFI, 2015). In addition, the curriculum aims to support the skills, knowledge, values, and attitudes of the pupils to understand the importance of sustainable way of living, and to act as responsible citizens (EDUFI, 2015). The curriculum also states that SD should be a cross-cutting theme in every subject in schools (EDUFI, 2015).

Although Finland has a strong curriculum regarding ESD, it seems that it is not transferred into schools' working culture and teaching as effectively as it should (MINEDU, 2020). The core curriculum works as a national and common guide for

organizing education and training at a local level, but the implementation of the curriculum is based on the local education providers as well as the municipalities (EDUFI, 2022). Therefore, the local curriculums always consider both the national objectives and contents, and the local context and circumstances as well as the needs of the pupils (Loukola, Isoaho, & Lindström, 2002). Hence, differences in the local implementation of the national curriculum might exist. Indeed, previous research indicates that the implementation of ESD varies among different schools and even teachers (Saloranta, 2017). Furthermore, specifically in lower secondary schools, the teachers' subject can affect the way ESD is implemented in their teaching and the topics that are included in their lessons (Aarnio-Linnanvuori, 2018).

3.2.3 Differences In the Implementation of ESD

Due to the growing need for ESD in schools, teachers are facing new challenges as they are required to know and understand the relationships between SD and the subjects they teach (Laininen et al., 2006). In addition, teachers need to know how to access the latest information about sustainability as well as the teaching materials that support their teaching on the topic (Laininen et al., 2006). Moreover, teachers need new skills in supporting their pupils in critical thinking and empowering them to grow into sustainable citizens (Boeve-de Pauw et al., 2015). This also requires teachers to cooperate with other teachers and professionals in the field of education (Laininen et al., 2006).

Because the goals of ESD lie in the high levels of student participation, learning environments should be organized in a way that enables student-centred approach and supports students' possibilities to participate in planning and implementing SD related activities (UNESCO, 2014). Therefore, teachers need to be flexible in planning and organising their teaching, which also requires emphasizing the learning processes instead of the learning outcomes (Breiting, Mayer, & Mogensen, 2005).

In addition, learning in ESD should be holistic, meaning it considers all the dimensions of SD (UNESCO, 2017). Indeed, the holistic implementation is crucial in the effectiveness of ESD as it has been proven to increase students' understanding of the complexity of SD issues (Boeve-de Pauw et al., 2015). However, in most schools ESD is not taught in this manner, and considerable differences between schools and teachers exist (Borg et al., 2014). Often, the ecological aspect of sustainability is emphasized, and other aspects of sustainability might be neglected in schools (Borg et al., 2014).

Pepper and Wildy (2008) argue that the most important factor in implementing ESD in teaching is the teachers' knowledge and broad understanding regarding the aspects of

SD. Hence, the teachers who have a deep understanding of sustainability issues are more likely to include a holistic view of ESD in their teaching than the teachers whose understanding of sustainability is more limited (Pepper & Wildy, 2008). Furthermore, previous research indicates that vast differences among subject teachers exist in their understanding, knowledge, and competence in implementing ESD in their lessons (e.g. Borg et al., 2014; Summers, Childs, & Corney, 2004; Uitto & Saloranta, 2017).

In fact, the teacher's subject is a more significant factor in explaining these differences with the Finnish teachers than their age, gender, or level of experience (Uitto & Saloranta, 2017). For example, biology and geography teachers often have a broader understanding of the issues of SD and they also feel more competent in teaching SD related issues than other subject teachers (Summers et al., 2004; Uitto & Saloranta, 2017). Furthermore, geography, biology, history, and religion teachers consider the holistic view of SD more often, while chemistry, physics, mathematics, and language teachers usually include only one dimension of SD in their teaching (Uitto & Saloranta, 2017). Moreover, language teachers often report receiving less education about the issues of SD while social sciences and science teachers receive more education about the topic (Borg et al., 2014).

Similarly, principals in Finland often report receiving very little training about the SD issues, and gaining knowledge of the sustainability topics is highly dependent on principals' own interests (Saloranta, 2017). However, principals have a huge influence in supporting and encouraging the teachers to take actions towards SD, as well as in creating a supportive environment for implementing ESD in schools (Saloranta, 2017). Thus, Saloranta (2017) argues that principals are a forgotten resource in implementing ESD, and therefore, their part in ESD implementation should be further investigated. In addition, Finnish research about ESD implementation rarely discusses the views of the education experts. Therefore, understanding the factors that support and limit different subject teachers', principals', and education experts' possibilities in implementing ESD is important.

3.3. Possibilities and Limitations – The Professional Agency Theory

Because the efficient implementation of ESD requires flexibility as well as the ability to learn and apply new skills in practice, examining teachers, principals and educational experts professional learning is essential. In understanding and conceptualising professional learning in ESD implementation as well as the factors that support and limit the possibilities in implementing ESD, this thesis uses the theory of professional agency.

Indeed, the way the individuals develop their work practices and how they learn in their workplace, is tightly related to their professional agency (Eteläpelto, Vähäsantanen, Hökkä, & Paloniemi, 2013).

The origin of the concept of agency is in social sciences but it has increased its popularity also, especially in the fields of education and psychology (Hitlin & Elder, 2007). However, an explicit definition of the concept is missing, and various fields and scholars use it differently (Hitlin & Elder, 2007; Eteläpelto et al., 2013). In general, agency refers to individuals' possibilities to have an influence on their lives, participating in decision-making, and making changes as well as opposing structural powers (e.g., Casey, 2006; Fenwick & Somerville, 2006; Giddens, 1984; 1991).

Eteläpelto et al. (2013) have developed a subject-centred socio-cultural framework for professional agency based on the previous research traditions and the notions of agency. In this framework (fig. 3), professional agency refers to individuals' possibilities to make decisions, and influence aspects that are related to their work, such as the contents of their work, and their professional identities (Eteläpelto et al., 2013).

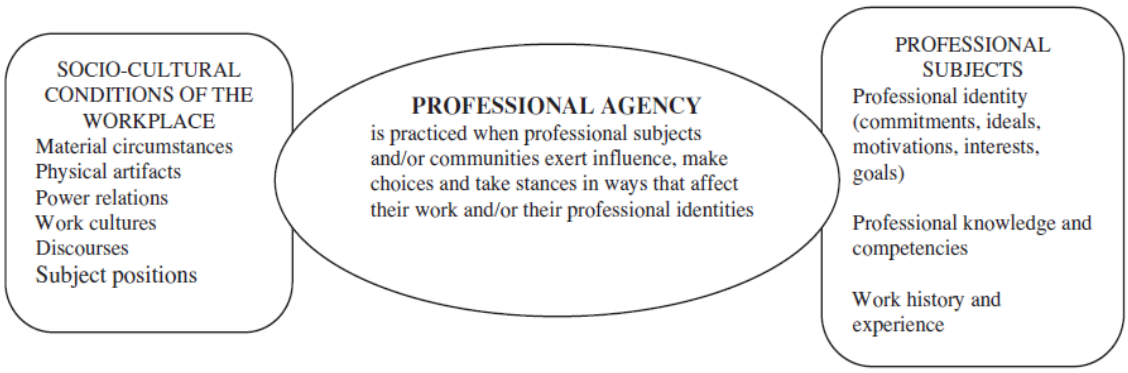

Figure 3. Professional agency within subject-centred socio-cultural approach (Eteläpelto et al., 2013, p. 61)

Individuals' professional agency is manifested when the individuals can affect their work, and make decisions in their workplace (Eteläpelto et al., 2013). Furthermore, professional agency is related to the individuals' socio-cultural conditions such as the material cirmustances, power relations, and work cultures, which can either resource or limit individuals' agency (Eteläpelto et al., 2013). Moreover, the notion of professional agency is constructed through individuals' previous experiences and narratives (Eteläpelto et al., 2013).

Therefore, individuals' professional agency is also strongly affected by their own values, interests, and goals (Eteläpelto et al., 2013). Excercising one's professional agency is influenced by previously gained professional knowledge and competence through the individuals' work experiences and history (Eteläpelto et al., 2013). Hence, individuals' professional agency develops in a dynamic process in which professional agency is actively and constantly constructed in interaction with their surroundings, and it can change and develop over a long period of time (Eteläpelto et al., 2013).

In general, teachers' professional agency in Finland has shown to be relatively strong (Vähäsantanen, Hökkä, Eteläpelto, Rasku-Puttonen, & Littleton, 2008). Teachers have traditionally had a great amount of freedom to affect their work, including the contents, and their ways of working (Vähäsantanen et al., 2008). Moreover, teachers have been free to pursue their professional goals and orientations as their work has been subject to little administrative regulations (Vähäsantanen et al., 2008). This has also been considered being one of the most critical aspects in supporting teachers' professional development (Hargreaves, 2000). Indeed, the perceived professional agency of teachers is particularly strong when they are teaching and guiding the students as the teachers feel like they are free from being monitored or instructed, and they have an opportunity to fulfil themselves (Eteläpelto, Vähäsantanen, & Hökkä 2015).

Therefore, the freedom to develop pedagogical practices based on the teachers' own interest and competencies is one of the most influential facilitators for their professional agency (Pappa, Moate, Ruohotie-Lyhty, & Eteläpelto, 2019). Previous studies also show that teachers' own interest and values are crucial in ESD implementation (Aarnio-Linnanvuori, 2018; Pepper & Wildy, 2008; Saloranta, 2017). Thus, the teachers who are more interested in the topic, tend to include more SD related issues and activities in their teaching than the teachers who are more interested in other issues (Pepper & Wildy, 2008). Furthermore, the knowledge of the issues, as well as strong faith in their own skills and competence, supports the teachers' implementation of the SD topics (Aarnio-Linnanvuori, 2018).

In addition, the work organization has a significant effect on individuals' professional agency, and a strong commitment to the organization supports the possibilities to have on influence on one's workplace (Vähäsantanen et al., 2008). Hence, when teachers are included in the decision-making processes and have opportunities to affect the contents of their work inside of the organisation, they have room to utilize their interests, and their professional agency is supported (Vähäsantanen et al., 2008). In contrast, strong administrative regulation limits teachers' professional agency, leaving less room for teachers to independently develop their teaching methods (Vähäsantanen et al., 2008).

Hökkä, Vähäsantanen, and Saarinen (2010) argue that similar results have also been shown with expert work. Therefore, the external control and order seem to weaken individuals' commitment to their work organisation and diminishes experiencing the work as meaningful (Eteläpelto, Heiskanen, & Collin, 2011). Additionally, individuals experience being unable to use their full potential, skills, and creativity, if their possibilities to influence their work is limited (Eteläpelto et al., 2011).

Other supporting factors for teacher's professional agency have proven to be openness to change and teacher versatility (Pappa et al., 2019). Therefore, the teachers' ability to adjust or accept new working situations and school culture, as well as trying new things, and being able to change or vary their educational approach is important for their sense of professional agency (Pappa et al., 2019). Another supporting factor for teacher agency, as well as the ESD implementation, is the collaboration with their colleagues, and an open collegial community in which teachers have an opportunity to freely ask, share, and talk about different ideas (Eteläpelto et al., 2015; Pappa et al.,2019; Aarnio-Linnanvuori, 2018).

Similarly, the schools' working culture has a significant role in the implementation of ESD, and the more the values of SD are integrated into a school's culture, the more often teachers enforce actions that promote SD in their lessons (Saloranta, 2017). Thus, the teachers who have the support of both the school organization, and their fellow teachers and other colleagues, are more enthusiastic and optimistic about the topic, and more prominent to develop their own teaching (Aarnio-Linnanvuori, 2018). Moreover, teachers SD implementation seems to be supported by learning materials that already include SD topics (Aarnio-Linnanvuori, 2018). Furthermore, teachers consider the implementation of SD related teaching to be more effortless through activities that happen outside of the classroom (Aarnio-Linnanvuori, 2018).

Previous research shows that limitations for teacher agency are created both by external and internal constraints (Pappa et al., 2019). External constraints for teachers are caused by the goals and contents of the curriculum, the lack of facilities, outdated websites, restrictions deriving from the power of the principal and class schedules, as well as the strong separation of different subjects and their contents (Eteläpelto et al., 2015; Pappa et al., 2019). Some teachers have also reported classroom-related tensions, such as difficult pupils, social management of the classroom, big class sizes, and socio-emotional problems of the pupils, hindering their professional agency (Pappa et al., 2019). Internal constraints derive from the needed time and energy for the planning and preparation of the lessons (Pappa et al., 2019). The lack of time also hinders the possibilities to collaborate with other teachers (Vähäsantanen et al., 2008). Furthermore,

teachers have reported the need for more multi-professional support, and more funds for materials and in-service training, which would facilitate their professional agency (Pappa et al., 2019).

Correspondingly, previous studies on ESD implementation have demonstrated that the greatest challenges for teachers are created by the lack of time and resources, full schedule, and difficulties in teaching arrangements (Aarnio-Linnanvuori, 2018; Saloranta, 2017). Other challenges for teachers specifically in ESD implementation include teachers experiencing sustainability issues as a difficult and challenging topic due to the interdisciplinary and political nature (Aarnio-Linnanvuori, 2018). Therefore, teachers might contemplate their own knowledge and skills in the issues, and some subject teachers are unable to recognise sustainability topics being a part of their own subjects' contents (Aarnio-Linnanvuori, 2018).

4. METHODOLOGY

This chapter introduces and justifies the research aim and questions, and the chosen research methods. Furthermore, the research data and the participants as well as the course of the data collection and analysis are explained. Lastly, the trustworthiness, and the ethical considerations of the research are discussed.

4.1. Research Aims and Questions

The aim of this master's thesis was to investigate the views of subject teachers, principals, and education experts on education for sustainable development and its implementation in schools. More precisely, this research was interested in what kind of resources are available for implementing ESD. In addition, this thesis examined teachers', principals', and education experts' views on their professional agency, more specifically their possibilities, and limitations while implementing ESD. Lastly, the research was also interested in the received and needed support for the professional agency and ESD implementation. The research questions were:

1. What kind of resources exist for teachers, principals, and education experts for implementing ESD?

2. How do teachers, principals, and education experts perceive their professional agency, i.e. their possibilities and limitations in implementing ESD?
3. In the point of view of teachers, principals, and education experts, what supports their possibilities in the implementation of ESD? What kind of support is still missing?

4.2. Research Data and Participants

The research data consisted of seven (7) thematic semi-structured interviews of which one (1) was conducted as a pair interview and six (6) were individual interviews. The target group of the research were subject teachers, and principals in lower secondary schools in the Turku area, as well as the education experts working at the EDUFI, in Helsinki. All in all, five (5) subject teachers from two schools, one (1) principal, and two (2) education experts were interviewed. The subject teachers included one (1) biology and geography teacher, two (2) history and social studies teachers, and two (2) language teachers of which one (1) taught English and French, and one (1) taught English and Swedish.

All the interviewees had teacher qualifications but none of them had received any SD related training during their education. However, couple of the teachers had participated in in-service teacher training to gain SD specific knowledge. In addition, the biology and geography teacher, as well as both education experts, who had also studied geography, reported their education including some SD related topics. Therefore, most of the interviewees had a good amount of knowledge of ESD, and they were all interested in the topic, and implemented it in their work.

Moreover, all the interviewees had completed their studies 10–30 years ago. The working years for the teachers varied between 9–30 years, and the principal had been working in their position for 16 years. Furthermore, one of the education experts had been working approximately for 2 years, and the other one for 10 years at the EDUFI.

4.3. Data Collection and Analysis

The study was conducted as qualitative research using thematic semi-structured interviews, in which the course of the interview was based on pre-selected themes with specific questions generated for them (Tuomi & Sarajärvi, 2018). The thematic semi-structured interviews were chosen as a data collection method as the purpose was to

gather comprehensible, profound, and specific information on the implementation of ESD in Finnish schools. As Hirsjärvi and Hurme (2008) argue, the thematic interviews highlight the experiences, the meanings, and the interpretations people give for different phenomena. Furthermore, interview as a data collection method is generally used when the research topic is rather unknown and have limited amount of research on it (Hirsjärvi & Hurme, 2008). The advantage of a themed interview is that the interviewer can ask defining questions based on the responses of the interviewees (Tuomi & Sarajärvi, 2018). Moreover, semi-structured interviews include the same main themes for all the interviewees still offering the possibility to answer freely from their own perspectives (Eskola & Suoranta, 1998). As the number of research on the professional agency in implementing ESD is limited, semi-structured interviews were appropriate method for this research to get a more profound understanding of the phenomena.

The interview instrument (appendix A) was created for this research based on the previous studies on ESD implementation and professional agency. Thus, in addition to the background questions, the instrument consisted of two major themes: 1) support and resources in implementing ESD, and 2) professional agency. Most of the questions were the same for all the interviewees. However, some questions were specifically formatted for teachers, principals, and education experts separately to correspond their fields of work.

The data was collected, and the interviews conducted, in March and April of 2021. Two principals in two schools in the Turku area were contacted asking for a research permission and contact information for different subject teachers. The schools were selected in the basis of a discussion with the thesis supervisor in which the specific schools were suggested. The emails sent for the principals included a short cover letter (appendix B) as well as the summary of the research (appendix C), which explained the purpose and the aims of the study. After receiving the teachers' email addresses from the principals, the teachers were all contacted individually. Moreover, the education experts were also contacted via email with the summary of the research. The contact information for the experts were available for the researcher due to a prior internship at the EDUFI and having worked with both the experts before conducting this research.

After scheduling the interviews, all the participants asked to see the interview questions beforehand. Thus, a set of example questions, along with a privacy statement, were sent to each participant in advance via email. According to Tuomi and Sarajärvi (2018), offering the interview questions or themes for the interviewees in advance, is considered ethical and advisable as it enables gaining as much information as possible on the research topic. Thus, it was justified to send the example interview questions to the

interviewees to offer them a possibility to familiarize themselves with the themes. In addition, the privacy statement was based on the EU's principles of the General Data Protection Regulation (GDPR) and specified how the data was collected, stored, and used.

At the beginning of the interview each participant was informed about the purpose of the study and the themes of the interview. A permission to record the interviews was also asked. Moreover, a short introduction on what ESD refers to in this research was covered at the beginning of the interviews. However, a broad explanation of the term was not offered as the main purpose was to investigate the authentic views of the interviewees about ESD, and how they perceived the topic with the knowledge they already had.

The length of the interviews varied between 30 and 60 minutes. All in all, seven (7) interviews were conducted of which six (6) were individual interviews. The interview for the education experts was done as a pair interview as it was requested by the experts. Due to the current pandemic, the interviews were conducted via an online video conference tool called Zoom. The language of the interviews was Finnish as it was the first language for the researcher and all the interviewees. Thus, all the extracts in the results section were translated by the researcher.

During the interviews, the interviewer aimed for neutral reactions and responses for the participants' answers. Ruusuvuori, Tiittula, and Aaltonen (2005) argue that this is important to enable a genuine opportunity for the interviewees to discuss about the topic from their own perspectives. The interviews were recorded and later transcribed into text format. After the interviews, all the participants were offered the possibility to read the transcribed version of the interview. One of the interviewees asked to see the transcribed version, which was sent via email. After the interaction, a couple of elaborations were added to the transcription.

The data was analysed using thematic analysis, which is a qualitative method used to recognise and analyse similarities and patterns, i.e. themes, in the research data (Braun & Clarke, 2012). The first step in the data analysis, in this research, was transcribing the data. The transcriptions included only the verbal communication between the interviewees and the interviewer, and the non-verbal cues and pauses were excluded from the transcription. During the transcription process, the interview audios were listened to multiple times. Braun and Clarke (2012), argue that this offers an efficient way for the researcher to familiarize themselves with the research data. Furthermore, notes were taken during the transcribing to create initial ideas and codes of the data, and the

similarities between the interviews. The finished transcriptions were uploaded to a qualitative data analysis tool called NVivo.

During the first steps in the analysis, the data was organised into initial codes by finding similarities and differences in the data. Moreover, the codes were reorganized before identifying the final themes for resources, possibilities, limitations, and support. The previous research about the teacher agency, especially regarding the supporting and limiting factors, as well as the challenges in implementing ESD were used in creating some of the themes. However, new themes were also created based on the issues emerging from the data. Thus, both data-driven and theory-driven approaches (Tuomi & Sarajärvi, 2018), were utilized in the analysis of the research data. More specifically, the results for the first research question about the resources were data-driven whereas the results for the second and third research questions utilized both data-driven and theory-driven analysis.

Due to the limited number of research on the resources and professional agency in implementing ESD in Finland, especially on the views of principals and education experts, the data-driven approach was justified for this research. In addition, because the concept of professional agency in general, is largely researched in Finland, it acted as a beneficial additional guideline for analysing the data.

4.4. Trustworthiness and Ethical Considerations

For the qualitative research to be considered trustworthy, it must disclose how the research was conducted, how the data was analysed, and how the conclusions were made (Eskola & Suoranta, 1998). Therefore, all the phases of the research and analysis should be clearly stated and explained (Eskola & Suoranta, 1998). Moreover, in qualitative research, acknowledging the position and subjectivity of the researcher, and reflecting the researcher's actions are relevant (Eskola & Saloranta, 1998).

According to Nowell, Norris, White, and Moules (2017), the trustworthiness of the research is measured through the criteria of credibility, transferability, dependability, and confirmability. Thus, the research is considered trustworthy, when the whole research process is presented clearly and logically, and the conclusions and interpretations made are demonstrated (Nowell et al., 2017). Furthermore, the criteria of trustworthiness are met, when the reader can make their own judgements on the conclusions based on the given information (Nowell et al., 2017). Therefore, every step of this research, including the data collection and analysis, as well as the position of the researcher has been

introduced aiming for the transparency of the whole research process. Also, extracts from the interviews are presented with the research results.

For the research to be ethical, the research needs to be organised, and the data collected with following the ethical guidelines (Varantola, Launis, Helin, Spoof, & Jäppinen, 2013). This master's thesis aimed to follow the ethical aspects, by for example informing the participants of the purpose and the objects of the research before the interviews. The interviewees were also offered the possibility to receive the sample interview questions beforehand. In addition, during the interviews, the participants had the possibility to discontinue the interviews, if needed. The interviewees received privacy notion and were informed how the interview data would be used, stored, and managed. Also, a permission to record the interviews was asked from all the participants before starting the interview.

Furthermore, the data collection process aimed to follow the ethical criteria by striving for neutrality and impartiality in the interview situation, and to give voice to the interviewee without the interviewer's interference. Hence, semi-structured questions offered the participants to answer from their own perspectives, while still enabling asking specification on the answers of the interviewees. Moreover, the interview questions were generated on previous literature and research on the topic.

After the interviews, the participants were offered to review the transcription of the interview. All the transcriptions were stored in a secure place to which no one could have an access, except the researcher. Names and other personal information were excluded from the transcription in ensuring the anonymity of the participants. Thus, the names of the schools, as well as the specific professional titles, and the main line of work of the experts, were excluded in securing anonymity of the participants. All the transcribed material and data was deleted at the finalization stage of the research.

As the target group included all the subject teachers, the idea was to get as many different subject teachers as possible, regardless of how, and how much, they were implementing ESD. This would offer a broader understanding of the professional agency in ESD implementation and the needed support among the different subjects. However, finding participants, especially teachers, was complex due to the nature of the topic as well as the current COVID-19 pandemic. Multiple teachers, who were asked to participate, declined the offer, because they felt like ESD was unrelated to their subject, or they were lacking the time to participate due to the distance teaching at the time. Therefore, the research only includes the views of the teachers who already have knowledge and resources in implementing ESD. For future research, it would be

beneficial to investigate the teachers, who consider ESD to be outside of their responsibilities as they might need different kind of support than the teachers who already are more knowledgeable on the topic.

Moreover, the original research plan was targeted for two principals from two different schools. However, one of the contacted principals declined participating in the interview due to lack of time. Thus, only one principal was interviewed, and the views in the research represent the perspective of one specific principal in one school. Future research should include multiple principals. Also, it is good to note that the schools selected for this research were both in the Turku area. The implementation of ESD might differ between the rural and urban areas, and this research offers insight on only one specific region in Finland.

5. RESEARCH FINDINGS

The following chapters will introduce the findings of this research. Firstly, the available resources, i.e. how teachers, principal, and education experts receive and seek information on the topics of SD and ESD, are identified. Secondly, the interviewees' perceived professional agency, including their possibilities and limitations in implementing ESD, are presented. Thirdly, the supporting factors for their professional agency are discussed. And lastly, the missing support for the teachers, principal, and education experts is analysed.

5.1. Resources in Implementing ESD

All the interviewees recognised multiple resources through which they could receive information on SD and ESD. However, two main categories of resources could be identified for all the interviewees. Firstly, all the interviewees mentioned utilizing *internet sources* to seek information about SD related topics. For instance, the teachers described having used SD related websites or web portals managed by several actors in getting SD related materials or ideas for implementation. The websites mentioned by the teachers were, for example MAPPA, Subject Aid, The UN Association of Finland, Global Education, and the World 2030. Also, for some teachers, following the news online, as well as receiving newsletters via email, offered important sources of information.

> *"There is a huge number of various actors that have different material and good websites that you can use. For example, global education is a site that I have used, and there is a lot of material for different age groups. Then there is the World 2030 website that I have used too, and the EU has a lot of material in its own bookstore and material bank where you can get material for free. […] So, I think a lot of material on this topic exist, and it is easy to keep up with it."* (T1)

> *"I get all kinds of newsletters and material via email so you can get quite a lot of different things in that way too."* (T4)

Moreover, the principal and the experts also mentioned searching for information on the internet. In general, the internet was considered as an easy and efficient way to get information about SD or ESD. Furthermore, it was described as an effortless way to keep up with the topic because a lot of material related to SD existed online.

> *"Also, these days the internet is full of all sorts of things so you can find pretty much anything on any topic."* (P1)

> *"We can get information through different outlets, and of course a lot of material exists online."* (E2)

The internet also offered other possibilities for information seeking for the interviewees. For example, some teachers as well as both education experts mentioned the social media as a resource. They reported using Facebook, and Twitter as a way of receiving and sharing information about the topics of SD and ESD. Other internet resources mentioned by the teachers in implementing ESD were online calculators and quizzes, that some of the teachers liked utilizing in their teaching.

> *"For example, on Facebook we have an excellent group of biology, geography, and health education teachers, in which you can share tips and materials etc. about these topics."* (T1)

> *"All kinds of online calculators exist, that the pupils think are funny and they enjoy them. And the older pupils also calculate CO2 footprints."* (T2)

> *"[…] but then for example, I am a member of the climate educators group on Facebook, and I am also in the group for biology and geography teachers"* (E1)

> *”You can get information through different ways, I try to follow Twitter a bit, because you can get some topical information on there.”* (E2)

The other main resource for all the interviewees were their *professional networks* which acted as an essential way in receiving and sharing ESD related information and material. Thus, almost all the interviewees described belonging to several networks which included both internal and external actors. For instance, the main internal network for the teachers were their colleagues in their school. Indeed, all the teachers reported either working with other teachers in SD related matters or at least discussing SD topics with their colleagues regularly. In either way, sharing ideas with their colleagues was seen as an essential way to get new ideas and information regarding ESD. Some teachers were even part of different school committees or working groups, which acted as excellent resources for these teachers in sharing tools, materials, and pedagogical methods with their colleagues.

> *“We share ideas and views with other teachers with the same subject. Also, we have natural sciences’ classes in which they [pupils] have extra biology, chemistry, physics, and mathematics. So, in there we’ve worked on SD topics together with the teachers of physics, chemistry, and mathematics.”* (T1)

> *“I think that it is already a good resource in itself that the different subject teachers discuss about these things in the staffroom and share what is important and how you can implement that.”* (T5)

> *“What our school also has is that we have the SD committee, which I am a part of. We are also a UNESCO school, and we are a part of the Eco-School programme, so in a way, sharing information and tools is easier through the different working groups.”* (T3)

Other internal network mentioned by the teachers was the school principal. For instance, some teachers described the principal’s role in sharing information as well as informing about different training possibilities regarding ESD via emails. In addition, two of the teachers also implied teacher training days in their school as a resource, in which the themes of SD had been present.

> *“I think that it [SD] becomes more and more important, and principals think it is important, so we discuss about it in teacher meetings and in staff*

> *training days. Also, the principal shares information about training possibilities, so there is that. […]"* (T3)
>
> *"Sometimes the principal sends and forwards emails [related to SD], when they get them from external actors."* (T4)
>
> *"We have these teacher training days which are part of our contract. These include theme days during which we have, for example short training courses for two days in a row. The environmental theme has been quite strong in there, and sometimes we have spent, well if not the whole two days, at least one day, talking about these issues."* (T5)

The external networks for the teachers included different local actors, which offered visitation possibilities outside of the school environment. Especially, Southwestern Finland waste management service [Lounais-Suomen Jätehuolto Ry] was mentioned as a good visiting destination with the pupils. Furthermore, other local actors were reported visiting the schools and presenting about their field of work related to SD. According to the teachers, the outside expertise was experienced as a positive and necessary way to get more information on these topics, not just for them, but also for their pupils.

> *"The Southwestern Finland waste management service, for example, has invited all the eighth graders to visit them, and then they have taken them on a tour in their landfill. Also, it has included a visit in a flea market […] I think it is amazing, when an organisation offers these kinds of possibilities because they have the time, the money, and the expertise, and it is so much better than if I, as a teacher, would just talk about these things with the pupils."* (T4)
>
> *"Local actors are very active and like to visit the school ….] There is always someone who can come and talk about their job and views, whether they are from the university or somewhere else. I feel that there are a lot of options out there if you just try and seek, and just ask. So, we don't have to go anywhere but they come to us."* (T1)

Moreover, other external network for the teachers was in-service teacher training, offered by external actors and agencies. Two of the five teachers had participated in some form of in-service teacher training that were offered, for example by the EDUFI, the OAJ, and the subject specific teacher unions and associations.

> *“The Association for Teachers of History and Social Studies offers training, and this topic has been discussed there.”* (T2)

> *“I participated with my colleague in a training course that included the different dimensions of SD, and we went through them and thought about how to implement them in teaching. And because I am a member of the SD committee and the UNESCO workgroup in our school, I have been annually participating in EDUFI training.”* (T3)

However, two teachers also specifically mentioned having little interest in participating in any training courses. Thus, they preferred to search information independently as they considered it being a more effective and quicker way for them to acquire knowledge on the SD issues. Nevertheless, the teachers described using the SD related materials offered by the different external actors and organisations.

> *”I am terrible at participating in training courses because I am the type of person that gets frustrated easily if we get stuck on something, and it does not go forward. And I personally think that there are few in-service teacher training courses that would be beneficial and successful from the time management point of view. So, I am the type of person who searches information on their own.”* (T1)

> *“I have not participated in any training courses. But The UN association, for example, offers free material, that I have also used in my lessons often.”* (T5)

As with the teachers, the most prominent network for the principal were also their colleagues. Therefore, sharing information about the SD topics with other principals was experienced valuable. Especially the annual principal meetings were considered as an essential resource by the principal. Sometimes the meetings also included SD related topics, which was seen as a good way to acquire information on the issues.

> *“The other principals in the area. Also, principals have these annual meetings, and sometimes, for example, SD has been a theme there so there might have been a lecture or session or something related to the topic.”* (P1)

Furthermore, the principal considered the teachers in the school as a great resource for SD. Especially working in a big school was mentioned as a significant benefit as there would always be someone who was interested in the topic. Hence, the principal experienced that the possibilities to utilize the strengths of different individuals, including SD related knowledge and interest, were better in a big school than in smaller schools.

> *"The reason why I like to work in a big school is because there are also more adults and there are so many different interests and strengths coming out. If we had a smaller school, topics such as SD, might never come up as a theme, if there were no one who would like to take it as their own. But in a big school there is always someone interested in it, and they can raise their hand saying that this is my thing, I want to do this."* (P1)

Another beneficial resource for the principal in ESD implementation was the local actors. Therefore, the principal described the local actors, such as organisations and businesses, offering SD related material, but also visiting possibilities for teachers and pupils.

> *"The local actors offer some material. For instance, the Southwestern Finland waste management service actively offers material for schools and organises different events, visitations, and tours or even training for pupils and teachers."* (P1)

The networks for the education experts were somewhat similar as with the teachers and the principal, and for example colleagues were valuable resources for them. Therefore, both the education experts mentioned each other as a resource for ESD. In addition, the experts described the importance of the internal working groups at the EDUFI for enabling collaboration and sharing information.

> *"I'll say the networks. So, the internal networks of the EDUFI, including my colleague [E1], but we also collaborate and discuss about the topic with multiple different actors."* (E2)

> *"This spring, the EDUFI established a working group for Agenda 2030, in which my colleague [E2] and I are included. And in this working group there are people from different units and functions in the EDUFI. […] So that is kind of like an in-house network."* (E1)

Furthermore, the experts' external networks were broad. They described being part of several working and steering groups outside the EDUFI, either as an assigned representative of the EDUFI or on their own initiative. The administrative sector, such as ministries and other agencies, were a prominent network as the experts worked in regular collaboration with all the ministries. Also, the experts worked closely with the third sector organisations, as well as trade associations and unions, which were an essential part of their networks. In addition, the experts often collaborated with different project employees as well as teachers and other education providers. The various networks worked as an important way for the experts to receive and share information about SD.

> *"Also, the different organizations, and for example, the teacher trade union, and other central organizations are the ones with whom we collaborate, also related to SD topics. […] Also, one of the main actors with whom we collaborate are, of course, the teachers. Teachers and other education providers are central collaborative partners."* (E2)

> *"We both are part of the round table of environmental educators, and I also have been participating in the steering groups of Finnish Forest Association, and The Finnish Association of Nature and Environment Schools. We both are also included in the different strategy working groups of different ministries as assigned representatives. […] So, in a way. through our work, and the networks, we receive information [about SD]."* (E1)

Although, all the interviewees used and were aware of the various resources and possibilities to acquire information about SD topics, they also described the information seeking about the issues to be scarce and occasional rather than active, regular, and intentional. Thus, searching for information or material related to ESD was often unintentional, and coincidence significantly affected the types of information the teachers, principal, and education experts encountered.

> *"I cannot say that I would actively follow like the scientific field, in a way that I would deliberately search for information. But I am a kind of a person that whatever [information] I encounter with, I can utilize it."* (T4)

> *"Quite often it [the information seeking] starts with seeing a news article and through that you end up onto another website. Or you see an online calculator or something like "do this test" and then you can use that."* (T2)

> *"I am not, in a way, actively searching for information, but it is more occasional depending on what I receive through the different actors and networks."* (E2)

Almost all the interviewees described their *own initiative and activity* being essential in both seeking information about ESD as well as implementing and utilizing the searched information in their work. Especially the teachers emphasized their own role in what kind of information they were able to find, and how that information transferred into their lessons.

> *"You really need to be quite active yourself in that matter [searching for information and material]."* (T2)

> *"I think that, in a way, it still requires the teacher's own activity, at least at the moment."* (T3)

> *"I myself have tried to be alert in where to find information, but then again if the teacher never thinks about it, or feels that the topics do not professionally belong to them, they do not necessarily search for that kind of information or educate themselves on these issues."* (T5)

5.2. Views on Professional Agency in Implementing ESD

When the interviewees were asked about their possibilities to implement ESD and influence achieving the SDGs, all of them reported having good possibilities in having an impact with their work. Especially the teachers perceived their professional agency being strong, and influencing in general was seen as a fundamental part of being a teacher.

> *"I feel that I can [have an influence] and if I didn't feel that way, this probably wouldn't be my job. I feel that, when you are working as a teacher, you need to have a future-oriented mindset as you have sought for a profession that you find meaningful, precisely because you are able to give young people the tools to understand the world and succeed in their life. So yeah, I see that [having an influence] being possible one hundred per cent."* (T1)

Almost all the teachers expressed SD topics being effortless to include in their lessons, and their possibilities in implementing ESD was considered being rather limitless. Therefore, the teachers' professional agency, specifically related to classroom activities, was perceived strong. The teachers also reported that they could implement ESD as much as they wanted, and a fair amount of freedom existed with the ESD implementation. Especially the geography and biology and the history and social sciences teachers indicated ESD implementation to be rather self-evident, as it was seen as an integral part of their subjects' contents. Consequently, these teachers rarely questioned the importance of implementing ESD, and the topics came naturally with the subject they were teaching.

> *"I see that these topics are so intertwined with the curriculum and the contents of social sciences, so I find it that I absolutely must implement it [ESD]. So, I do not question that at all, and I see that I need to do it regardless."* (T2)

The language teachers also considered their professional agency related to ESD implementation being quite strong. However, they described having more challenges than the science teachers, as SD was seen as an independent part from their subjects' contents, needed to be considered separately. One of the language teachers described this as follows:

> *"Of course, it [the implementation of ESD] is also linked to the subject. So as a language teacher, maybe the topics of SD are not related to the language itself. However, if you think about the subjects such as history, social sciences or biology and geography, the topic comes more clearly with the subject. So maybe as a language teacher the agency or activity in ESD is a little bit more challenging."* (T3)

Although the perceived professional agency of the principal and the education experts was good, it seemed to be slightly more complicated than the professional agency of the teachers. Whereas the teachers considered their possibilities to influence being rather straightforward, the principal and the education experts implied more complexity in their actions. For example, the principal expressed having good possibilities to influence, but they also described the ways of influencing being more indirect rather than directly affecting the pupils or the implementation of ESD. This was because, unlike the teachers,

the principal was excluded from the actual teaching and interaction with the pupils in everyday life.

> *"I can have an influence […] But because I am not involved in the teaching with the children, I feel that I am not able to directly have an impact so it is more indirect influencing."* (P1)

Similarly, the experts described that they could affect certain issues, but they also recognised the importance of other actors in the process. Thus, their professional agency was linked to the collective possibilities through collaboration rather than having a strong influence as individuals. One of the experts described the situation as follows:

> *"I can say both yes and no. We certainly can have an influence yes, but this is also a process, and after all we cannot affect everything what we should, if you can say that. […] And also, because we do not decide on these things alone, it happens in collaboration. It is also about making compromises about the different needs and expectations. So, we can through that, of course, influence but maybe not alone as individuals per se."* (E2)

5.2.1. Possibilities and Ways of Influencing

Because the teachers' possibilities of having an influence were directly related to their teaching and interaction with the pupils, the teachers' professional agency was practiced through different classroom activities. Therefore, the teachers reported that the successful implementation of ESD required participatory teaching methods. All the subject teachers also highlighted the pupils' active role in the learning process.

Furthermore, the teachers reported using "hands-on" activities in which pupils actively participated in investigating various SD related issues. For instance, some teachers described making infographics or posters with the pupils about SD related topics. In addition, the teachers reported using a lot of examples or stories, and even talking about things in the news while implementing topics of SD in their lessons.

> "*I have used stories, and then we have built human rights pyramids with cards, and discussed about them. I think this [SD] is an area in which the most important thing is that the pupils can themselves experience, discuss,*

> *and reflect on the issues. So, through those kinds of participatory methods."* (T1)

The most beneficial way to influence as a teacher was in *affecting the pupils' attitudes* through *raising awareness* on the SD topics. Moreover, the teachers described being unable to change anyone's behaviour. Thus, the most efficient way of having an influence for the teachers, and to practice their professional agency, was through *introducing new topics and issues* as well as *increasing the understanding* on SD related matters.

> *"I am unable to change anyone's behaviour. I can only try to affect it, but I cannot change it. […] So, it is about increasing the understanding about these things."* (T2)

> *"I can influence through the attitudes. That's my thing. And also, bringing up new topics and topical issues, for example things you can see in the news, and discussing about them and increasing the pupils' understanding through that."* (T3)

In addition, the teachers described that they had a strong influence in instructing how to act in the world as well as informing the pupils about the topical and current global issues. Therefore, *raising discussion and reflection* on the SD topics was also seen as important. Moreover, most teachers viewed talking about the *causes and effects* of different actions to be essential in increasing the pupils' understanding of the SD topics. Consequently, the teachers reported having an essential part in *empowering the pupils* in making their own decisions and choices as well taking actions for a better future. Thus, the teachers' position in raising awareness was about giving the needed tools for the pupils to reflect their own actions, and make decisions, rather than simply offering answers or solutions to questions.

> *"I, for example, encourage them [the pupils] to read media and follow all kinds of things that happen around the world so that they can understand the background and causes of different phenomena. And I think that the best way is to kind of give the pupils issues to think and discuss about […] So, that way they can get the tools and understanding to make their own decisions in the future."* (T1)

> *"Telling them how to act in society, and of course talking about the current events around the world and discussing what we could learn from them. […] We also talk about the causes and effects a lot. That is also one of the goals in history teaching. So, increasing understanding and awareness of the consequences of their own actions. That is what I am aiming to do, and not just with SD but with the pupils' own choices in general. But it is quite often related to SD anyway."* (T2)

However, the teachers viewed that the SD related issues could sometimes be challenging or overwhelming for pupils to understand and comprehend. Hence, they felt, that as teachers, they had a significant task in *creating hope and positivity* while discussing about these topics with the children. Thus, creating an open and supportive environment without the feeling of blame or quilt, was an influential factor for successful ESD implementation.

> *"It depends on how you do it [implement ESD]. I often leave out the most radical things because they cause anxiety with the pupils. […] I think that the most important thing is that the pupils would have a positive view on their possibilities. So that we do not only give them a huge number of facts, but that they would be left with the idea, that yes challenges do exist, but we can also do something about them."* (T1)

Furthermore, one of the most important factors among the teachers while implementing ESD was the idea of *hidden curriculum*. This was also considered necessary in preventing negative response with the pupils about the SD topics. Hence, sometimes while implementing ESD topics, the teachers left SD unmentioned. In addition, the teachers felt that the implementation of SD topics should occur in a natural context. This was considered influential, because the teachers felt that the pupils could get overwhelmed if SD was discussed excessively.

> *"At some point the children might start to get irritated if they feel like the teacher is nagging too much about something. So once a year we might do something bigger specifically related to the topic [SD], and otherwise it maybe comes with different things in everyday life […] so it sort of comes with the idea of hidden curriculum."* (T4)

> *"I think it is important that it [ESD] comes up in natural situations and contexts. So, I cannot start every morning with an old-fashioned assembly type of thing reminding how the oceans are polluted and how that is a serious issue. Because sometimes, if something gets preached too much, it might kind of lose its power."* (T5)

Lastly, the teacher's *own example* was a significant way to influence, and all the teachers reported their own actions to have a major effect on the pupils. Often the teachers own example in the school environment was viewed to be the most efficient through their actions in everyday life in school, and the teachers believed in the effectiveness of social modelling. Therefore, the small things, and teachers' own example were sometimes experienced having a more effective influence than a pre-planned activity in a classroom. The teachers' example was even more essential during the COVID-19 pandemic with instructing the pupils to use masks properly, as well as to dispose them in the correct manner.

> *"Of course, I have tried to influence with my own example, and when I go to school lunch, I eat all the food on my plate and sort the waste properly. I strongly believe in the power of modelling, so I can't demand anything from anyone if I don't do the same myself."* (T2)

> *"Acting as an example for the pupils is of course important and telling them how to act in a society […] and then it certainly is also about the everyday life in school. Now for instance, we have masks, and we need to instruct the pupils with using them and disposing them and explain why we need to use them. So, our job does not only include teaching the subjects' contents but also the upbringing of the pupils in the school environment."* (T3)

The *small things in everyday life* were also one of the most valuable ways to influence, according to the principal. Because the principal described their role to be more of an administrative person rather than a part of the teaching staff, their opportunities in directly interacting with the pupils were limited. Thus, *encouraging pupils through everyday activities* in the school life and culture related to, for example, energy consumption or recycling, were considered as important ways of having an influence and practicing their professional agency in ESD implementation.

> *"Here we probably go with the idea that small streams make big rivers. For example, we have recycling bins, and we teach the children to sort the waste. And this might be a naive example but turning off the lights when the lights are not needed. So, in a way, we tend to pay attention to teaching things related to energy consumption, among other things."* (P1)

Another significant way of influencing for the principal was *maintaining the topic and discussion of SD* in the school culture and life. Furthermore, the principal also reported having strong possibilities to affect through *encouraging and supporting the teachers* in implementing ESD. Also, the principal recognised their professional agency in *keeping up with the development, being future-oriented, and encouraging teachers to change and develop their teaching* to correspond to the changing expectations of the society. Ergo, the way the principal viewed the SD topics affected the whole school community.

> *"It is about upkeeping the topic and discussion. […] I believe that if the principal considers something to be important, it will sort of naturally reflect onto the staff, too. So, it is important that the principal raises different things for the teachers as themes and through that the principal can support with different things."* (P1)

For the experts, the main ways of influencing were similar with the teachers, through *affecting attitudes*, *raising discussion*, and *relaying information.* The importance of their professional networks was again emphasized. Indeed, the experts' networks were the main arena on which their professional agency was practiced and manifested. Therefore, through their networks, the experts were able to raise discussion on the topics, and relay information between the different actors on the field. Moreover, the most important instrument of having an influence for the experts was *the national core curriculum*. The experts explained that being involved in promoting and developing the foundation and the framework for schools was a major way of influencing for them.

> *"Our possibilities are of course through relaying information between the different actors. So, for example, all the different working groups through which we get and share information and discuss about these things is a one way we can be involved in improving different things."* (E2)

> *"The way we can have an impact is the national regulations [national core curriculum], financial instruments, and then maybe the strongest way of*

> *influence, I think, are our networks and through that the mental support or encouragement or inspiration source. […] And as I said earlier, a lot is about the attitudes, so it [the influencing] is kind of about affecting the attitudes."* (E1)

5.2.2. Limitations and Challenges

As discussed above, the teachers described their possibilities to be rather limitless in how much and in what ways they implemented ESD in their lessons and everyday lives in the schools. Thus, the teachers' professional agency was strong, and almost no limitations existed for the teachers' possibilities. Furthermore, the teachers strongly experienced that the implementation of ESD depended on the teachers themselves, and they had as much possibilities as they were willing to take. Therefore, internal limitations were hardly mentioned, and most limitations recognised by the teachers were related to external factors. Hence, the biggest challenges the teachers encountered were related to the *lack of time*, and *the limited amount of money and other resources*.

> *"Well, there are really no limitations, it is all up to yourself, how you do it. I think that the topics of SD are quite easy to bring into the classroom, so there are no problems with that."* (T2)

> *"Limitations are created by time management. […] But also, if I were to suggest a bigger project that I would like to do, there would be problems with the resources. But in my everyday life there is none."* (T4)

The lack of time for the teachers derived from a few aspects. Most often the teachers had a huge workload, and they reported being occupied with their subject contents. Thus, sometimes ESD was experienced as an extra task to implement, especially for the language teachers. Additionally, challenges with time were also caused by strict course or lesson structures when the teachers had limited possibilities to impact how to organize their lessons and courses. Thus, sometimes the teachers were lacking the possibilities to implement ESD in the way they would have preferred, and they struggled with finding the time to do so.

> *"If the teacher already has a lot of other things to think about, they might not go for it [ESD implementation], or they might think that it is too much and too much of a hassle, so they do not want to do it."* (T1)

> *”The number of hours you have limits the implementation. If you think about, for example, the amount of English lessons in grades 7-8, we only have few English lessons in a week. You can't fit that [ESD] in because you must prioritize the subject’s contents.”* (T3)

Another aspect that created challenges for implementing ESD was limited amount of money and resources. For the teachers the lack of money and resources set limitations for their professional agency, especially with activities occurring outside the classroom and school environment. Thus, the teachers described organising activities outside of a classroom, for example visitations, being difficult due to the need for money and special arrangements.

> *”Also, challenges with resources exist. If we think about going to a field trip with the children to see how the society works, and how something is solved, that’s a challenge. Because you cannot do those things within the lessons. So, you have to take time from other colleagues, and ask if you can use their history lesson for this thing and you can give them your lesson to use for another thing later. But it requires a lot of arranging, and it can be quite a hassle.”* (T1)

> *”A lot of things get hindered because there is no money or resources. So, you have to think about whether you want to do those things on your own expense or what.”* (T5)

Moreover, the lack of time, money and other resources often caused *prioritizing* in schools, which sometimes also set boundaries or limitations for professional agency of the teachers in ESD implementation. Therefore, other themes could be highlighted over ESD in the schools. In addition, one of the language teachers described that the prioritizing sometimes appeared as limited opportunities to participate in certain training related to ESD. Because of the limited resources and money, only some of the teachers were able to participate in certain training. Thus, with SD related aspects, geography and biology teachers often got the advantage over language teachers. Furthermore, some teachers felt that the current COVID-19 pandemic had affected the current priorities, of which ESD was often excluded.

> *“If I wanted to participate in a SD related in-service teacher training, but there is also a biology and geography teacher who also wants to*

> *participate, the principal is going to prioritise in the basis of who is more useful to send in the training, and I would not be the one. So, it is just an unfortunate fact that everything is, after all, dependent on the money."* (T4)

> *"Maybe the biggest challenge right now has been the diversity of learning due to the COVID-19 pandemic, during which the contents of teaching are more important, and everything else has been unfortunately forgotten."* (T2)

> *"Maybe the global situation [COVID-19] we are in. Although it would be very important to discuss about it [SD], but maybe the priorities are elsewhere at the moment."* (T3)

In addition, the COVID-19 pandemic, and the consequent *distance teaching*, had also created other challenges and limitations for teachers' professional agency through limiting their most important resources for ESD implementation. For example, the distance teaching was seen as a limitation as the 'real' interaction with the pupils was missing. Moreover, the frame for the distance teaching was described to be more limited causing challenges for collaborating with other teachers as well as using participatory methods, both of which were critical tools for teachers in implementing ESD in their lessons. Furthermore, the pandemic had restricted the in-service teacher training possibilities for the teachers.

> *"We were supposed to do that [a collaboration project] in social sciences as well, but the C-thing [COVID-19] happened, which prevented it quite efficiently. Also, we have seen that it [ESD] kind of needs a real interaction, which doesn't work on Zoom. It really requires real interaction."* (T2)

> *"The pandemic year has had an impact too, because I feel that before COVID-19 I was quite eager to go to different training sessions and update my knowledge on these things."* (T3)

Other external limitation and challenge the teachers described was the *differing home values* of the pupils. Sometimes the home values were contradictive to the SD values, and the parents might had responded negatively to SD related activities.

> *"Sometimes, when you have discussed SD issues with the pupils, you hear afterwards that some parents have disliked it because they have different values at home."* (T4)

> *"Maybe the different values. […] In some homes, they might not think these things are important and the emphasis might be on other things."* (T2)

Two teachers also viewed *the changing nature of school and society* creating challenges for their professional agency. One teacher implied that schools have become "effective" institutions that are based on the neo-liberal policies of efficiency and productivity. Thus, the expectations of a society and economy are contradictive to the SD goals, which could result into confusion with the children.

> *"I think that the schools have become quite effective places which has caused a situation in which the pupils are interested in creating their careers, and even though they would genuinely be interested in environmental aspects, they might not have time, or they do not consider it meaningful when there are other things fulfilling their time. So, in a way the school and society support the idea of aiming for good status and getting a good profession and making money so that they can participate in consumption and making Finland competitive. And these kinds of things affect what the children will think as valuable."* (T5)

In addition, the language teachers discussed about *the limited knowledge*, and *the complicated nature of the SD issues* as challenges, which sometimes made it hard to discuss about the topics with the children. However, the language teachers also saw this as a possibility to learn together and search new information on the topics with their pupils.

> *"And of course, I could always have more knowledge about it but that cannot completely stop me from discussing about the things. I have to as an adult to tolerate the fact that I do not know everything. […] I do not have a problem to start a conversation about something even though my knowledge about it is limited. Then we just search information and fill the gaps together with the pupils, so it is kind of like a mutual project."* (T4)

> *"Well challenges are the lack of time and energy as well as courage, in a way. Sometimes the topics of SD can be quite difficult. Now we have for example a day of controversial topics which introduces difficult topics such as racism or sexuality. […] So, maybe the challenge is, how to discuss about them with the children."* (T3)

The *limited knowledge* was also considered as a limitation for professional agency by the principal. The principal implied that supporting teachers in implementing ESD was challenging if the principal lacked the knowledge on the topics.

> *"If the principal has a gap in their knowledge about these things, it is quite hard to support the staff in that matter."* (P1)

Furthermore, one of the most considerable limitations for the principal was the same as with the teachers: *the lack of time.* The principal described time management and the *need to prioritize* causing challenges for their professional agency. Therefore, having a great number of different aspects to consider, the principal constantly needed to update their work tasks and priorities, and sometimes ESD received less attention.

> *"Time. That comes first to mind, and more specifically time management. I am quite good at making annual clocks, and I make it for every semester. I make them even monthly and weekly, but still I need to constantly update and prioritize tasks that need to get done immediately, and things that can be taken care of later. So, that is what I mean by time. It can sometimes cause grey hair, because sometimes it feels like there is not enough hours in a day."* (P1)

The principal also described *the lack of money and resources* preventing the implementation of some ideas in the school and setting limitations for professional agency. Consequently, even good ideas were sometimes unable to be realized because it needed more money than the school could afford, or the low number of staff and other resources made the ideas unfeasible.

> *"We have different limitations created by the economic aspects, because the money is tight in schools, and because of that we might not have the possibilities to realize all the ideas. A lot of the times the teachers have good ideas, but we just do not have the money for it. […] Also, advancing certain things might be a challenge because sometimes it does not go as smoothly as you would have thought because someone might say that we cannot do this this way because there is this and that. […] So, these kinds of situations exist when you are not able to do everything you might want to."* (P1)

The priorities also affected the principal's training possibilities. For instance, the principal explained that the principal trainings and meetings often had other topics, such as Information and Communications Technology (ICT) skills and leadership skills, that were emphasized. Thus, prioritizing and choices had to be made between the different topics.

> *"In the training sessions [for principals], perhaps it has been about making choices in whether you have participated to one of these SD trainings or in something else. I would say that we have also had, I don't know if I can say competition, but as big themes in the past few years have been, of course, the work community and leadership skills, and then ICT skills. Then the third is this SD and rather more about the global world view. So, these are the main three themes that we've had, and we had to make choices between them."* (P1)

For the education experts the biggest limitation for their professional agency was also *the lack of time*. The experts reported the ESD related tasks being just a small part of their whole job description. Therefore, the time they could use for it, was limited, and caused challenges for their professional agency. The education experts also described the high external needs and demands for these types of tasks, and they sometimes experienced feelings of inadequacy because of it.

> *"I also personally experience the limited working hours as a challenge. Like we already mentioned that this [ESD] is a very small slice [of work tasks] but then from the outside it feels like we have a lot of requests, and demands, and hopes that the EDUFI will solve. And maybe the feeling of inadequacy in this matter is quite strong."* (E1)

The external demands also set other limitations for the experts' professional agency. The experts reported representing the EDUFI as a public office, so their main task is to promote the views and values of the EDUFI. In addition, they described making the decisions in collaboration with other actors, and they as individuals needed to make compromises. Hence, certain limitations existed in how much the experts could promote their own interests and values about SD in their work.

> *"It is important to remember that my opinions are my opinions, and my task is to represent the EDUFI and the teaching and education sector. Also, I have to consider the demands and needs coming from the sector."* (H1)

> *”We do not make decisions alone, but we make them in collaboration with other actors, so we also have to make compromises about different needs and demands. So, we cannot bring our own interests into that, not that it is our task anyway, but we have to consider the interests of the society.”* (H2)

Moreover, a significant limitation for the professional agency of the experts was *the lack of national coordination for ESD*. The experts described that in education policy, SD has rarely been the most important topic and other themes, such as digitalisation, have traditionally been prioritised. Thus, other aspects of education were promoted and coordinated more efficiently, while the coordination for ESD was missing.

> *“The holistic coordination for ESD on a national level is missing.”* (E1)

> *“Then again, in a lot of the governmental projects in education policy the SD has not been in a very big role, and there are other themes that have often gotten more attention than the SD. […] We have themes like digitalisation that has been emphasized and promoted quite systematically and it has a kind of coordination, very differently in the agency than what we do [with ESD].”* (E2)

Lastly, the education experts experienced the autonomy of education providers setting certain limitations for their own professional agency. Although the autonomy was also seen as a strength in general in the Finnish education system, it was reported limiting the influencing possibilities of the EDUFI and the experts, as they could not affect the way the local education providers would implement ESD. One of the education experts described this as follows:

> *“In Finland, the education providers have a strong autonomy, for example in deciding, what kind of pedagogical methods are used or how the working culture is being developed by the principals, and in what kind of education environments the learning is happening. So, for that the EDUFI has zero power or mandate because it happens on a local level. […] So, we do not have the possibilities to go and tell the teachers how they should do things. But I do think that the local autonomy is also a huge strength.”* (E1)

5.2.3. Supporting Factors

The main factor supporting teachers' professional agency while implementing ESD was their *autonomy and independency*. All the teachers highlighted having freedom to implement ESD in the way they thought was the most suitable for them, which supported both their sense of professional agency and the implementation of ESD. Another essential supporting factor for professional agency was *the teachers' own interest* regarding the SD topics. Therefore, being able to utilize teachers' own areas of interest and building teaching around their own strengths, was seen as a huge support for their sense of agency while implementing ESD. The interest about the topics of SD was also reported to be necessary for the ESD related teaching to be genuine and effective. However, one teacher considered the teachers' freedom also as a risk, as the teachers who were less interested in the topic, might include the topics of SD into their teaching less frequently.

> *"The great thing about Finland is that every teacher can build their teacherhood on their own personality and apply the things that are suitable for them. Because then the teaching is real, and it also conveys differently to the pupils than If you would do things in a way that you feel is not for you, and you do not want to, but you do it only because you must."* (T1)

> *"It [implementing ESD] is very much up to the teacher's persona. Some teachers are very excited and interested in it and feel that it is important, while other teachers think that they just have to count these fractions or something. So, the autonomy is a good thing and a bad thing."* (T3)

Furthermore, the teachers' sense of their autonomy and professional agency was supported by *the school culture*. More precisely, the openness and supportiveness of the school environment to implement ESD in various ways, was considered as an important supportive factor. Therefore, when the school culture left room for the teachers' creativity and freedom to utilise their own interests and strengths in implementing ESD, their sense of professional agency was strong.

> *"I find it that our school is quite open and everything is "up to you", so no one comes and tells me that I need to do this thing, or I cannot do that thing. Whatever I come up with, I am free to do it with the timeframe I have been given, so in a way only the sky is the limit."* (T1)

> *"In our school, the atmosphere is very open in a way that you don't necessarily have to go with the textbooks but you can do something else if*

> *you want to […] So, the school is open to different things and also offers room for different possibilities."* (T3)
>
> *"Our school has quite a positive attitude to all ideas so whatever I come up with, there really are no problems with that."* (T4)

The principal also had an influential part in supporting and encouraging the teachers' professional agency and the implementation of ESD. Therefore, the teachers' professional agency was strong when they experienced the sense of trust between them and the school principal. In addition, the teachers recognised the principal's part in sharing information on the topics of SD, as well as informing of different possibilities about in-service teacher training or events related to SD. However, sometimes the emails and information load from the principal was considered excessive and overwhelming. Thus, principals' encouragement in reasonable amounts supported the professional agency of the teachers.

> *"The principals are also supportive, and they might send emails that they have received, for example about opportunities to participate in different events. So, it is more informing about different things. So, they do encourage us to participate and do different things, but they do not force anything on us or tell us to do something in a certain way. And for me personally, if they told me to do something, it would not work. […] The principals trust us, and we can decide how we do it [ESD]."* (T1)
>
> *"The principal forwards emails sometimes which is nice. Although sometimes we have told the principal to not send us the emails because we get them from everywhere all the time. So, sometimes we have forbidden the principal from sending us anything extra for like a month."* (T4)

As with resources, other teachers were seen as a valuable support, and teachers described *collaborating with colleagues* being important in implementing ESD. With their colleagues, teachers could share ideas, discuss about the topics, and develop their teaching and activities they used in their lessons. Also, common activities in the form of different theme weeks or days supported planning and doing together with the other teachers.

> *"Well, the working group, in which we discuss about these things and also when the school organizes theme days or weeks, they always offer different possibilities, and a certain group of teachers can plan and organize the material, and we can use them in our lessons as well."* (T3)

In addition, another beneficial resource for the teachers was viewed to be the *subject they taught* as well as *the textbooks and other available learning materials* they used in their teaching. Especially the geography and biology and the history and social sciences teachers felt like their subject already included SD topics, and that the implementation of ESD came rather naturally due to the contents of their subjects. Whereas the language teachers described the implementation of ESD sometimes being an additional part of their teaching that was separate from their actual subject's topics. Nevertheless, the language teachers considered that their textbooks acted as a supportive factor because they included good amount of SD topics.

> *"First of all, I have to say that when you teach biology and geography, the different aspects of SD come quite naturally, often without having to think about it, because the subjects' contents derive from the same starting points [as SD]."* (T1)

> *"What I see as a language teacher to be quite easy, is bringing up different themes and issues, because you can study them in any language. Also, The English textbooks help enormously because these themes are quite visible in there. They include, for example climate change and all kinds of social issues and other SD topics, so the themes come with the help of the textbooks quite easily."* (T4)

Furthermore, teachers described having *access to material resources* and equipment such as laptops or tablets, during the lessons, which supported their professional agency in implementing ESD. One teacher also reported the possibility to print material as a supporting factor.

> *"All the pupils have laptops now, so the technical side is good. And of course, we have a possibility to print out different material, there's no limitations."* (T2)

In contrast to the strict course and lesson structure, which caused limitations to teachers' professional agency, *the possibilities to influence lesson or course structure* supported both teachers' sense of professional agency and their autonomy. The flexibility of the course and lesson structure was also seen as an essential factor for implementing participatory methods. Hence, when the teachers had the possibility to affect the lesson or course structure, they were able to plan various activities, also outside of the classroom, which facilitated their different possibilities in ESD implementation.

> *"When the teacher has a possibility to affect, when they have lessons during the school year, and also the opportunities to take the pupils outside of school to see different things. I think these things support the implementation of ESD and the agency."* (T1)

> *"The fact that we can get out of the classroom. I feel like there's a good encouragement for that."* (T2)

Also, *the national core curriculum* and interdisciplinary learning modules were mentioned as supporting factors for implementing ESD by two teachers. Furthermore, the teachers viewed that because the curriculum included these topics, it was part of their job to include them in their lessons.

> *"Now that we have these interdisciplinary learning modules, these topics have been more present in our school."* (T1)

> *"And now it [ESD] is in the national core curriculum, so we have to discuss about it with the pupils."* (T2)

In addition, one teacher talked about *the multicultural environment* in school as a supportive aspect. They described their school having children from different cultural backgrounds, which made it easier to discuss about the various SD topics. Therefore, issues related to social dimension, such as cultural diversity, equality, and tolerance, were already present in the everyday life of the school.

> *"Our everyday life in school is already so different than maybe in many other schools. So, things that might cause issues in somewhere else, we do not even notice them anymore here. It is quite easy to talk about SD related topics because the children already have personal experience on them because it is their life and certain things are present all the time. For*

> *example, the different cultures do not cause conflicts here, because the pupils are familiar with them. They understand why this person acts like that and the other acts like this or wears that type of clothing, and there's nothing weird about that. […]"* (T1)

For both the principal and the education experts, the main supporter for professional agency was *collegial support and collaboration*. Thus, the role of their professional networks was again highlighted. Especially the principal emphasized the importance of the other principals as facilitators for their professional agency. Indeed, the principal reported their work occasionally being rather lonely, and the support from other principals was crucial, due to the administrative nature of their work. The support from other principals manifested itself in sharing ideas but also facilitating the different strengths of different individuals.

> *" I am more in an administrator role in the school, so my job is quite different compared to teachers. So, you are easily left alone with things, and that is where the other principals, collegiality and sharing thoughts and ideas with other principals, but also utilizing the different strengths of the different principals, come to the picture. I would put that as first."* (P1)

In addition to collegial collaboration, the principal named *the local actors* as a support for their professional agency. The collaboration with experts from other sectors offered expertise and new knowledge about the issues of SD in a beneficial way for everyone in the school.

> *"Also, these local actors and collaborating with them is, if not support in the actual sense of the word, but it is kind of educational benefit because they have the expertise about these things."* (P1)

The education experts also mentioned colleagues as a supporting factor for their professional agency. More importantly, their *broad networks* were the main supporting factors, and offered the experts various opportunities for practising their professional agency. Furthermore, the experts discussed that *the government and the MINEDU policies*, as well as *the international guidelines* created a framework in which their professional agency was manifested and practiced.

> *"We have the collegial support, so I can share ideas with [E1] and of course with others who work with these issues […] And we have the Agenda 2030 working group, so that is also a form of support because we have a mandate in which we can act and promote things. Then of course, the MINEDU has its policy for SD in the sense of what we can promote. Then, if we look at this even broader, there is the Government programme and other Agenda 2030 goals on international level. So of course, they are supporting factors in the bigger picture."* (E2)

5.2.4. Missing Support

In general, all the subject teachers considered the number of resources and support they received to be sufficient, and they had enough room for exercising their professional agency. Moreover, the teachers described having as much support as they wanted if they only asked for it. However, few aspects were described by the teachers in which they hoped for more support for their professional agency in implementing ESD.

Firstly, the teachers described the lack of cross-sectional collaboration and they wished for more *opportunities to collaborate with the other subject teachers* outside of their own subject. Most teachers described the collaboration with the other teachers being limited to the theme days or weeks that the school organised, and working with the other subject teachers in everyday life was considered challenging.

> *"[…] of course when we have media literacy weeks or something like that, we can collaborate and do different things together but I think that maybe the cross-sectional collaboration in like everyday life is still difficult. So, it [opportunities to collaborate] kind of needs the theme weeks or days to do that. […] It requires time to think together what we already do, and share the knowledge with others that I do it this way, and you can do it too."* (T3)

Therefore, the teachers hoped that *the school would arrange more time for collaboration* and be more active, for example in organizing common events or other dedicated times to collaborate with other teachers. Furthermore, *the common activities*, such as theme weeks, were also described supporting effective ESD implementation. Indeed, collaboration with other teachers was seen to support the creation of mutual and collective practices for implementing ESD.

> *"I think that it would be good if different opportunities existed or theme days or any other in which it [collaboration] would be brought up more. […] Those are the kind of things that are more effective."* (T1)

> *"Maybe the school's role could be, in a way, to organize co-planning time. […] And if we had theme weeks or something like that, we would know ahead of time who is responsible for what. But the planning time, and kind of like scheduling, is what I would hope to have more of."* (T2)

Some of the teachers hoped for support in the form of *regular updates or training* that could even be mandatory for all the teachers to develop their knowledge on the SD topics. As mentioned above, searching for information related to SD was very dependent on the teachers' own activity and initiative, and it consumed time. Thus, some teachers considered benefitting from participating in regular training that had a set time and place.

> *"I probably need more kind of an update or something like that. I mean, I would not mind listening for an hour for someone telling me about the topics and giving me a list of links. I would be happy after that, so that would be good to have regularly."* (T4)

> *"I would think that teachers are quite busy with all their work, so in that sense, a paid training available for everyone, and organised, for example, by the universities. And the training could even be mandatory. I think a need for that exists. But I can only speak for myself."* (T5)

Furthermore, the teachers hoped for *more clarity in the learning materials* related to SD. Although the teachers recognised that a significant amount of learning materials already existed, they described wishing for more accessibility, availability, and customizability. Thus, the teachers described that the learning materials should clearly state for whom the learning material is aimed, how much time it requires to complete, and how to use it. In addition, the teachers hoped for material that would be easily modifiable for their own needs. The teachers also wished the learning materials to be online, easily accessible, and quick to find. One teacher described an ideal situation of having a web portal that would include all the information related to ESD learning materials gathered in one place.

> *"I feel that the material that is on the internet and is easily accessible and has clear instructions for whom it is aimed and how much time it is going*

> *to take. […] a place where you can find different kinds of things, short things, projects, certain models that you can modify."* (T1)
>
> *"Well, a type of portal would be a dream. A portal in which the material would be clearly for different aspects of teaching and for different age groups."* (T4)

In addition, most teachers emphasized the need for the learning materials to consider their subject contents and the national core curriculum. Thus, the teachers hoped that the materials would be designed by someone who had the knowledge of both the SD topics and pedagogy. That way the learning materials would correspond with the curriculum as well as the specific subjects' contents, according to the teachers. Also, one teacher hoped for the learning materials to utilize the participatory methods more often.

> *"It would be good if the person would have knowledge in the contents of the teaching and the curriculum. It is important to understand, that when you are collaborating with schools, certain limitations exist. We are not completely free to do everything and anything. Especially in lower secondary schools, the teaching is highly tied to the curriculum."* (T2)
>
> *"When the learning materials are done by a person who does not have pedagogical knowledge, the exercises are bad. So, it requires someone with pedagogical knowledge to think about the school side of it all."* (T4)
>
> *"I am the type of teacher who longs for more participatory methods. I do not like materials that are in the form of a PowerPoint and offer a quick information package. So, participatory methods in learning materials are what I need."* (T1)

Moreover, one teacher discussed that SD should be a clear and *common goal* in the school culture in general. Therefore, the school needed to communicate and verbalize SD as a goal more effectively.

> *"I think that the school should communicate better that this [SD] is an important topic to us. […] Because I see that SD is intertwined with everything, it should be quite easy to do. The school should clearly verbalize these things and state that we value these things."* (T3)

On the other hand, one of the teachers suggested that SD, or more specifically environmental aspects, could be its *own subject or a separate course* in the future. The teacher discussed that sometimes ESD might be forgotten due to the lack of time or the need to concentrate on the subject specific contents. Hence, having a separate subject dedicated for SD topics would prevent neglecting the important issues.

> *"I think that it is a little bit of a problem that it [SD] is distributed as a big theme in all subjects. It is good but also kind of a bad thing because if I think about teaching history, there is a lot of the history topics that I also need to teach, and sometimes the important things get forgotten. […] So, I think that in the future the environmental aspects could be a separate course or maybe even its own subject."* (T5)

On the contrary to the teachers' experience, the principal and the education experts had quite different views on the available support, and none of them had received a great amount of support in implementing ESD.

> *"I would say that quite little, after all, I receive support. First of all, more support should be available for both, principals and teachers, and of course for the pupils too."* (P1)

> *"I would add that perhaps a certain type of support is missing, because we get a lot of pressure outside to do more but then again the operators even on our own sector do not have such a great interest in this."* (E2)

Especially the principal wished having more support and *active input from various local actors* in reaching out and offering material, expertise, or visitations opportunities for the schools. Indeed, the principal described the ESD implementation being more efficient when the schools could utilize the outside expertise.

> *"I would kind of hope more active input from the local actors. If you think about, for example, my education, which happened a long time ago, we did not even have all the information available at the time. So, it would be more beneficial and reasonable for the experts, who have the knowledge about these things, to come to us and offer their expertise, either for the municipality or even directly for schools. Or we could even have a function of some sort for all the principals in the area."* (P1)

Furthermore, the principal emphasized the value of the *national core curriculum* offering guidance in ESD implementation, and they wished that these topics would be integrated thematically and more clearly into every subject.

> *"When we had the curriculum reform, I hoped that the SD themes would have been embedded more in there, and I mean thematically. Because I think that these themes exist in the curriculum in a way that is rather self-evident. So, I hoped for kind of like thematic tools embedded in the different subjects."* (P1)

Because the most crucial aspect for the education experts was the lack of coordination for ESD, both the experts expressed the need for *more organized actions for ESD* at the national level. Moreover, the experts implied that ESD has received less attention than other topics, and they wished that it would be considered more meaningful.

> *"This [ESD] is only a small part of our work tasks, and many other themes here [at the EDUFI] have fulltime coordinators promoting them. The national coordination of ESD is maybe missing. […] So, it would be nice if everyone would want to promote these things. Maybe through that we could create more positive environment that could also lead into more action."* (E2)

Therefore, the education experts discussed *the need for a transformative change* in society as well as the importance of a shift in attitudes in general. The experts further described ESD currently being one of the multiple other relevant themes that schools need to consider. Thus, the implementation of it is fragmented. The education experts also argued that the goals of ESD should primarily be embedded into everything as a basis, instead of it being a topic that needs to be separately implemented and reviewed. In that sense, according to the experts, an open dialogue and collaboration is crucial. The experts described the situation as follows:

> *"I would say that we have a good number of different materials, but the challenge is that it is fragmented, and at the same time, along with ESD, other themes take up a lot of the schools' time. […] So, I would see that we need a strong transformative change. We have the knowledge and the competence, but we also need a change in attitudes and the want to act in*

a new way. For that, I don't know if there is any other solution than open dialogue, and that we would listen and also hear what the others have to say, and together create the common goal to which everyone would be committed." (E1)

"I think SD is something that should be integrated into everything, and not as a separate issue. The sustainability goals should be embedded into everything we do. […]. So that it would not be a separate thing that someone, who is interested in it, will implement it and search information on it. But we still might have a long way to go to that point." (E2)

6. DISCUSSION

The focus of this master's thesis was on the resources as well as the possibilities and limitations of teachers, principals, and education experts in implementing ESD. Therefore, the thesis examined the ESD implementation from the point of view of professional agency to understand what kind of possibilities teachers, principals, and education experts have in implementing ESD, as well as the aspects that support and limit these possibilities.

The results of this research indicate that a significant number of resources exist, as teachers, principal and education experts recognised multiple ways in which they can receive and share information and update their knowledge on the SD issues. Two main resources for all the interviewees could be identified: the internet, and the professional networks. The internet was seen as an easy way to maintain the current information related to SD. In addition, the social media acted as an important tool through which all the interviewees could share and retrieve information.

The professional networks for all the interviewees could be further divided into internal and external networks. Thus, the most valuable internal network for teachers included the other teachers, the school principal, and the working groups inside the school. Similarly, the most significant internal networks for the principal and the education experts were also their colleagues as well as the working groups in which they participated. In addition, the external network for both the teachers and the principal contained the local actors that offered training and visiting possibilities for the teachers and the pupils. Moreover, the external networks for the education experts were broad, and the experts actively collaborated with actors on the public and third sectors as well

as teachers and other education providers. Even though multiple resources were recognised by the interviewees, all of them reported information seeking, and utilizing it in their work, being highly depended on their own activity, initiative, and interests. This also aligns with the previous studies that have stated that the teachers' and principals' own interest strongly affects how ESD is implemented (Aarnio-Linnanvuori, 2018; Pepper & Wildy, 2008; Saloranta, 2017).

The perceived professional agency for all the interviewees was strong, and all of them experienced having possibilities to influence SD through their work. However, the possibilities for teachers seemed to be more straightforward and direct, whereas the possibilities for the principal and the education experts were described rather indirect due to the nature of their work. Previous research indicates that the teachers' professional agency is the strongest in classroom situations while they are teaching and guiding the pupils (Eteläpelto et al., 2015). This research also concludes that the professional agency of the teachers in implementing ESD was manifested through the everyday life and interaction with their pupils. Hence, the main ways of influencing were through affecting attitudes and raising awareness of the SD topics as well as increasing the knowledge of SD issues. The teachers emphasized being unable to change anyone's behaviour, so their possibilities manifested in encouraging and empowering their pupils in making their own decisions. The teachers also highlighted the importance of creating hope and positivity while discussing the complex SD topics to avoid overwhelming the pupils. Therefore, the teachers' own example and small things in everyday life were often the most effective ways to influence the ESD. Moreover, the teachers emphasized using participatory methods in ESD implementation, as well as utilizing the idea of hidden curriculum. Most of these aspects are also the most important methods of ESD teaching (Björneloo, 2004; Corney, 2006; UNESCO, 2017). Thus, this indicates that the teachers in this study already had a certain amount of knowledge of ESD implementation.

However, the knowledge and the implementation of SD have proven to vary between different subject teachers, and often the biology and geography and the history teachers feel more competent in including SD topics in their teaching than other subject teachers (Summers et al., 2004; Uitto & Saloranta, 2017). Correspondingly, some differences between the different subject teachers perceived professional agency in ESD implementation also existed in this study. Indeed, the implementation of ESD was seen as an integral part of the subject contents with the biology and geography and the history and social sciences teachers, while the language teachers considered the SD issues sometimes being a separate part of the contents of their subject, and the implementation

of ESD required further planning. Hence, the implementation of ESD was often more natural for the biology and geography and the history and social sciences teachers.

Furthermore, some subject teachers might be unable to recognise sustainability topics being a part of their own subjects' contents (Aarnio-Linnanvuori, 2018). In this study all the interviewees recognised the importance of ESD, regardless of their subject. Therefore, this study only included those teachers who already were interested in the topic. However, difficulties in recruiting interviewees occurred because some of the contacted teachers, mostly language teachers, stated that ESD was not part of their subject's contents, and the research topic did not concern them. As Pepper and Wildy (2008) argue, the knowledge of the SD topics is one of the most important factors in supporting the implementation of ESD. Therefore, future research should also include the teachers who do not actively implement ESD in their teaching, as the support and resources they need, might vary significantly from the teachers, who already have a good understanding of the SD issues.

Moreover, the role of the principals in affecting the implementation of ESD, has shown to be significant (Saloranta, 2017). In this research the principal also acknowledged having an influence in creating ESD in the school culture. However, the principal discussed their possibilities being more indirect compared to the teachers, due to the administrative nature of their work. Therefore, the most beneficial ways of influencing ESD for the principal was through the small things in everyday life and in encouraging SD aspects in the schools' environment. The principal also emphasized their importance in upkeeping with the development as well as encouraging and supporting teachers to develop their pedagogical methods.

The SD implementation at the national level is performed in cooperation with various sectors and actors in society (Berg et al., 2019). This was also emphasized with the education experts in this study. Therefore, the main ways of influencing for the education experts occurred through their various networks as they enabled raising discussion and awareness of the SD issues as well as affecting attitudes via different channels. Also, the education experts stated that participating in the developing of the national core curriculum was one of the most important instruments for having an influence in implementing ESD. Indeed, the national core curriculum is an effective way to guide ESD actions (Anttila, 2014).

The main challenges for the ESD implementation have proven to be the lack of time, resources, and money (Aarnio-Linnanvuori, 2018; Saloranta, 2017), which were also the biggest limitations for all the interviewees in this study. For teachers the lack of time,

money and resources often limited the possibilities to do things outside of classroom, which was seen as essential for the ESD implementation. Most often, the challenges with time were caused by the strict course or lesson structures, which limited the different possibilities in implementing ESD. In contrast, the possibilities to influence the course and lesson structures supported the professional agency of the teachers, giving them more room and freedom to implement ESD. These results also align with the previous studies about the limitations of the teachers' professional agency in being able to affect the contents and schedule of their teaching (Pappa et al., 2019).

In addition, the lack of time and money caused prioritizing in schools, which sometimes put different subject teachers in an inequal position. Therefore, ESD related training possibilities were only available for certain teachers, such as the geography and biology teachers. The prioritizing also limited the principal's training possibilities, and the available training for principals often emphasized other topics. Furthermore, the prioritizing had been emphasized especially with the COVID-19 pandemic during which ESD received less attention in schools. The pandemic also affected the efficient implementation of ESD as the needed interaction and participatory methods were more difficult to organize during the distance learning period. Other limitations for the teachers' professional agency in ESD implementation were created by the differing home values of the pupils, the limited knowledge of ESD, as well as the complicated nature of the SD issues. The latter two limitations also support the findings of previous research on the difficulties in ESD implementation (Aarnio-Linnanvuori, 2018; Pepper & Wildy, 2008).

Interestingly, the teachers in this research did not report any internal limitations for their agency in implementing ESD. On the contrary, they experienced their personal possibilities to be rather limitless. Also, the class-room related challenges that have occurred in previous research as a limitation for teachers' professional agency (Pappa et al., 2019) were absent in this study. The biggest limitations for the teachers in this research were created by factors that also limited their autonomy and independency to implement ESD. According to previous research, the autonomy is one of the most valuable facilitators for teachers' professional agency (Vähäsantanen et al., 2008).

Indeed, the results of this thesis also confirm the teacher autonomy being one of the most important facilitators for their professional agency. Hence, the freedom to implement ESD in the way the teachers wanted, was experienced the most significant factor in supporting their professional agency, as well as their possibilities to influence SD. Furthermore, the school culture, more specifically the openness and supportiveness of the school, as well as the principal, were essential supporting factors for the teachers in ESD implementation. The principal's support through sharing information and

encouraging the teachers in ESD implementation, was recognised by almost all the teachers in this study. However, the support from principal could sometimes be experienced too extensive. Therefore, the support from the principal was experienced the most effective, when the teachers still had the freedom in deciding how they utilized the available support. Indeed, previous research also shows that being able to participate in decision-making, and affect the contents of their own work, supports the individuals' professional agency and commitment to the organisation, whereas the external control hinders them (Vähäsantanen et al., 2008).

Moreover, the external control limits the possibilities for experts to develop work practices and diminishes the commitment to the work organisation as well as the sense of their professional agency (Eteläpelto, Heiskanen, & Collin, 2011; Hökkä, et al., 2010). Similarly, in this research, the biggest limitations for the education experts, besides the lack of time, money, and resources, derived from their work being under external control and expectations. Thus, education experts described having other work tasks of which ESD was only a small part, and the possibilities to implement ESD freely was limited. The experts also faced external expectations and demands which sometimes caused feelings of inadequacy, because they were lacking the time and resources to fulfil the expectations. Limitations were also created by the fact that the experts represented the EDUFI and its values in their field of work. Therefore, their possibilities as individuals through their work were different and more connected to the collective possibilities of collaborating with other actors. The experts also described the lack of the coordination of ESD at the national level setting a considerable limitation for the effective ESD implementation.

One of the most essential supporting factors for professional agency as well as implementing ESD, are shown to be the collaboration with colleagues (Aarnio-Linnanvuori, 2018; Eteläpelto et al., 2015). For all the interviewees, also in this research, one of the most important facilitators for their professional agency in implementing ESD was their colleagues and other professional networks through which the interviewees could share ideas related to SD. Especially for the education experts, their possibilities to influence ESD, were experienced being the strongest in collaboration with other actors in the field. Also, the experts discussed that the international and national strategies and policies created a framework for them through which their professional agency was manifested, practiced, and supported.

Furthermore, some teachers mentioned the national core curriculum and its contents guiding and supporting their ESD implementation. Other supporting factors, especially for the language teachers, were their textbooks, whereas the professional agency of the

geography and biology and the history and social sciences teachers was supported by their subjects' contents. In addition, other material resources, such as laptops or tablets enhanced the implementation of ESD. One teacher also mentioned the multicultural environment in their school as an asset, which made it easier to talk about different cultural aspects with the pupils, as the topics were already a part of the normal life in their school.

In general, the teachers thought that enough support for ESD implementation existed for them. However, the teachers still needed more time to collaborate with the other subject teachers. Hence, they wished that the school would be more active in organizing possibilities for the teachers to collaborate. In addition, the teachers wanted more clarity in the existing learning materials, and they described a need for versatile materials that would be easily modified for their own needs. According to the teachers, the ESD learning materials should be developed by someone who has knowledge and expertise in both SD issues and pedagogy, so that the learning materials would correspond with the contents of the curriculum and their subject contents.

Moreover, some teachers wished for regular updates for SD topics in the form of organised training. Indeed, teacher education and training have a considerable part in promoting and improving SD (MINEDU, 2020). Thus, according to Wolff, Sjöblom, Hofman-Bergholm, and Palmberg (2017), ESD should be integrated into the teacher education equally, for all the subject teachers, to support the holistic implementation of ESD in schools. The in-service teachers also benefit from additional courses about sustainability and its holistic approach (Uitto & Saloranta, 2017), and in-service training supports teachers' professional agency (Pappa et al., 2019). However, some teachers in this study considered in-service teacher training on the SD issues being insufficient. Thus, future studies should focus on how to implement ESD in an appealing and effective way in both, the teacher education programmes and the training for in-service teachers.

Contrary to the received support for the teachers, the principal and the education experts experienced receiving less support in their work to implement ESD. Hence, the principal hoped for instance, more active input from the local actors. In addition, the principal wished that the ESD topics would be embedded in the national core curriculum more thematically. Furthermore, the experts talked about the need for the national coordination for ESD, as well as a transformative change in the values of the society to act differently. Hence, the experts wished that ESD would be a common goal in society which could be achieved by open dialogue between different actors. One of the teachers also discussed about the importance of ESD being a common goal in the school culture and functions.

According to this research, SD and ESD still seems to remain as a separate part of everyday teaching. The implementation of ESD seems to be highly dependent on the teachers' own interest, even though it should be a cross-cutting theme in every subject, and the importance of ESD has been highlighted in the different ESD strategies. Also, in the interviews, several teachers emphasized the ecological aspects of SD, and some of their answers focused on the environmental issues they included in their teaching. Because the explicit definition of ESD and SD were not offered before or during the interviews, the interviewees had a freedom to form their own interpretation of the concept. Thus, having the focus of the answers on the environmental issues could also indicate that the holistic understanding and implementation of ESD is still inefficient as the previous studies also suggest (Borg et al., 2014; Uitto & Saloranta, 2017). However, this aspect was not the focus of this research. Therefore, future studies could focus on the understanding of the holistic ESD implementation, and how to support it.

Lastly, as Värri (2018) argues, a need for redefining and reimagining the education system exists. The current education system reproduces the ideas of consumerism and unsustainable lifestyle (Värri, 2018). In addition to the experts, this was also discussed by one of the teachers in this study as a limitation to their professional agency, and the contradiction between the SDGs and the values of the society and education system was highlighted. Correspondingly, Joutsenvirta, Jaaksi, and Salonen (2020) argue that a new educational narrative is needed to achieve sustainability. They describe the current narrative to be the product of industrialization, neo-liberalism, and consumerism, described by the characteristics such as material wealth, performance, and competition (Joutsenvirta et al., 2020). In contrast, a new narrative is needed to emphasize the social wealth, the social connections, relationships, and the importance of belonging in a community (Joutsenvirta et al., 2020).

Thus, instead of focusing on the material goods, individuals should emphasize the immaterial aspects, and aim to seek meaning in their lives, including meaningful doing and social connections (Joutsenvirta et al., 2020). Then, the people in society would not merely act as market-oriented consumers but rather as active citizens aiming for harmony in life (Joutsenvirta et al., 2020). According to Värri (2018), this is only possible, if all interactions, processes, and structures formed in schools consciously aim to strive for the values and principles of SD. Hence, instead of ESD being a separate part that is integrated into the different subjects in schools, it should be the premise and foundation for the whole education system.

7. CONCLUSIONS

This research was interested in the possibilities and limitations of subject teachers, principals, and education experts in implementing ESD in Finland. The study was conducted as qualitative research using thematic semi-structured interviews, and the data was analysed with thematic analysis. The research data consisted of seven (7) thematic semi-structured interviews, and the target group of the research were subject teachers, and principals in lower secondary schools in the Turku area as well as the education experts working at the EDUFI in Helsinki. Altogether, five (5) subject teachers, one (1) principal, and two (2) education experts were interviewed. The subject teachers included one (1) biology and geography teacher, two (2) history and social sciences teachers, and two (2) language teachers.

The main findings indicate that the teachers, principal, and education experts use a variety of different resources in ESD implementation. Most of the main resources used for implementing ESD were the same with all the interviewees. Therefore, the main resources for ESD implementation could be divided into two categories: 1) the internet and 2) professional networks. All the interviewees used various online materials, and recognised various resources they could use in their work. Thus, the interviewees described that it was easy to keep up with the current information on SD related issues. Moreover, the professional networks for all the interviewees, including both internal (colleagues, working groups) and external actors (local and national actors, and stakeholders), were a significant resource for all the interviewees. Even though multiple resources were recognised by the interviewees, the information seeking was dependent on their own activity, interests, and initiative. Hence, all the interviewees described their information seeking being scarce and occasional rather than intentional and regular.

The perceived agency in implementing ESD for all the interviewees was rather strong. However, the professional agency of the teachers was indicated being more straightforward than the professional agency of the principal and the education experts. Indeed, the professional agency for teachers was strong in classroom settings and rarely any limitations were considered in their everyday life. The professional agency was especially strong with the geography and biology and the history and social sciences teachers, as they viewed ESD as an integral part of their subjects' contents. Furthermore, all the subject teachers' possibilities in having an influence were described to be direct effects on pupils which manifested through 1) affecting the pupils' attitudes, 2) increasing the knowledge and understanding of SD, 3) raising discussion and reflection on the SD topics, 4) talking about causes and effects of different actions, 5) empowering pupils to make their own decisions, 6) creating hope and positivity, and 7) acting as an example

for the pupils through small things in everyday life. Also, the participatory learning methods and the idea of hidden curriculum were described as necessary factors for teachers in implementing ESD.

In addition, the principal's professional agency was more complex than the teachers due to the nature of the principal's work. The possibilities of the principal manifested through 1) encouraging pupils in everyday activities such as recycling, 2) maintaining the topics of SD and the discussion about it in the school culture, 3) encouraging and supporting teachers in implementing ESD, and 4) keeping up with the development, being future oriented, and encouraging teachers to develop their teaching. Therefore, the principal had a significant role in maintaining the topics of SD in the school culture and the life of the pupils in the school.

Moreover, the education experts' professional agency in implementing ESD was closely tied to the collective possibilities in collaboration with other agents rather than having a direct influence as individuals. Thus, their professional agency was manifested through their professional networks which offered opportunities in 1) affecting attitudes, and raising discussion on the SD topics, and 2) relaying information between different actors. One of the most significant instruments for the experts in implementing ESD was the national core curriculum, and participating in formulating the national guidelines for education was described as a substantial asset in having an influence on ESD.

The most significant limitations for all the interviewees were created by 1) the lack of time, 2) the lack of money and resources, and 3) the priorities. Other limitations for teachers' professional agency were 4) strict course or lesson structure, 5) COVID-19 pandemic and distant teaching, 6) differing home values of the pupils, 7) the changing nature of school and the society, and 8) the limited knowledge and the complicated nature of SD issues. Furthermore, the principal also considered the limited knowledge as a limitation for their professional agency in ESD implementation. For education experts, other limitations were created by the lack of ESD coordination at the national level, the external expectations, and the autonomy of educators, schools, and teachers.

The main supportive factor for teachers' professional agency in implementing ESD was their 1) autonomy and independency. Therefore, when the teachers were able to implement ESD according to their own interest, their sense of professional agency was strong. Other supporting factors for teachers' professional agency in ESD implementation were 2) the other teachers in the school, 3) the school principal, and 4) the possibilities to influence the course or lesson structure. In addition, the geography and biology and the history and social sciences teachers considered the subject they

taught to support the possibilities in implementing ESD, whereas the textbooks acted as a supporting factor for the language teachers. Furthermore, for both the principal and the experts, the most important supportive factors for their professional agency in implementing ESD were their colleagues and their networks. The education experts also emphasized the importance of the current policy guidelines both at national and international levels in offering framework in which they can practice their professional agency.

In general, the teachers considered their received support being good for their professional agency in implementing ESD. However, the support that the teachers wished for more was related to the collaboration with the other subject teachers. Thus, they hoped that the school would organize more time and opportunities to collaborate with their colleagues. Moreover, some of the teachers would benefit from regular updates or training, that were available for every subject teacher. In addition, the teachers hoped for more clarity in the available learning materials. Moreover, the teachers wished that the learning materials would be constructed by a professional who has both the pedagogical knowledge and the understanding of SD issues. One teacher also hoped for the ESD themes being more embedded in the everyday values of the school whereas one teacher suggested that environmental issues could be a separate subject or a course.

Furthermore, the principal's experience on the received support was rather different to teachers, and they had received very little support in implementing ESD. Therefore, the principal wished for more active input from the local actors, and that the SD topics would be more embedded in the subjects' contents thematically in the national core curriculum. Similarly, the support for education experts for ESD implementation was experienced rather limited. The most important support that was missing for them was the coordination of ESD at the national level. Thus, the education experts discussed that SD should be embedded into everything, which requires a broader societal transformation. The collaboration between various networks, as well as open dialogue were seen as necessary in implement ESD more efficiently, according to the experts.

All the teachers in this study were interested in SD and considered it as an essential aspect to implement in their teaching. Future research should focus on the teachers whose implementation of ESD is limited, as the support they need might differ from the teachers who have initial knowledge and interest in the topic. Furthermore, this research included only one principal from one school. It would be beneficial to further investigate the professional agency of multiple principals because they have a significant influence in encouraging and supporting teachers' professional agency in implementing ESD.

Also, it is good to note that the interviewees in this research had finished their studies several years ago. Ergo, it would be beneficial to examine the views of the pre-service teachers in training, as well as the teachers, who have just started their careers. Moreover, this study included schools only from one specific area in Finland, and future research should examine various schools from various areas as the possibilities and limitations for implementing ESD might vary depending on the location. Furthermore, as UNESCO (2014) states, ESD should be implemented and included all levels and forms of education. Therefore, the future research should investigate the ESD implementation in other educational levels as well as in informal training.

Lastly, ESD implementation lacks the national coordination, and it seems to remain as an independent theme that is separately implemented by the teachers who are interested in the topics. However, the effective ESD implementation as well as achieving the SDGs require a holistic transformation, and a new narrative is needed. Therefore, the future research should focus on how to support a more fundamental change and transformation in schools but also in the whole society.

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Appendix A

Interview questions

TEACHERS

Background questions

1. Could you tell me about your educational background?
2. What subjects do you teach?
3. How long have you been a teacher?
4. How are the themes of SD present in your teaching/lessons? I.e., how do you implement ESD?

Tools and support / Resources

5. What kind of skills and knowledge has the teacher education provided for implementing ESD?
6. Have you received other types of education or training regarding ESD or SD?
7. How do you maintain your knowledge about the themes of SD? I.e. Where do you get information about SD?
8. How does SD can be seen in the everyday life in the school and its culture?
9. What kind of support have you received from school in implementing ESD?
10. Do you collaborate with other teachers regarding ESD? How and why?
11. What kind of tools exist for teachers in implementing ESD?
12. Do you feel like you are getting enough support to implement ESD?
13. In your opinion, what kind of tools or support should be available for teachers?

Agency

14. Do you feel like, as a teacher, you can influence achieving the SDG's? If so, how? In which things have you succeeded?
15. What kind of possibilities do you think that you have as an individual and as a teacher in implementing ESD? What kind of limitations or challenges does your actions have? Why?

Final question

16. Is there anything else you would like to say about ESD or its implementation?

PRINCIPALS

Background questions

1. Could you tell me about your educational background?
2. How long have you been a principal?

Tools and support

3. What kind of skills and knowledge has teacher education provided for implementing ESD?
4. Have you received other types of education or training regarding ESD or SD?
5. How do you maintain your knowledge about the themes of SD? I.e., Where do you get information about SD?
6. What kind of support have you received in implementing ESD?
7. How does SD can be seen in the everyday life in the school and its culture?
8. Do you collaborate with teachers or other principals regarding ESD? How and why?
9. What kind of tools exist for teachers in implementing ESD?
10. What kind of tools exist for principals in implementing ESD?
11. Do you feel like you are getting enough support to implement ESD?
12. In your opinion, what kind of tools or support should be available for principals?

Agency

13. Do you feel like, as a principal, you can influence achieving the SDG's? If so, how? In which things have you succeeded?
14. What kind of possibilities do you think you have as an individual and as a principal in implementing ESD? What kind of limitations or challenges does your actions have? Why?

Final question

15. Is there anything else you would like to say about ESD or its implementation?

EDUCATION EXPERTS

Background questions

1. Could you tell me about your educational background?
2. How long have you been working at EDUFI?

Tools and support

3. What kind of education or training have you received regarding ESD or SD?
4. What kind of skills and knowledge has your education provided for implementing ESD or SD?
5. How do you maintain your knowledge about the themes of SD? I.e., Where do you get information about SD or ESD?
6. What kind of atmosphere does EDUFI have regarding SD? What kind of role does SD play in the culture and everyday life of the Agency?
7. Do you collaborate with teachers/principals/schools/other actors regarding ESD or SD? How and why?
8. What kind of support have you received in implementing ESD?
9. Do you feel like you are getting enough support?
10. What kind of tools or support exist for teachers and principals in implementing ESD?
11. In your opinion, what kind of tools or support should be available for teachers and principals? How should these be developed?

Agency

12. Do you feel like, as an education expert, you can influence achieving the SDG's? If so, how? In which things have you succeeded?
13. What kind of possibilities do you think you have as an individual and as an education expert in implementing ESD? What kind of limitations or challenges does your actions have? Why?

Final question

14. Is there anything else you would like to say about ESD or its implementation?

Appendix B

Cover Letter

Dear principal,

I am writing to you regarding my master's thesis research, which examines the implementation of education for sustainable development in lower secondary schools in Finland. I would like to ask a permission to interview you and three of your schools' subject teachers (for example biology, geography, languages, or history) for my research. Would these interviews be possible?

I am a student in the international master's degree programme in education and learning, at the University of Turku. I am looking to interview teachers and principals in the Turku area. It would be very interesting to have your school participate in my research. The Interviews will be conducted remotely (via Zoom), preferably during March or early April this year (2021). The interviews would last about 45–60 minutes each.

Attached is a summary of my thesis, which describes the purpose of the research in more detail. I am also more than happy to give you further information about my research. Attached is my phone number.

Thank you for your reply in advance!

Appendix C

Summary

UNIVERSITY OF TURKU
Faculty of Education

KOTIPELTO, SUVIPILVI: How to support teachers and principals in implementing Education for Sustainable Development

Master's thesis
International Master's Degree Programme in Education and Learning
Spring 2020

SUMMARY

The aim of the thesis is to investigate the views of the subject teachers and principals in lower secondary schools, and education experts at the Finnish National Agency of Education, on the implementation on Education for Sustainable Development (ESD). In addition, the thesis examines the international policy framework for ESD, and how it is implanted at national and local levels.

The notion of sustainable development became well-known in the 1980's in a document called Brundtland report, which defined sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987, p. 43). In this research sustainable development is defined through four different dimensions, which are ecological, social, cultural, and economic sustainability. ESD has viewed to be a key factor in achieving sustainability in all the dimensions, and it is part of the United Nations Sustainable Development Goals. Moreover, ESD has been proven to be efficient in shaping children's attitudes and understanding about the issues and solutions of sustainable development.

Teachers and principals have an important role in implementing and promoting ESD, and ESD is also part of the national core curriculum in Finland. However, ESD is implemented differently between schools and teachers, which is often due to the teachers' limited competence or knowledge of the sustainable development topics. Therefore, it is important to investigate what types of support teachers and principals need for implementing ESD, and how they view their role in promoting sustainability.

The research will be conducted as qualitative research, and the data will be collected through semi-structured interviews in March and April of 2021. The aim of the interviews is to examine what kind of resources and support are available for teachers and principals, and what kind of support is further required. In addition, the research is

interested in the views of subject teachers, principals, and education experts on their professional agency, i.e. their possibilities and limitations of their actions in ESD implementation. Moreover, the research aims to identify what kind of support is missing and still needed to implement ESD more efficiently.