A comparative analysis of Waldorf and public sustainability approaches in Norwegian kindergartens

by

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We do not inherit the earth from our ancestors,

we borrow it from our children.

Native American Proverb

FOREWORD

One day I will start my own family, and every parent wants what is best for their unique child in terms of knowledge, values, and further development. Therefore, I wanted to explore where my future children would get the best stimulation to understand the concept of sustainability better and sociocultural issues.

My master thesis is finally complete. It has mostly been a good journey and some rocky periods where my motivation sunk significantly. Therefore, I am forever grateful to my supervisor Barbara for her guidance from start to end. I could not have done this without her honest review, critic, fast response and assistance.

Also, to my soon-to-be husband, parents, and friends throughout the process, I am so grateful for their good moral support, love, and encouragement. Finally, special gratitude to the participants in this study; I have learned a lot from collecting their information and thankful for their contribution.

ABSTRACT

Early childhood education for sustainability (ECEfS) is a central field in our society that is constantly developing. This field is concerned with promoting awareness and guidelines from preschool age toward a sustainable future. The kindergarten is a fundamental part of every society and has the potential to raise responsible individuals. This study has compared and analyzed how Waldorf and public preschool teachers work with sustainability approaches. For this purpose, this research has used several theoretical concepts, the Norwegian kindergarten act, and pedagogical frameworks to understand these issues better. The qualitative method has been used with in-depth interviews of twelve preschool teachers in public and Waldorf kindergartens around the country. The empirical findings in light of methodology coding revealed how these preschool teachers worked with sustainability; (1) Preschool teacher's perception of sustainable development, (2) teaching about sustainability, (3) learning in social contexts, (4) challenges with practicing sustainability. These findings revealed increased socio-cultural differences between the Waldorf and public approaches on how they approached sustainability. It also showed that young children are affected by the environment and their teachers regarding further development of knowledge, attitudes, and personality.

Therefore, this paper emphasizes the importance of teachers' role and perception when promoting pro-environmental behavior and action. Besides, preschool teachers should receive online courses or conferences regularly to increase their knowledge on sustainable practices. Finally, the research of Waldorf sustainability approaches in kindergartens is limited and should be further investigated to enrich the field of Early childhood education for sustainability (ECEfS).

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CHAPTER 1: INTRODUCTION

1.1 Background

Today, our planet faces various challenges, including climate change affected by global warming. According to the intergovernmental panel on climate change report, humans are the leading cause of current global warming (IPCC, 2014, p.5). Continuing this development would require 2.3 planets earth to support our energy use, waste production, levels of resources for a population that will reach 9 billion by 2050 (Bell, 2016). If it does, the future generations may expect dramatic changes in the climate and experience the loss of plant and animal life. In Norway, the average person emits 8,3 tons of carbon dioxide per year compared to Niger, with 0,1 tons per year (Ritchie & Roser, 2017).

By looking at these numbers, it tells us that our consumption is high and globally unevenly distributed. It also indicates the correlation between high income equals high consumption and low income equals low consumption (Bell, 2016).

Our way of living is unsustainable, and recognition for sustainable development to change this way of living has been around internationally since the 60s (IUCN, 1971).

The Brundtland report “Our common future" in 1987 was to help guide and unite world nations on social, economic, and political dimensions regarding sustainable development (WCED, 1987, Turkoglu, 2019).

The world commission on environment and development (1987), described the concept of sustainable development as following: ""*Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs"* (WCED, 1987, 427). Also, the Brundtland report defines it as the development of economic welfare and social justice for all humankind now and in the future within our earth's ecological limits (WCED, 1987, UNESCO, 2008). Besides, sustainable development should have investments, technological development orientation, and institutional change brought in line for future generations expectations and needs toward a sustainable living (WCED, 1987, p.15).

In addition, numerous agendas and developments have been set in motion to deal with these issues. Some of these strategies are Agenda 21 by United Nations on Environment Programme

and UNESCO's decade of education for sustainable development from 2005-2014 and the UN 20130 agenda for sustainable development (UNCED, 1992, UNESCO, 2005, United Nations,2015). Furthermore, the international committees introduce and increase awareness around sustainable practices in early childhood education (UNESCO 2005, UNESCO 2017, Engdahl, 2015, Davis, 2010).

As a response to these global strategies and guidelines, Norway has made a highly progressive plan to cut greenhouse gas emissions by 50-55 percent by 2030 (Norwegian government, 2020). Norwegian policies and frameworks regarding climate change have been criticized for not doing enough, and approximately 40.000 Norwegian schoolchildren went on a school strike to get these progressive frameworks and policies in the wake of Greta Thunberg's school strike in Sweden (Aftenposten, 2019). The youth's awareness around climate change and global warming is increasing, and the need for "a shift in values, awareness, and practices in order to change our currently unsustainable patterns of consumption and production (UNICEF, 2013, p.16). Children will inherit the responsibility of looking after the earth, and *" The specific interests of children need to be taken fully into account in the participatory process on environment and development in order to safeguard the future sustainability of any actions taken to improve the environment*" (Agenda 21, 1992 , Chap. 25, p. 12, Heggen, 2016, Goga, 2018)". The kindergarten is an important part of global societies and has a central role in the personal development of children and adults but also potentially the environment (Davis & Elliot, 2014, Arlemalm-Hagser & Davis, 2020). Various studies and scholars confirm that education plays a vital role in raising environmental awareness (UNESCO 2005, Ministry of Education, 2017, Perez-Ferra et al., 2020).

Turkoglu (2019, p.2) describes environmental education (EE) as recognizing values and clarifying concepts that will develop to skills and attitude necessary to understand and evaluate the relationship between human beings, their culture, and the biophysical environment. EE has been combined into the term of education for sustainable development (ESD) (Sageidet 2019, Breiting 2011, Eilam & Trop 2010). ESD seeks to "*empower learners of all ages with the knowledge, skills, values, and attitudes to address the interconnected global challenges we are facing, including climate change, environmental degradation, loss of biodiversity, poverty, and inequality*" (UNESCO, 2021). Early childhood education for sustainability (ECEfS) is also combined in ESD, and both concepts often involves outdoor play, gardening, and excursions in

nature (Engdahl, 2015). ECEfS promotes sustainability and provides an opportunity to investigate the ways in which sustainability is conceptualized in early education curricular documents (Weldemariam et al., 2017, p.335). These concepts will go hand and hand in this paper and ECEfS and ESD will be the most appropriate to use for this study and further addressed in chapter two.

The Norwegian framework and guidelines highlight that children should understand their actions and how they affect the coming generations, in line with the Brundtland report and UNESCO's ten-year decade on education for sustainable development. In 2017 the concept of ECEfS had been implemented by the Directorate of Education (2017) into the preschool framework and regulation. Additionally, children should learn how to think critically and act ethically (Ministry of Education, 2017, Weldemariam et al., 2017, Davis, 2009, Davis & Elliot, 2014).

Multiple studies indicate that it is easier for children at an early age to adopt new ideas, attitudes, and values rather than when they enter adulthood (Erten, 2005, Boyd, 2018,).

In Norway, outdoor playing in kindergartens and having a close relationship to nature have been long traditions (Sageidet ,2015). Scholars highlights that children need to develop an attachment to the environment to understand global and environmental topics (Stevenson 2007, Erten 2005, and Lieflander et al. 2013). Holistic, innovative ECEfS approaches can reach every child and increase attachment to the environment (Engdahl & Rabusicova, 2011, Lieflander et al., 2013, Bell, 2016).

The advantages of holistic and innovative sustainable practices from an early age can most likely play a considerable part in benefiting society. The kindergarten is an excellent place to start preparing young children for these practices, and the potential for further development is great (Bell, 2016, Davis & Elliott, 2014, Sageidet, 2014).

After years of effort to create new guidelines such as UNs ten-year decade for education for sustainable development international (UNESCO,2005) , there is still no concluding answer to how ESD pedagogy should promote ECEfS**.** Multiple voices state a need for further research on ESD and ECEfS approaches (Davis, 2010, Davis & Elliott, 2014, Arlemalm-Hagser & Davis, 2020, Hedefalk et al., 2014, Sageidet, 2015). Hence, this study investigates how preschool teachers work and approach sustainability in public and Waldorf kindergartens (also known as Steiner kindergarten) in Norway.

The hypothesis this study wants to inspect is the following: *The Waldorf kindergartens focuses more on sustainable practices than the public approach, even if they are under the same Norwegian government framework*. Therefore, analyzing the public and Waldorfs teacher's sustainability approaches might give new insight into this field and further develop knowledge around the importance of ECEfS exercises that will expand the kindergarten's new creative ways to reach children and increase awareness of nature and the environment.

1.2 Comparing public kindergartens with Waldorf kindergartens

In Norwegian society, there is an association that public institutions have high-quality and competent teachers (Ministry of Education, 2016). In many other countries, the private sector has the highest quality and is the most influential institution over the public ones. A reason is that the public institutions have more extensive crowds and may have a lower economy than their counterparts **(**Haugset, 2019). The role of Waldorf kindergartens and schools in Norway has had its impacts on their students. There are 45 Waldorf kindergartens and 32 Waldorf schools in Norway. Throughout the decades, several celebrities have attended or worked within the Waldorf institution. The most recognized personality attending is the former prime minister of Norway and current secretary-general in NATO, Jens Stoltenberg (Johnsen, 2018).

The reasons for why this study chose the public kindergartens and Waldorf Kindergartens is several. A basis for comparing both is to see where the strength and differences lay and to enrich each other with positive practices.

The first reason for choosing the public kindergartens in Norway is to delve deeper into the government's sustainability framework and investigate their sustainable approaches and the teachers own perception of this. The second reason is the history of a long tradition of outdoor activities with nature, which is similar to Waldorf' practices and will be interesting to compare. Also, I have been inspired by an acquaintance who work in a public kindergarten who looks critical on her own sustainable practices. The third reason was, a study done on Waldorf teachers and environmental issues show that " pupils in Waldorf and public schools differ in regard to feelings of responsibility concerning social and moral questions of society" (Rikner & Ozolins, 2010, p.8), which raised the hypotheses about Waldorf practices focusing more on sustainability

than the public kindergartens. A fourth reason is a difference in pedagogical background. It would be interesting to see how much the public and Waldorf teachers know about educational sustainability and sustainable development goals. Fifth reason for choosing Waldorf kindergartens is its limited research on sustainability approaches in ECEfS and their pedagogic. The Waldorf pedagogic is another alternative to the public pedagogic and might contribute to new information that has the potential to enrich the public pedagogic.

The Waldorf high school is the first school in Norway to introduce general study specialization with sustainability (Holstad, 2020). Another aspect for selecting this institution is that its foundation is inspired and built on a philosopher named Rudolf Steiner. He is known for his research on developing biodynamic agriculture, biospheric values, alternative medicine and focuses on individualism and organic nature (Hansen, 2019).

1.3 Significance of this study

The children in kindergartens today will inherit and be affected by unsustainable practices such as global warming, climate change, and destruction of animal and plant life in the future and should be informed and raised toward meeting these problems (IPCC 2014, UNESCO, 2005, UNESCO, 2017). The human activity requires a fundamental change in our actions and the way we think.

Both international guiding documents (WCED,1989 and UNESCO, 2015) and numerous studies that were done on environmental education for sustainability and teaching methods from early childhood; claim that one way to change our environmental issues is through a more quality based and effective environmental education on sustainability from early childhood (Sageidet 2014, 2015, Fjørtoft, 2001, Davis, 2010, Stevenson, 2007). Therefore, promoting sustainability in kindergarten and analyzing what practices are used can be an essential tool toward a more sustainable future (UNESCO, 2017).

The research and literature toward Norwegian Waldorf pedagogic practices are limited. Also, the comparison to public methods are limited. Therefor this study aims to explore this lack of information and compare each other’s approaches and see how the methods differ or don’t differ. Teachers' perceptions and awareness around sustainability and how to participate in doing better

are vital for children; they will pay attention to how teachers promote it or do not promote it (Ministry of Education, 2013). Because of this, it would be interesting to investigate the kindergarten teachers experiences on practices done in the kindergarten toward sustainability; and their own perception of sustainability, and if their work "matters" in the larger context.
Additionally, this paper wants to bring new information from Waldorfs pedagogic into the field of ECEfS. I also hope to contribute insightful and interesting perspective to sustainability practices done in the Waldorf kindergarten pedagogic.
At the end of this study, there will be further recommendations inspired by the kindergartens to help develop sustainability methods.

1.4 Aim and research questions

This study will be focusing on the public and Waldorf kindergartens (Steiner) approaches in Norway and analyze their similarities, challenges and differences with the help of the following research questions:
How do early childhood teachers work with sustainability, in kindergartens with Waldorf pedagogy and in public kindergartens, and what are the main differences?
Which elements from the Waldorf pedagogy may enrich early childhood education for sustainability?

1.5 Disposition of chapters

This research paper is structured as followed:

- Chapter 1 presents an introduction this thesis topic chosen, this study's aim and research questions.
- Chapter 2 provides review of relevant literature.
- Chapter 3 describes the theoretical terms, concepts and framework.
- Chapter 4 illustrates methodology and research design used.
- Chapter 5 presents the results with discussion and analysis.
- Chapter 6 will conclude, show limitations and recommend further research on this topic.

CHAPTER 2: CONTEXTUAL BACKROUND

2.1 Brief history of environmental education and its development globally

The first world conference concerning the environment as an issue was the United Nations world conference on the environment in Stockholm in 1972. In their report, they argue that; "*man's capability to transform his surroundings, if used wisely, can bring to all peoples benefits of development and the opportunity to enhance the quality of life. Wrongly or heedlessly applied, the same power can do incalculable harm to human beings and the human environment* "(United Nations, 1972, p.3).

Also, their principle 19 in the report out folds the need to teach the younger generations about environmental matters and how they can improve and protect it; and not let the mass media confuse them with false information (United Nations, 1972). This report alongside with the Principle 19 seems to have inspired the following conferences on environmental education in Belgrade (1975) and Tbilisi (1977). Belgrade is the first conference on environmental education issues, and the following Tbilisi conferences have the same concerns as Belgrade and builds further from it.

In Belgrade, the ground foundation of awareness around EE was in place. Their goal was to: "*To develop a world population that is aware of, and concerned about the environment and its associated problems, and which knows, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions to current problems, and the prevention of new ones* (UNESCO, 1975). They created a detailed set of EEs aims which were Awareness, Knowledge, Attitude, Skills, Evaluation ability, and Participation.

In 1977, UNESCO (The United Nations Educational, Scientific and Cultural Organization) and UNEP's (UN environment program) conference also provided fundamental environmental education principles that later turned into chapter 36 in Agenda 21. The final report from the 1977 meeting highlighted these significant factors to a successful implementation of EE:

"1. To foster clear awareness of and concern about economic, social, political, and ecological interdependence in urban and rural areas.

2. To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment.
3. To create new patterns of behavior of individuals, groups, and society as a whole, towards the environment" (UNESCO, 1977, p.26*).*

These guidelines helped to broaden the awareness around EE and further developed principles globally.

After these conferences, the concept of sustainable development was introduced and described in 1987 in the Brundtland report "*Our common future*". As the concept of Sustainable development has been described earlier, the need to explain it again is not necessary, but this was also a central event in the development of EE. The Brundtland report aimed to reunite the global communities towards a social and technological change with the focus of sustainable approaches that encourage healthy growth and equity for the generations to come, also in education (WCED 1987).

In 1992 there was held another conference in Rio de Janeiro, Brazil by the United Nations on Environment and Development. From this conference, the united nations implemented Agenda 21.

The Agenda 21 report builds further on that education is critical for sustainable development, and societies can reach their fullest potential if implemented (UNCED, 1992). Chapter 36 highlighted promoting public education and creating awareness and direct training towards EE and sustainable development; furthermore, the report talks about how we should deal with dynamics of both physical/biological and socio-economic environment and humans to be effective (UNCED, 1992). Also, they note that it is crucial to be aware of the children's interests and be considered in the environment and development processes. Since humans are the leading cause of sustainable problems, the need for change in our behavior is needed and acquire necessary tools to change them (UNCED, 1992).

The United Nations decided to run a program called UN decade for education for sustainability from 2005 to 2014. This program has helped create numerous practical projects, websites, and further development of scientific work focused on kindergarten and made it relevant for EE's lifelong cycle (Sageidet,2015, p.1).

Also, the program has helped develop the knowledge and scientific work in the field of ECEfS in kindergarten and raised a higher awareness of its importance in the educational system and the lifelong cycle in Norway and globally (United Nations, 2020).

Today's agenda towards a sustainable future is The Agenda 2030 Sustainable development goals by the United Nations in 2015. The SDG goals are of significance in Norway and have affected how the Norwegian government has changed the curriculum. The SDG goal number 4 is about quality education and is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, 2020).

UNESCO has adopted and launched the education 2030 framework for action in 2015. This framework and the creation of SDG goal 4 show the importance of education today and the need to implement this quality globally. Education should provide increased knowledge, abilities, and attitudes to promote sustainable development (UNESCO, 1994, UNESCO, 2017).

UNESCO's EE's promotion, and its necessity as a tool to increase the quality of education globally and help prevent the lack of information around sustainability show its impact on our education for sustainable development. Multiple researchers argue that it is essential to teach the concept of environmental issues and sustainability to children (from preschool to high education) to care about their actions and consequences to the environment (Shultz, 2002, UNESCO 2017, Sageidet, 2019).

2.2 History of public kindergartens in Norway

The Norwegian society is recognized as a post-modern society that is highly pluralistic and diverse (Giddens, 1991, Sageidet, 2014**).** In this type of society, people's understanding of themselves and their environment is correlated to cultural, political, and economic characteristics from that society (Schreiner, 2006, Sageidet, 2014). Goods and services in the light of globalization have moved beyond utility use and are now symbolized with identity and status (Frønes, 1998, 2007, Schreiner, 2006). Therefore, many Norwegians live in a tension between the "Norwegian traditions, demands for environmental responsibility and their individual orientation within late modernity, which shape their motivational and personal value orientations"(Sageidet, 2014, p. 117).

The public kindergartens in Norway are run by and owned by the state and communes. Local parents, commercial companies, and congregations own the private kindergartens. In the beginning of the 60s, kindergartens in Norway were mainly privately owned, and for a small number of children, but from 1970, it has been integrated and expanded into the welfare system (Haugset, 2019, p.241). Today, putting one's child in kindergarten is a universal part of the welfare system in Norway. The ambitious political goals toward an equally high-quality daycare facility for all children have raised awareness toward the quality differences in kindergartens (Ministry of Education, 2016). Additionally, Haugset (2019) claims that the discourse around quality in kindergartens is notions that kindergarten is seen as an investment in the future's knowledge society (Paananen, Kumpulainen & Lipponen, 2015; Vannebo & Gotvassli, 2018). The free choice of choosing kindergartens and full coverage has created a competitive situation that affects both the public and private kindergartens (Børhaug & Lotsberg, 2012). Therefore, some kindergartens might change their values according to the market mechanism, and the different owners highlight different quality values and norms (Haugset, 2019). She further states an example of this; commercial kindergarten owners might have economic motives that will decrease different qualities that affect parents (p.242). According to the Ministry of Education (2020), kindergarten funding in Norway consists of the communes unrestricted income (the framework grant and tax revenues).

2.3 History of Waldorf Education

The Waldorf education has a history of 100 years old, and the number of schools and kindergartens has grown steadily all over the world in this period (Froden & Wright, 2018). As of 2018, there are approximately 1025 Waldorf schools and 2000 Waldorf kindergartens or preschools in 60 different countries, most of them in Central Europe (Froden & Wright, 2018, p.1402). They further claim that the basic ideas around Waldorf Education are universal. The Waldorf institutions are similar in colors, materials, wooden toys, and an aura for play and imagination when you visit them. The Waldorf pedagogy has its origin in Germany, but the more places that adapt to this pedagogy and adjust to local rhythms and traditions, the more diverse one can expect it to become (Ashley, 2009). The first Waldorf School was founded in 1919 by Dr.

Rudolf Steiner (1861-1925) on a request from the Waldorf-Astoria cigarette factory, Eirik Molt, and he wanted a school for the children of his workers (Froden & Wright, 2018, p.1403). Steiner stressed the importance of founding a non-confessional and politically independent school; this has led to the Waldorf kindergartens and schools addressing all children, regardless of their religion, class, or gender (Ashley, 2009). According to Froden and Wright(2018), it was the educator Elisabeth Von Grunelius that established the first Waldorf kindergarten in Germany in 1926; she and Klara Hatterman(colleague) contributed to early childhood education and formed guidelines for kindergarten practice according to the development of young children (p.1403). Additionally, they write that the saying that one should '*receive the children in reverence, educate them in love and let them go forth in freedom*' and is attributed to Rudolf Steiner (p.1402). Regardless of where in the world the Waldorf kindergarten is located; " *they decorate the rooms with lights, flowers or self-made artefacts, as well as neatly mending broken toys and tools, is believed to be a way of showing respect and care, not only for the environment but for other human beings and ourselves*" (Froden & Wright, 2018, p.1412).
The first Norwegian Waldorf kindergarten came in 1934 in a private home at Smedstad by Gulle Brun and Vult Simon. It was at first meant as an offer for neighbors and friends under the occupation time regarding the war but got more attention and people joining in (Steinerfederation, 2017). The Norwegian Waldorf kindergarten federation highlights that their task in the first years of a child's life is to support basic competence that will be their foundation for receiving intellectual learning later. Also, their pedagogical vision is "*to take every child's individuality seriously*" (Steinerfederation, 2021).

2.4 Sustainability in education

Teaching about sustainable practices is the need to developing skills and attitudes that will help children in this case to understand and evaluate the relationship between education and culture and the biophysical environment (UNESCO, 2005, Turkoglu, 2019). Sustainability are subdivided into three principal dimensions, social, economic, and environmental (WCED, 1987). "1. *The environmental responsibility is the ability to use natural resources without disturbing the balance and integrity of ecosystems.*
2. Social solidarity refers to equal opportunity and social cohesion, including welfare, quality of life, and sustainable human development for humans. In addition, social solidarity aims to

develop education, communities, and health.

3.Economic efficiency refers to the effectiveness of economic and technological activities, encouraging investment and productivity, economic growth, and economic output potential, and seeks ways to eliminate income poverty" (Turkoglu, 2019, p.1-2, WCED, 1987).

These dimensions are foundation to unite the concept of sustainability from different areas and into education and must be looked at a holistic perspective which the Brundtland report also aimed at (WCED, 1987).

Because of the conferences on Environmental education from 1970 and the implementation of Agenda 21 and United Nations Ten-year decade with education for sustainable development it has been more and more integrated into the school's curriculum globally. Today, ESD is the collective concept used by scholars within the field concerning sustainability in education (Sageidet 2019, Breiting 2011, Eilam & Trop 2010). ESD "*recognizes the environmental, social/cultural, economic and political dimensions of the learning processes involved* " (UNESCO 2005, Engdahl, 2015, p.349).

From the document of World Summit 2005, ESD is referred as: " *The interdependent and mutually reinforcing pillars of sustainable development; social development, economic development, and environmental protection"* (United Nations 2005, Engdahl & Rabusicova, 2011, p.158). These are the fundamental component of sustainability, linking the three dimensions of economy, environment, and society (Fisher et al., 2018, Turkoglu, 2019).

ESD is a field giving guidelines to how curriculums and frameworks can be. It teaches how students need to think rather than what to think and applies this thinking to real-world sustainability problems (Pacis & VanWynsberghe, 2020, Hedefalk et al., 2014). ESD is a lifelong process, from preschool to tertiary education, and should be considered a responsibility to deal with sustainable development matters and foster sustainability competencies (UNESCO, 2017). Besides, it requires a shift from teaching to learning; it asks for action-oriented, inter and transdisciplinary, and transformative pedagogy (p.7).

Moreover, Pacis and VanWynsberghe (2020) claim that pedagogies aim to involve learners in actively transforming society with developed habits that better their competencies.

Engdahl (2015) states that there has been established an international, non-governmental World Organization for Early Childhood Education (OMEP) which concerns; "to defend and promote

the rights of the child to education and care worldwide and supports activities which improve access to high-quality education and care" (p.349, OMEP, 2014)

Early childhood education for sustainability (ECEfS) "*has its history in environmental education with activities in and about the natural environment, often involving outdoor play, gardening and excursions in nature*"(Engdahl, 2015, p.350, Chawla, 2006; 2007, Bergan, 2019).

To sum up Environmental education (EE), education for sustainability (ESD), and early childhood education for sustainability (ECEfS) evolved from EE and are combined.

CHAPTER 3: THEORETICAL FRAMEWORK

3.1 Social-constructionist theory

This study will use a social-constructionist theory; this theory recognize that learning and education happen in social contexts conferences, kindergartens, and schools (Lave & Wenger, 1991, Vygotzky, 1986). The theory promotes the importance of practical activities and learning processes for sustainability transition in young children (Bell, 2016, Sageidet et al., 2019). Vygotzky (1986) belonged to the social construction movement; he emphasized that learning processes should not happen internally for the individual, but instead, one learns quicker in collaboration and interaction with others, it must happen in a social context before it internalizes in the individual (Sølvi Lillefjord, 2014, p.194-195, Gullaker, 2018). He further claimed the importance language had in this connection and its importance for developing cognitive and psychological functions**.** Scholars such as Hope, Schachter, and Wasik (2013) confirm that "*communication with engaged adults contributes to increase the vocabulary of even very young children*"(Sageidet et al., 2019, p.193). Besides, children's knowledge, ideas, and values develop through communication with each other and adults, and the teacher has an important role (Lyngsnes & Rismark, 2014, p.67, Vygotzky, 1986). Therefore, children's perspectives are vital to the teachers own reflections on their own work, and their development of activities and practices must be understandable for the children (Sageidet et al.,2019, Davis & Elliott, 2014). Other perspectives that focus on young children's and other age groups' identity construction in a post-modern society might be an essential tool to understand theirs and preschool teachers' motivations and values towards sustainable development (Schreiner, 2006, Sageidet, 2014). Relating and connecting with others for love and care and belonging to social groups who

appreciate and support us is central and could be a key to sustainable attitudes and behavior (Deci & Ryan, 2000, Johansson, 2001, Frønes, 2007, Schreiner, 2006, Sageidet, 2014). Also, the quality of the learning culture and activities within a kindergarten is influenced and formed by the preschool teachers' own perception of sustainable development, society, culture, and kindergarten practices(Alvestad & Løvberg, 2005, Davis, 2010, Hollins, 2008, Sageidet, 2014).

3.2 Importance of learning sustainable practices in early preschool age (ECEfS)

In light of the complex sustainability problems we are currently facing, what the youth will face after us," collaboration and innovation are seen as necessary; "*there have been a host of educationally-based calls to action across the globe*" (Pacis & VanWynsberghe, 2020, p.577). Preschool age is the most favorable age to start orienting the foundations concerns about sustainability and natural connections (Lamekhova, 2020, p.3). Various scholars state that the field of ECEfS should encourage and provide the young children with the skills and tools needed in order to understand and act on the concepts of sustainability (Davis, 2010, Davis & Elliot, 2014, Arlemalm-Hagser & Davis, 2020, Bell, 2016, Spitera, 2018,). The motivation toward increasing ECEfS from an early age and throughout their youth has the same type of arguments as Lamekhova, and another studies also confirms the "*importance of stimulating children from early ages in order to lay down the basis of later learning*" (Perez-Ferra et al., 2020, p.3). Another reason for children as a target group is that; children adopt skills, experiences, and abilities that will later construct their knowledge and personality in life (Perez-Ferra et al., 2020, Young, 2002). Therefore, it is crucial to incorporate habits and repetitive actions from an early age to raise responsible human beings that can face and prevent the damages from unsustainable practices. Research done by Young (2002) showed that the brain in early years of development is affected by environmental factors; therefore, the child's quality of care and interaction can have a long-lasting effect on the brain development (p.5, Abbas, 2020). These findings confirm what the Ministry of Education (2013) claims about " *the employee's competence is the most important single factor for children to thrive and develop in kindergarten*". ECEfS has the vital capability to enhance these skills, tools and values and attitudes to promote and support a sustainable development (UNESCO, 2008).

Kindergarten teachers can significantly influence the children through creative teachings and exposure and stimulus of knowledge presented through play and activities outside and indoors. It

has excellent potential for further analysis and development (Sageidet 2015, United Nations 2005). The 17 sustainability goals developed by the United Nations are cross-disciplinary goals that are of significance to the children and should get promoted early on (United nations, 2015). In the field of ECEfS different scholars have stated from their research that outdoor activities and engaging in the environment affect sustainable behavior and are favorable for the future development of children's abilities, values, and attitudes (Sahin & Alici, 2019, Nisbet et al., 2009, , Schultz, 2002). These methods are already frequently used in Norway and have been for several decades (Sageidet, 2014). A study done in Norway by Fjøtoft (2001) on children playing in an outdoor environment found that outdoor playing influenced them positively, such as creative playing and varied play forms. This will be further explained in the outdoor education chapter.

3.2.1 The sustainable development goals

It is also worth to delve more in-depth into the Sustainable development goals (SDG), central to the political, social, and economic dimensions. The SDGs are a part of the 2030 Agenda for sustainable development. The Agenda 2030s vision is*" A world in which consumption and production patterns and use of all-natural resources -...One in which humanity lives in harmony with nature and in which wildlife and other living species are protected*" (United nations, 2015 ,p. 4). In this Agenda, there are 17 main goals and 169 associated targets. They further claim that never before in history have world leaders come together to take action with a universal widespread policy agenda (United Nations, 2015). ESD is recognized in the SDG as part of the target 4.7 of the SDG on education;" *By 2030, ensure that all learners acquire knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles* "(UNESCO, 2017,.p.8). UNESCO (2017) further claims that ESD is important to all the SDGs and is essential to contribute to all efforts to achieve the SDGs; it enabled every individual to transform their own behavior.

Figure 1, source**:** The SDGs, The United Nations (2015)

As shown in figure 1, many, if not all the goals are relevant for society's institutions to some degree. Kindergartens in Norway have socially equalized and integration functions and notions on; quality education, climate action, justice/equality, responsible consumption and reuse, and projects on the welfare of animals and children (Directorate of Education, 2017, Haugset, 2019).

3.3 The kindergarten act in Norway

For this study, the most relevant and essential part of The Norwegian kindergarten act is paragraph 1; and the part regarding nature, environment, technology, and sustainable development in the framework will be further explored in chapter 3.5. It is not relevant for this study to go through the whole act and framework, just the most relevant parts for the discussion part.

The public and private kindergartens are under the same law and framework of the Norwegian kindergarten act and are bound to follow it (Kjensli & Rise-Knutsen, 2018).

The kindergarten act aims are "*The kindergarten shall, in cooperation and understanding with the home, take care of the children's needs for care and play, and promote learning and education as a basis for all-round development. The kindergarten shall be based on fundamental*

values such as respect for human dignity and nature, on intellectual freedom, charity, forgiveness, equality, and solidarity, which are rooted in human rights" (Kindergarten act, §1, 2010). Even if some of these aims came before the 17 SDG, they are significantly related. Goals number 10, 16, 5, and 4 (figure 1) are the most relevant for the statement above. Other aims of the act are*" They must learn to take care of themselves, each other and nature. The children will develop basic knowledge and skills. The kindergarten must meet the children with trust and respect and recognize the intrinsic value of childhood. It will contribute to well-being and joy in play and learning and be a challenging and safe place for community and friendship* (Kindergarten act, §1, 2010). Several of the other goals can be correlated to the act such as SDG 3 and 11-16 (figure 1). It is essential to note that this act is updated regularly with new passages or adjustments from new legislations and frameworks from modern politics.
Kindergartens, therefore, have an important task in promoting values, attitudes, and practices for more sustainable societies (UNESCO, 2005, Bell, 2016, Hagser & Elliot, 2017). The kindergarten must help the children to understand that today's actions have consequences for the future.

3.4 Waldorf pedagogy and adjusted curriculum

The Waldorfs pedagogy is influenced and founded by philosopher Rudolf Steiner's (1861-1925) view on the holistic individual. Steiner advocated holism and biospheric values as; "*for children, everything is one, and they are also one with their surroundings* (Steiner, 1924, p.58). In other words, this claim suggests that every child attending Waldorf is unique and shall evolve to be their best self-regarding abilities, skills, interests with nature. People who have strong biospheric values "*care for nature and the environment as such and more strongly base their judgments and decisions to engage in particular actions on consequences of their behaviour for nature and the environment*"(Van der Werff et al., 2013,p.628). This is an important part of Waldorf pedagogy and education (Carlgren, 1978, Liebendorfer, 1997, Rikner & Ozolins,2010).
Besides, in Norway, the Waldorf school has developed an introductory document on its teaching philosophy, values, and skillsets. The Norwegian Waldorf kindergartens are under the same regulations as the other public/private ones, but they have created and adjusted a local framework for the Waldorf environment; "*to describe the Waldorf pedagogical basics and working methods in greater detail*" (Kjensli & Rise-Knutsen, 2018 ,p.5). The local adjusted Norwegian framework

for Waldorf kindergartens recognizes this and has their values influenced and based on Rudolf Steiner's thinking. Besides, they honor the holistic view in their pedagogy and framework and," *It recognizes humans, animals, nature, and the whole earth as an ecosystem are seen as interdependent parties on each other*" (Kjensli & Rise-Knutsen, 2018, p.7). The adjusted framework recognizes that there is no one-sided cognitive view of acquired knowledge. There are several ways of acquiring it through sociocultural and emotional ways activated during children's learning and development. Also, their perspective dissolves the hierarchical thinking that the child is unfinished (Kjensli & Rise-Knutsen, 2018).

Waldorfs learning theory that informs Waldorf pedagogy, also resonates with the local Norwegian framework for Waldorf kindergartens, is summarized clear as following (Loebell 2017, Rawson, 2018, p.51-52);

1. "*An expression of the activity of the person forming her individuality, which is emergent and open. Learning is an individual process of becoming more experienced.*
2. *Becoming through experience occurs in different ways in thinking, feeling, and willing; in other words, thinking and willing with full consciousness, partial consciousness, and while we are unconscious. The Waldorf approach is to educate both thinking and willing indirectly via the feelings. How this is done varies fundamentally between early childhood and requires teachers to be artistic in their whole approach.*
3. *Rhythm is a vital aspect of learning. Pedagogy as an art involves structuring and fine-tuning the rhythms of learning.*
4. *Bodily experience leads to embodied cognition, emphasizing the central importance of sensory experience, concrete encounters with the world, and activities involving movement and physical skills.*
5. *The teacher's significance is vital, not only as a shaper and observer of learning processes but also as an active meaning-maker.*
6. *Steiner emphasizes that learning is an ongoing, lifelong process.*

7. *The Waldorf approach to teaching and the material that is taught changes at these stages to interact developmentally with the pupils. The curriculum brings learning experiences to the pupils that enable them to engage with developmental challenges.*
8. *Learning involves three qualities of participation in the world: directing attention to the world, social participation of individuals in learning processes "* (Loebell 2017, Rawson 2018, p.51-52).

The role of adults and social relationships is essential for raising and teaching the children in Waldorf pedagogy (Boyd, 2018, Kjensli & Rise-Knutsen, 2018). The qualities and competence of adults in Waldorf pedagogy are highly valued. Boyd (2018) notes that Steiner pedagogy "*embraces a meaningful relationship with one educator and be supported in a nurturing environment*"(p.231, O'Donnell, 2013,).

Furthermore, Kjensli & Rise-Knutsen (2018) state that play and the social context is the most vital part of the children's day, " *it is an own arena for fantasy, friendship, relations and development of the language and life ambition. Research confirms play in early childhood is important to develop creativity, cooperation with people who have different views than oneself*"(Kjensli & Rise-Knutsen, 2018, p.22). Another aspect in Waldorf pedagogy is "rhythm" in learning (Avison & Rawson, 2016, p.31).

Their day is structured in an organic way, *which will assure healthy and balanced activities, such as moving and resting*" (Boyd, 2018, p.231). Also, Boyd (2018) highlights that "these rhythms and activities can provide a direct connection to both physical and biological sustainability"(p.231). Steiner had advocated the biospheric values and ideas regarding regenerative gardening and sustainable living in his biodynamic program from 1924, showing that his concerns came long before it was "hot" (Boyd, 2018). Gardening and sustainable living can relate to the outdoor environment one typically find in Waldorf kindergartens, which is a natural garden with a playground, grass, fruit trees, organic whole foods, small huts, home-made wooden swings, and natural sandpits are preferred in place of plastic slides and climbing frames and asphalt (Froden & Wright, 2018, p.1412). It also relates to their use of wooden and handmade toys from natural materials rather than plastic toys.

3.5 Norwegian public pedagogy and framework

The Norwegian government has based its framework for kindergarten and school on ESDs history and international documents. The framework has chapters where sustainability and nature, technology, and environment got separated into their own categories, showing the government's high focus (Ministry of Education, 2017). However, taking responsibility and respecting the environment and nature has been familiar to the Norwegian attitudes and values before the Brundtland report (Sageidet, 2014, p.114).

Decades ago, the Ministry of Children and Family in Norway put into the education framework for preschool teachers "to promote the will to actively protect the nature and environment"(Ministry of Children and Family, 1995, p.50).

The Norwegian government has sponsored and cooperated with several non-governmental organizations that work on supply information and activities towards sustainable development and group identity in kindergartens (Frønes, 2007, Schreiner, 2006, Sageidet, 2014). This happened before the government implemented sustainable development in the framework in 2017. Kindergartens can do this by working on projects and focus on sustainability for everyday life and receive certificates for "green flag" and eco-lighthouses (Sageidet, 2014). Kindergartens that engage in environmental profiles or have certificates may attract more engaged preschool teachers interested in sustainability (Sageidet, 2014, p.120). Davis (2010) claim that this is one-way kindergartens can become more sustainable (p.273).

Furthermore, the kindergartens have three interdisciplinary subjects in the new curriculum, sustainability, development, and life mastery (Haukeland and Lund-Kristensen, 2019). It furthers claims that these subjects "are on current societal challenges that require commitment and effort from individuals and the community... children and young people must understand how we can find solutions through knowledge and collaboration, and they must learn about connections between actions and consequences"(Haukeland & Lund-Kristensen, 2019, p.70, Ministry of Education, 2017). This statement is related to the kindergarten's meaning, for humans to live harmoniously globally and locally with nature.

Though, the Norwegian kindergartens are inspired by the term "Eco pedagogical-philosophy." Arne Næss (1912-2009) explains Ecopedacocical-philosophy as a personal value-oriented holistic view where we integrate as a part of the web of life (Haukeland and Lund-Kristensen, 2019, p.72, Næss, 1973).

This philosophy's meaning is to bring ecological concerns to light and change our actions and mentally toward a more holistic sustainable mindset (Bjørndal & Lieberg, 1975). Næss further claims that this ecological self is a process where we react to other species' interests as they were our interests (Haukeland and Lund-Kristensen, 2019, Næss, 2005). An example of this understanding could be that some children have spotted two spiders in the corner. One of the teachers asked them if they think that the spiders want to live and try to help the spiders. Here is where the focuses on the children shifts. The teacher then asks if they should find cups to capture the spiders to let them out in nature. The children march with the spiders out in an enthusiastic way. Afterward, the teacher talks about this event with the children in a holistic view and says that it is not a must to take a life, but sometimes we must do so to live.

Moreover, all living beings do so to live, but only if it is essential. This pedagogical ecological way of thinking is vital to teaching young children to create a good set of values and norms. In this example, the teacher uses an eco-pedagogical approach, which Haukeland and Lund-Kristiansen (2019) define as "*theoretical and practical pedagogical that solve problems in ecological research, and eco philosophy is central* (p.75)". This type of approach focuses on the Norwegian framework and kindergarten teachers seen as eco pedagogy.

The Norwegian framework toward outdoor play in kindergarten is central to assure the children's understanding of nature, biological ecology, and sustainable practices (Ministry of Education, 2017)**.** In their chapter about nature, environment, and technology, their most essential highlights states:

"1. That experiences and the need to explore nature and nature's diversity

2. Get good experiences with outdoor activities all year

3. Experience, explore, and experiment with natural phenomena and physicals laws

4. Gaining knowledge of nature and sustainable development, learn from nature and develop respect and an understanding of how they can take care of nature gaining knowledge of animals and wildlife

5. Make construction of different materials and exploring opportunities inherent in tools and technology

6. Gaining knowledge of the human life cycle" (Ministry of Education, 2017).

Sageidet (2014) states that this subject is for children to gain a beginning understanding of the significance of sustainable development. The ministry claims that every preschool teacher should

promote the understanding of sustainable development through different activities, literature, play, and words that will further develop the interest in the environment among children (Ministry of Education and Research, 2006). If every preschool teacher promotes their subjective understanding of sustainable development, this quality will vary significantly from kindergartens everywhere in Norway (Sageidet, 2014, Alvestad & Løvberg, 2005, Davis, 2010). We will come back to this point in chapter 5. Additionally, this framework's principles are to promote love for nature and understand how nature and humans connect and interact with each other (Sageidet, 2015, Ministry of Education 2006, Ministry of Education 2017). The children should develop an understanding of what sustainable development means for our society (UNESCO,2017, Bell, 2016, Arlemalm-Hagser & Elliot, 2017).

3.5.1 Outdoor education

Outdoor education and its positive effect on children's well-being are a topic that has had an increased rate of research in the last years. The well-being of children is expressed in positive feelings where the psychological, social and physical resources they need are met (Bjørgen, 2015, Dodge et al.,2012). Bjørgen (2015) argues that the paradox from lifestyles today is that the youth sits more still and has become less physically active and more passive in the recent decades (p.306). Outdoor activities and living in line with nature and taking care of it is nothing new in Norwegian kindergartens; the same goes for recycling and reusing (Lysklett, 2013, Sageidet, 2014,). The Norwegian framework emphasizes being out in nature; "*children should develop a positive self-image through physical achievements and have positive experiences of outdoor activities* "(Norwegian Ministry of Education and Research, 2011, p.35,)

Nature is highly available throughout Norway. Research confirms that most of the time, Norwegian children spend their outdoor activities on spontaneous play and gain positive attitudes toward their environment (Mjaavatn & Fjørtoft, 2008, Bjørgen, 2015).

A study done by the American scientist Richard Louv in 2008, studied children who played in nature had better collaboration skills, concentration, attention, and overall better health conditions than children who did not play in nature (Haukeland & Lund-Kristensen, 2019). This study and others have contributed to raise the awareness around the value of outdoor education in schools and kindergartens internationally (Giske et al., 2010, Fjørtoft,2001, Mjaavatn & Fjørtoft, 2008, Sandseter, 2010). Different scholars also argues the significance of outdoor play; it promotes

positive risk-taking , motor skills and physical fitness and wellbeing **(**Giske et al., 2010, Ministries, 2004, Mjaavatn & Fjørtoft,2008, Sandseter, 2010)

Ingunn Fjørtofts (2001) study on outdoor activities indicated that children who used the forest as a playground performed better in motor skills than children who had traditional playgrounds. She also states from different studies that children's behavior broadened when they used and had available physical diversity of environment; she concluded an effect found in balance and coordination abilities (Fjørtoft, 2001)**.** Multiple studies show an important and positive correlation between the developed motor skills and playing outdoor (Grahn et al.,1997, Giske et al.,2010, Sandseter, 2010). Furthermore, outdoor activities and relating to the environment can contribute to pro sustainable-behaviour (Sahin & Alici, 2019, Nisbet et al., 2009, Shultz, 2002,). Outdoor activities and having a connection with the physical environment seem to have a great deal of impact on their motor skills, well-being, attitudes, among other abilities.

3.5.2 Connectedness to nature

Since the youth has become more still sitting and staying inside, we may become more alienated from nature, which might negatively impact the development of what it means to be "human"(Wilson, 1984). Our problems connected to environmental issues have a connection to our relationship with nature; (Soga & Gaston, 2016). Besides, if children are a lot inside, they do not develop a connection with nature; our more profound connection to nature is vital for taking care of it. Our global warming and environmental issues might be a response to our relationship with nature. Many people have joined the global helplessness belief (what I do doesn’t matter in the big picture, we are doomed anyways mindset), which is concerning because it prevents them from engaging in environmental and sustainability issues (Cooke & Fielding, 2010, Sageidet, 2015). Considering these issues, individuals must value and feel concerned for their environment to protect it (Lieflander et al., 2013, Heggen et al., 2019). People need to feel like a part of nature to reach their sustainable development goals (Schultz, 2002). Studies regarding altruistic and biospheric values has shown a positive relationship with pro- environmental behaviour (Stern, 2000, Stern & Dietz, 1994, Rikner & Ozolins, 2010).

Also, nature connectedness is linked to biospheric values which increases pro-environmental action” and means any action that enhances the quality of the environment” (Steg et al, 2014, p. 104, Nguyen et al, 2016, p. 99, Barr et al, 2005). Consumers “*with strong adherence to*

biospheric values are generally more concerned about the environment and place emphasis on how the purchase of eco-friendly products to protect it...and assign more importance to environmental impact" (Nguyen et al.,2016, p.100). Another aspect with values are they likely develop in early life and are general and remain stable over time (Stern et al, 1995, Feather, 1995, Stern, 2000, Van der Werff et al., 2013)

Besides, Schultz and Tabanico (2007) developed an implicit association test that would investigate the identification with self as part of the environment. In their study, visitors (both children and adults) had one day in a wild animal park, and they found that the visitors developed an increase in connectedness with nature just after one day (Schultz &Tabanico, 2007). They also confirm that our relationship to nature increases after spending time in it.

The concept of nature connectedness is also relevant to outdoor education. Scholars claim that connectedness to nature is critical and should get higher priority in connection with ECEfS (Lieflander et al., 2013, Heggen et al.,2019, Davis, 1998). They state that ESD and ECEfS should focus on contributing teenagers and children to gain positive experiences in nature via outdoor activities, games, and experiments (Lieflander et al.,2013, Davis, 1998, Hedefalk et al., 2014). Connectedness with nature throughout ECEfS is crucial for the young generation's well-being and could be a central tool to reach a sustainable future.

To increase children's connectedness to nature could be that "*children need to experience and know plants' and animals' needs, their habitat, how to reduce, reuse and recycle materials that were used, how to keep ecosystems linked to forests and water*" which is significant for their ecological engagement as adults (Gadotti, 2010, p.232, Chawla, 2006; 2007;, Heggen, 2019). It could be a helpful tool and a fun way for children to learn and experience biodiversity when increased. Increasing education for sustainability from an early age(preschool) can benefit future societies by raising environmentally accountable conscious individuals (UNESCO 2005, UNESCO 2017, Bell, 2016, Chawla, 2007).

3.5.3 Davis model beyond education *in* the environment

Davis (1998, 2010) claims that the "environmental" approaches in ECEfS should focus beyond education *in* the environment. There are several scholars and researches that has confirmed the need to focus on education beyond *in* the environment (Robottom, 1987, Yeshalem, 2013, Elliot et al., 2020).

Davis (1998, 2010) suggests that there should be a stronger knowledge component through education *about* the environment and more development of programs that have action-orientation of education *for* the environment (p.119). These are whole, broad, and overlapping approaches. She furthers claims: "

Education *in* the environment provides for direct experiences with the environment and develop positive feelings and attitudes toward nature and natural elements. But this is not enough to develop future citizens who will know-how and will desire to live their lives sustainably.

Education *about* the environment encourages learners to understand how natural systems work, to appreciate their complexity, and to understand how these and human systems interact.

Education *about* requires an understanding of ecological principles and their processes.

Education *for* the environment adds a more overtly political dimension concerned with social critique and social action for change. Education *for* the environment requires teachers who are environmental advocates; who understand the long-term implications of unsustainable actions; who help children to act collaboratively to be caretakers of each other and protectors of the earth; who actively help children and families resist a focus on consumption and possessions (Davis, 1998, p.119, Davis, 2010). Her researches also confirm the importance of the teacher's role in promoting sustainable attitudes in kindergartens.

CHAPTER 4: METHODOLOGY

4.1 Research design

To make a research design is to give the study structure and make coherent selections that will produce dependable and valid scientific results (Cavana et al., 2001, Blaikie, 2010).

This thesis will compare public and Waldorf kindergartens sustainability approaches; also, similarities and differences will come to light. The following research questions will be explored:

"How do early childhood teachers work with sustainability, in kindergartens with Waldorf pedagogy and in public kindergartens, and what are the main differences?

Which elements from the Waldorf pedagogy may enrich early childhood education for sustainability?"

To explore these questions, a qualitative research method will be used. Qualitative research involves the studied use and collection of a variety of empirical materials – for example case study, personal experience interview and observational that describe routine and difficult moments and meanings in individuals lives in their natural surroundings (Denzin & Lincoln, 2005, p.2). This approach is known for its flexibility, go deep and allowing the researcher to make cultural assumption, which there is less of in the quantitative method (Brannen, 2017, Repstad, 2007). Brannen (2017) further confirms that in the quantitative approach, the instrument is pre-determined, making the researcher not that flexible and less suitable for cultural assumption. The quantitative method is also known to be time-consuming and complex, while the qualitative method needs less planning (Roudgarmi, 2011, Brannen, 2017).

Another aspect with the qualitative approach is to, "*taking richer and more holistic qualities of real-life circumstances, flexibility in design and procedures allowing adjustments in process, sensitivity to meanings*" (Roudgarmi, 2011, p.871). Given these facts, the qualitative approach is the best fit because of its flexibility, less time-consuming efforts, and room for more cultural assumptions. Additionally, this research will use inductive reasoning. Inductive reasoning is a viable method of "doing science" and are formulated by drawing general interpretations from cases of empirical data (McAbee et al., 2017, p.278). It is suitable for looking for patterns from the informants and find a deeper truth and conclusion (Antwi & Kasim, 2015, McAbee et al., 2017).

This research design contains qualitative interviews. the analysis from the data collected and inductive reasoning.

4.2 Sample size and sampling techniques

Dworkin (2012) claims that there is no right or wrong approach to how many samples the research needs to get enough sample size but instead acquiring enough data to answer the research question(s). This study will then gather enough information to broaden and enrich the discussion and use an in-depth understanding of a phenomenon (Dworkin, 2012). Using an in-depth understanding is "*often centered on the how and why of a particular issue, subculture, situation and social interactions"* (p.1319). Besides, this study will use the concept of data saturation, which Dworkin (2012) defines "*as the point at which the data collection process no longer offers any new or relevant data*"(p. 1319-1320).

Data saturation is obligated to occur, so the examiner knows that they have composed enough data that truthfully reflects the informants' viewpoints (Kolb, 2012). This study will use a purposeful sampling technique (Gentles et al., 2015). In other words, by using a purposeful sampling technique the data collected will have different perspectives that increases the chance to attain better understanding of the phenomena collected (Gentles et al., 2015, Etikan et al., 2016). With this in mind, this study will use twelve informants, seven from public kindergartens and five from Waldorf kindergartens, three of the public kindergartens are outdoor and farm kindergartens (under the same regulations and do not have an alternative pedagogic just being outside in a higher degree than other "public" kindergartens). Choosing outdoor and farm kindergartens could reveal interesting perspectives towards the theory selected and make this study richer. The samples used in this study provides more variety in the responses and wider viewpoints; different cities are represented to achieve these viewpoints concerning sustainability work in kindergartens (Aspers & Corte, 2019). Due to the Covid-19 pandemic situation, I only got to visit one kindergarten in person; I hoped to visit three in the area to understand their sustainability practices better, but the telephone was preferred.

4.3 Design of the interview

This thesis will use interviews from twelve kindergarten teachers with experiences from three different concepts (Waldorf, regular, outdoor/farm). The informants have backgrounds as educational administrators, kindergarten teachers, child and youth workers, and Waldorf pedagogics. Five from Waldorf kindergarten and six from regular kindergarten, two of them are from outdoor/farm kindergarten. Furthermore, this study uses semi-structured interviews, characterized as more open-ended and more theoretically driven questions (Galletta, 2013). Having semi-structured interviews allows for the informants to give broader statements and more narrative stories than closed questions. Galleta (2013) confirms that this allows the informant to be more comfortable and feel freer under the interview. By using the semi-structures, it will allow the researcher to make follow up questions and further adjustments during the interviews, confirming the flexibility of such an approach (Brannen, 2017, Galleta, 2013). This study used many open and broad questions that allowed the informants to give more

profound answers that reflected their core values and different perception to the topic, which this study is also after.

Moreover, before the interviews were collected, an interview guide was prepared with twelve questions, to stay on course (see appendix, page 83).

To prepare for the interviews, the informants received an e-mail with deeper info about the research purposes/topics and their rights as informants. It is necessary to consider the pandemic affecting everyone at this hour. The Covid-19 situation has affected this research, and all but one interview has been conducted on the phone in March. My informants are anonymously presented in the following chapters.

4.4 Selection of informants

The informants are carefully selected on purpous from different Norwegian cities to gain a wide viewpoint in order to achieve a dependable research (Gentles et al, 2015)**.** The cities with numbers of informants represented (public kindergartens); three are from Stavanger, one from Trondheim, one from Tromsø, one from Oslo, and the last one is from Kristiansand. Waldorf Kindergartens represented with number; One from Kristiansand, one from Trondheim, two from Oslo, and one from Bergen (see table 1).

This selection of various cities has given this research better interpretations from the informants (Aspers & Corte, 2019, Abbas, 2020). It is essential to state that the informant's perspective can't represent all kindergarten's views on sustainability approaches in Norway, only the ones represented in this thesis and their kindergartens. Under table 1, there are acronyms for the informants, "WA 1", "RE 2" and "REO 3", the first is informants from Waldorf kindergartens, the second stands for public kindergartens, and the last is for the outdoor/farming kindergartens.

Table 1: Distribution of the selected informants

Pedagogic title?	**Cities the informants belonged to**	**Number of people interviewed**	**Abbreviated names of the informants**
Waldorf pedagogic	Kristiansand Trondheim	1 1	WA 1 WA 2 WA 3

	Oslo Bergen	2 1	WA 4 WA 5
General pedagogic	Stavanger Trondheim Tromsø Oslo Kristiansand	3 1 1 1 1	RE 1 RE 2 RE 3 RE 4 REO 1 REO 2 REO 3

4.5 Data collection and processing

Due to another Covid-19 lockdown and an increased amount of time to process the Norwegian Center for Research and Data (NSD) application, this study did not tape or record the interviews. During the collection, simple tools like pen and paper or on the computer where used when collecting the data through digital media (phone and zoom). The data collected was from pedagogical kindergarten teachers and one youth and child worker, and educational administrators. Structuring an interview-guide started in February 2021; the data collection lasted the whole month of March 2021. When calling or sending email to the potential kindergartens for interviews, the researcher stated the rights informants have, such as it will be anonymous, voluntary, and the informants can withdraw at any time of the interview.

In most cases, the interview guide got sent to the informants before the interview, and in three other cases, they did not prepare beforehand. One reason was that the first kindergarten teacher who said yes got switched with another colleague, which was argued to fit "better" for the topic. The two other cases were that they had time right away to get interviewed. Moreover, the interview guide consists of twelve questions relevant to the research questions, the follow-up

questions is not part of that number. The semi-structured interview guide made it easier to explain the broad questions if the informant was confused and ask follow-up questions (Galletta, 2013). The interviews lasted around 20-25 minutes and most of the interviews were conducted by phone, one where through Zoom and one kindergarten I got to visit and interview in person. Telephone interviews are perceived as a less attractive and neglected alternative in the qualitative method than in the quantitative method (Novick, 2008). Despite this, various scholars have judged qualitative telephone data to be "rich, vivid, detailed, and of high quality"(Novick, 2008, p.393, Chapple, 1999, Kavanaugh & Ayres, 1998**,** Sturges & Hanrahan, 2004; Sweet, 2002). Novick (2008) declares that the informants have been described as relaxed on the telephone, talking more freely, and disclosed intimate information. Another positive aspect of telephone interview is the increased access to disparate subjects (p.393, Sturges & Hanrahan, Sweet, 2002). These scholars insist that a disadvantage with a telephone interview is the disturbance in their environment, but this was also true for face-to-face interviews. Finally, there will be used "verbatim quotations" from the informants. This strategy has become an effectively standard practice in qualitative social research; when showing evidence and making conclusion verbatim quotations had a key role here (Corden & Sainsbury, 2006). Various authors within the health and social welfare sector "*spell out how inclusion of excerpts from transcripts help to clarify links between data, interpretation, conclusion, discussed variously within concepts such as validity, reliability and credibility* "(Corden & Sainsbury, 2006, p.1, Beck, 1993, Greenhalgh & Taulor, 1997, Spencer et al., 2003, Long & Godfrey, 2004). Therefor this study will use this strategy to increase the validity and reliability.

4.6 Coding and data analysis

When conducting the data and creating an analysis from the semi-structured interviews, it is essential to have the research question in mind and the big picture (Stuckey, 2015)**.** She explains the importance of creating a storyline or narrative related to the research question, "*what are the data telling me that will help me understand more about the research question*?"(p.2). This study transcribed and analyzed the data and coded it with a qualitative content analysis approach (QCA). Content analysis is a flexible method for analyzing text data; it describes a group of

analytic approaches ranging from intuitive, interpretative analysis to systematic and strict text analysis (Rosengren, 1981, Cavanagh, 1997, Hsieh & Shannon, 2005)**.**

The QCA approach highlights "*the systematic reduction of content, analyzed with special attention to the context in which it was created, to identify themes and extract meaningful interpretations of the data"* (Roller & Lavrakas, 2015, p.232).

Hsieh and Shannon (2005) suggest three design types within the QCA where conventional content analysis is chosen for this study. They further suggest that the last-mentioned design is appropriate when the theory or research literature into this particular phenomenon is limited, and the researcher aims to allow new insights to emerge (Hsieh & Shannon, 2005, p.1279, Kondracki & Wellman, 2002). Also, Hsieh and Shannon (2005) suggest the "*advantage of the conventional approach to content analysis is gaining direct information from study participants without imposing preconceived categories or theoretical perspectives"* (p. 1279-80). Therefore, this study will use this approach. Roller and Lavrakas (2015) propose two phrases in the process of QCA; Phrase 1 is data generation; absorb content, determine the unit of analysis, develop unique codes, conduct preliminary coding, code content. Phrase 2 is data analysis; categories, identify patterns and draw interpretations (p.235).

In coding, words are data waiting to be interpreted, and coding will make it more meaningful and give a better overview (Pierre & Jackson, 2014).

Regarding these steps, I first read through the material I collected from the interviews. I tinted the most related information that captured key replies relevant to how Waldorf and public teachers work with sustainability in the kindergarten, with kindergarten act and other theory in mind and find the main differences (Hsieh & Shannon, 2005).

Then I would find several new patterns in the text from the interviews, and the codes were sorted into categories and given names; thus, the new codes were organized and grouped into meaningful clusters (Hsieh & Shannon, 2005, p. 1279). These were the final codes from the data collected (see table 2, page 42): (1) Preschool teachers' perception of sustainable development, (2) teaching about sustainability, (3) learning in social context, (4) challenges with practicing sustainability**.**

Lastly, I made suggestions from the codes with examples from the interviews (see table 2, page 42). In chapter 5, the findings from QCA are illustrated, analyzed, discussed with social-constructionist theory, the public and Waldorf framework, other theory, and Davis model *about*

in and, *for* education in the environment to explore the research questions.

4.7 Validity and reliability of the study

Validity and reliability are concepts in qualitative research meant to be about precision (Bashir et al., 2008). Bashir et al. (2008) further declare that validity means to what extent data is credible, plausible, and trustworthy and how the study can defend it; it also rests on data collection, analysis techniques, and the method. While reliability refers to the research inquiry's demonstration and procedures, other researchers may repeat them and get similar findings (Riege, 2003). The method used in this research consists of a prepared interview guide with carefully selected questions and informants from various parts of the country; the purpose of different cities was to rise diversity in answers and has increased the data's reliability (Gentles et al., 2015, Etikan et al., 2016). After approximately three interviews with Waldorf teachers, a pattern was created on similarities between their practices and pedagogical approaches, and saturation had happened**.** There were also similarities between the public teachers after approximately three-four interviews, and a pattern and saturation also occurred here, increasing the reliability and validity of this study. To increase the validity, this research used direct quotes from the informants (verbatim accounts) and asked them again if something felt missed out or not enough information on. A central issue regarding data quality from telephone interviews is the loss of visual cues, informal communication, and contextual information (Novick, 2008). However, most of the informants gave detailed, quality information and seemed relaxed and open through the phone. This research also consists of the researcher's inductive reasoning and knowledge of sustainable practices in society which is a minor perspective and is a weakness. Since the qualitative method does not favor high numbers, the sample size answers cannot be generalized and might also be a weakness (Roudgarmi, 2011).

Also, I just got to visit one kindergarten due to Covid-19 restrictions; I got a sense of how it would be if I visited more kindergartens in the area. The kindergarten teacher I interviewed showed me some of the children's environmental projects, food plans, garbage/sorting bins, and reused/repaired toys. Visiting more kindergartens would allow me to add data from observations and interpret the learning context and their sustainable approaches more accurately and give me more in-depth discussions.

Finally, this study has described the issues related to validity and reliability and justified them in the sections above.

CHAPTER 5: RESULTS, ANALYSIS, AND DISCUSSION

I will present and combine the results from the data coding found from the QCA with the analysis and discussion.

The results will be divided related to identified themes and then analyzed in one chapter with four underparts: Working with sustainability: teachers own perception, teaching children about sustainability, learning in social context and challenges with working with sustainability. Also, analyzation of the results and discussion with theory will be joint in these underparts. Finally, in chapter 6 I will conclude and give closing notes.

5.1 Working with sustainability in kindergarten

To answer how the early childhood teachers work with sustainability in kindergarten, it will be divided into four under chapters. First, each chapter will present the results and then link it with theory through analyzing and discussion.

Table 2 will give an overview of the Conventional analysis codes regarding how the teachers work with sustainability and how the chapters will be divided. The results use longer direct quotes from the preschool teachers to strengthen the validity and caption more accurate interpretations. Some informants gave broader detailed replies than others which will result in longer quotes. Finally, while conducting material from the informants, most of them have been very reflective and enlightening when giving their information.

Table 2: Codes on how the preschool teachers work with sustainability in the kindergarten with examples

Code	Example from the interviews
Preschool teachers' perception of sustainable development	"*Well, I think it is about taking care of things. I do not believe my sustainable practices have any difference to the environment*". (RE 3) "*It is about that we should take care of nature, learn about animals and taking care of them, research shows that those taking care of the animals will project this over to adults and other kids and take care of their environment and nature.* REO 1 also stated*; Yes, I believe I can make a difference; it is significant to be a good role model for the children*" (REO 1) "*It's about not ruining the environment for future generations, and that I should not buy more than necessary; it is also important to reuse things and buy environmentally friendly products that are not harmful to the environment, animals, health and economy*." (WA 4)
Teaching about sustainability	"*Yes, we do. We have environment projects all year round, every year for the oldest children. We talk about reusing things and are conscious about using cardboard instead of plastic. Our children always pick up trash when they are outside and ask questions about why there is so much trash everywhere*.

	Our biggest children love spending time outside; we are outside almost all day. (REO 2) "*We learn the children that it is essential to take care and respect their environment and nature. I tell them that for example, we should not pull the bushes and trees because that harms it".* RE 2 also says*; To just sit inside with mobile, iPad, tv the development of love for nature is not created, nor the need to taking care of it*" (RE 2) "*We take huge responsibility of taking the children outside every day, no matter the weather, I want them to create a bond with nature and feel connected to it*" (WA 2).
Learning in social contexts	"*What preoccupies me transfers over to the others in the kindergarten. The adults are very important, and the quality of the staff. Adults are role models for the children; they mimic what we provide of information and actions*" (WA 3). *"The children get a lot of attitudes through me; the adult role is very important. We talk a lot with the children on how to take care of the environment and show them how to do that through activities inside and out".* (RE 4)

	"*It is necessary to search and be updated on new information arriving on various topics. In my contract it says I shall educate myself regularly, that's my duty because my attitudes and information are vital for educating the children*". (REO 2)
Challenges with practicing sustainability	"*The biggest challenge is the lack of awareness of sustainable practices by the staff. Another issue is that we do not have the funds to do a lot; therefore, the easier, cheaper, and often worse solutions are used (toys that break easier and cannot be repaired).* (RE 1) "*Food waste is our biggest issue. Also, it is not easy to take care of things; for example, puzzle games can break, and we have to buy new because the children explore and ruin things*". (REO 3) "*Since we make our food by ecological raw materials, the biggest issue is to be aware of using all of the food and not waste it. The*

	children pay attention.”. (WA 1)

5.1.1 Preschool teachers’ perception of sustainable development

Table 3: Personal involvement with the environment

Question: “Do you personally feel you can make a difference for the environment?”	Answers		
	Yes	Unsure	No
Waldorf preschool teachers	5	0	0
Public preschool teachers	5	1	1

My first relevant question toward finding an answer to the research questions was what is your understanding of sustainable development? With a follow-up question, do you personally feel you can make a difference for the environment? Give examples? In table 3, the distribution of the answers is visualized. One from the public kindergartens did not believe they made a difference, and one was unsure, while the others believed they did impact the environment. I will present the most detailed and reflective answers.

RE 1: " *Sustainable development is a broad field. It is about so much, especially regarding children and future generations. I think it is about making the kids aware of the environment. For example, they do not need to throw away everything and buy new things; it is possible to make it into something else useful. I visited a kindergarten in Italy (Reggio Emilia - famous for alternative pedagogic and the focus on environment) to learn more about recycling. Yes, I feel I can make a difference, and it is important I do for the children. I am also very politically active, and my party has environment and climate as big and central campaign focuses. I recycle at*

home, try to not buy a lot of stuffs I do not need, repair clothes/things, use my bike to work or bus.".
RE 2: My understanding of sustainable development has to do with making the world a better place to live in a way so that we do not ruin it for future generations. Personally, I do feel I can do a lot for the environment. It is typical to think that you as an individual cannot make much difference for the rest of the world by doing good things for the environment, but if everybody had thought like that, how could we then make the world a better place to live for us selves and future generations. My first step is to let the car stay at home and walk or bicycle to work. "

REO 1; It is about that we should take care of nature, learn about animals and taking care of them, research shows that those taking care of the animals will project this over to adults and other kids and take care of their environment and nature. Yes, I believe I can make a difference; it is significant to be a good role model for the children"

While RE 3 and REO 3 had different views on it*;*
RE 3: Well, I think it is about taking care of things.
I do not believe my sustainable practices have any difference to the environment.

REO 3: It is about taking care of each other and the environment and the people coming after us. Well, I am not sure, maybe.

Regarding the replies of RE 3 and REO 3, it is not surprising that some informants have this type of view on their impact on the environment, especially since many people have this belief that what they do does not matter to the environment (Cooke & Fielding, 2010). However, both stated that sustainable development is about taking care of things and the environment as the others also said. My understanding from RE 3 and REO 3 is that they do some sustainable practices; but they do not think it impacts the environment. They also did not give specific details and did not seem to be interested in doing so.
Then there's WAs replies:

WA 2: *The term is used a lot these days; it is about sustainability, looking forward, and planning*

for the future and look at the consequences. Yes, I feel like I can make a difference for the environment as a consumer; we have a lot of the power. I do recycling, use Finn, use ecological food, try to minimize food waste, look at where products come from and select fair-trade products.

WA 5; *It is about taking care of our planet and nature, especially when thinking about the future generations to come; It should not affect and impairs development in a negative way for the next generations. Yes, I believe I can make a difference; it has a lot to say what I think about these questions since I am the administrator and run the kindergarten. Personally, I use Finn (recycling website) a lot for purchasing products and use thrift stores. Other than that, I do recycling, not use my car everywhere and use bybanen (tram in Bergen), less food waste and save power.*

WA 1; Sustainable *development includes everything from the SDGs, environment, climate, ecology, justice, circular economy, taking care of animals, poverty reduction. It contains every area of society. Yes, it definitely matters, everyone can contribute. I do recycling, shop clothes and food locally. I have also engaged in environmental organizations.*

WA 3; *I believe it is about taking care of our local environment both people and animals. Cooperate with the local and global communities on big issues regarding nature, energy, economics, humans, animals, etc. I try to be aware of my purchases; I also have a little garden at home and I recycling and reuse stuff.*

Having these "personal" broad questions in the interviews was to capture the teachers' perception and interpretation of sustainability and get a sense of their personal practices outside the kindergarten. It was interesting to gain two reactions where the informants said they were politically engaged in environmental causes. The personal aspect was captured successfully in all the interviews, where I interpreted which informants thought they impacted their environment and knew that everything evolves in sustainable development. Furthermore, it is crucial to state that everyone is different and understands concepts and things individually. However, I would argue that from these answers, it is more natural to draw a correlation from the most detailed

specific replies than the simpler, uncertain ones. The informants with detailed and reflective replies**,** might better understand how to perform sustainable practices in the kindergarten and are more conscious of what they do and how they do it. Also, most of them had similar thoughts regarding sustainable development but differs when giving examples. The WA teachers showed increased biospheric values than public teachers in their examples. They did so by being aware of where and how much they bought items (clothes and food), mentioned recycling, ecological food, fair trade products, food waste. In addition, they seemed to be more conscious of how they could practice sustainable practices and not harm the environment. These increased action-oriented examples have to do with it being an essential part of their pedagogy and education (Carlgren, 1978, Liebendorfer,1997, Rikner & Ozolins,2010). Furthermore, Rikner & Ozolins (2010) paper measuring pro-environmental behavior and biospheric values in Waldorf Teachers and public teachers in Sweden revealed a similar pattern as this study. The paper further supported other researches on this topic, "that feelings of personal responsibility in regard to environmental concerns (Kaiser et al., 1999; Kaiser & Shimoda, 1999; Montada & Kals, 2000), as well as biospheric values (Barr et al., 2005), can predict pro-environmental behavior"(p.17). This is an interesting find and will be considered in the chapter 5.2. Although REO 1, RE 2, and RE 1 also seemed to be aware of their sustainable practices but not so specific as the WA teachers. Capturing preschool teachers' perceptions and values can give a better perspective and overview of their sustainability work in kindergarten.

Research have confirmed the importance of the preschool teacher's competence and interpretations of sustainable development for the kindergarten and children's culture and quality (Alvestad & Løvberg, 2005, Davis, 2010, Hollins, 2008). Therefore, I will draw these correlations. Since every preschool teacher develops different understandings of sustainability, every kindergarten's quality will vary (Davis, 2010, Alvestad & Løvberg, 2005, Sageidet, 2014). Comparing answers from RE 1, RE 2, WA, 1, 2,3, and 5 with REO 3 and RE 3, their responses differ in their perception of sustainable development and if they make a difference to the environment.

The next chapters will reveal a better pattern on how they work with sustainability**.** My correlation will be stronger throughout the next chapters.

5.1.2 Teaching about sustainability

When working towards sustainability in the kindergarten, a natural question was: Do you teach children about sustainability and bring examples. In several of the statements, outdoor experiences were an important factor for connecting the children to sustainability, the environment, and taking care of it. As seen in table 4 (down below), everyone claims to teach the children about sustainability. Naturally, their methods vary and to what degree.

Table 4: Teaching children about sustainability

Question: "Do you teach the children about sustainability (taking care of the environment/sustainable practices)?"	Answers	
	Yes	No
Waldorf preschool teachers	5	0
Public preschool teachers	7	0

RE 4; *Yes, we talk a lot with the children about how they can take care of their environment. We focus on recycling, not use too much paper. We have had many conversations about the garbage truck. When we visit the forest and see a lot of garbage or ruin parts in it, the children get sad and want to help repair it.*

REO 2 also claims to teach the children about sustainability and taking care of the environment; *Yes, we do. We have environment projects all year round, every year for the oldest children. We talk about reusing things and are conscious about using cardboard instead of plastic. Our children always pick up trash when they are outside and ask questions around why there is so much trash everywhere*. Our *biggest children love spending time outside; we are outside almost all day".*

REO 3; *Yes, we do recycling, trying to raise awareness of reuse and use less paper for drawing*.

RE 3; *Yes, we do as good as we can, we could be better at recycling, we try to sort glass and metal and throw it when we are on a walk and talk with children why we do this.*
REO 3 and RE 3 confirm my interpretation that they do focus on sustainable practices just in a narrow way. I debate that their perception and personal sustainable practices have a somewhat link in their answers if they teach the children about sustainability. The methods to RE 3 and REO 3 had fewer examples for teaching sustainability and did not give this area high focus, just as it did not matter to the environment. This could be unfortunate since the quality of the learning culture and activities is influenced and formed by the preschool teachers' own perception of sustainable development and culture (Alvestad & Løvberg,2005, Davis,2010, Hollins, 2008, Sageidet, 2014).

WA 1 claimed that; *Teaching about sustainable practices is a natural part of the Waldorf pedagogic and values for a long time, so these sustainable practices are permeated in our everyday life and have been for many decades. Our most focused areas are ecology and a green kindergarten. We also have hens and a garden which we teach the children to take care of, collect the eggs and if there were too many eggs, we sell them to parents."*
WA 3, "*Yes, in Waldorf pedagogic, we have focused on sustainable practices for a long time and learn the fundamentals to the children. It is important to teach the children about the compost box, reuse and take care of our things (toys, our garden, and more).*
WA 4; *We teach the children to take care of our hens, recycling is an everyday practice, we also have a compost box. The children use their sensory experience and rhythm in outdoor play to connect to their environment. When we go for walks, we pick up trash and talk about being in nature and the environment and taking care of it".*
WA 4 belonged to a kindergarten that won an environment price. One of the criteria they met for winning the price was their environment-friendly building (materials, reused materials, and heating system). Other criteria were their hand-made toys of wood and reused toys; they also have organic short traveled food and good outdoor areas. I asked WA 4 if this type of building/materials was normal for other Waldorf kindergartens, and they answered with*; I know that some kindergartens have used the same type of material and heating system*". This was an interesting find.

Four of the Waldorf teachers highlight the importance of starting the day in an organic/sustainable way, similar to what Boyd (2018) claims. 4 out of 5 of the Waldorf kindergartens had access to a garden where they grew vegetables, herbs, and flowers. They start their day by preparing organic, locally based foods which they talked about with the children. All of the Waldorf kindergartens had compost stations, recycling was everyday practice and they claimed that sustainable practices and living has been around for decades and is nothing new. There has been a shift in generations about transferring the knowledge around the ecologic principles and nature's sensitivity, where the new generations do not get this knowledge through farming and outfield use (Sageidet, 2015, p.112). However, based on theory and information from the informants, Waldorf kindergartens transfer these principles through their pedagogic fundaments daily. They are doing so by having hens, a garden containing vegetables/herbs/flowers, which helps teach the children how nature works and how you take care of it in other terms, focusing on ecologic and nature sensitivity. This matches the fundaments from Steiner's view which he integrated in their pedagogic which transfers to the children and are a part of their adjusted framework. Also, a study assessing Waldorf schools in Sweden concluded that its students, to a great extent, became responsible and active citizens (Dahlin,2007, Dahlin et al.,2006, Rikner & Ozolins,2010). In addition, they found that the students felt more responsibility regarding social and moral questions of society than students in public schools; this was because of their educational methods and teachers (Dahlin et al.,2006, Rikner & Ozolins, 2010, p.4). Therefore, it is natural to correlate this to Norway because of the same international principles of Waldorf pedagogy. Another reason for this correlation is that Sweden and Norway have a similar public system; therefore, it is likely this also happens to Norwegian children attending Waldorf institutions. Thus, in this study, the WA teachers have the same pattern of following Steiner's view and practicing Waldorf pedagogic, making this correlation more accurate. Still, more research is needed.

As well, the WA teachers claimed that they had hand-made wooden toys and no plastic toys inside, no harmful chemicals; they used natural materials and beeswax in various products which confirms what Froden and Wright (2018) found in their study.

These fundaments and replies from Waldorf kindergartens reveal more "advanced" integrated sustainable practices in daily life.

Moreover, similar to other responses, some preschool teachers highlighted that being outside helped the children feel connected to nature/environment.

WA 3, "*The children are outside several times every day to explore and sense nature to develop a connection with it*".

WA 2*; We take huge responsibility of taking the children outside every day, no matter the weather, I want them to create a bond with nature and feel connected to it***".** *We talk about how the animals live and let them explore nature, and give increased sensory experience involving rhythm".*

RE 2; *"The children in my department are very used to being outside, both in the woods and in the fields. Every Tuesday, we visit new destinations, so they get used to being outdoor and used to how one treats nature. To sit inside a lot with mobile, iPad, tv, the development of love for nature is not created, nor the need to taking care of it."*

RE 4: *Our children are often out on trips; then, we focus on taking care of nature and animals in it. The oldest children are out several times every day; when they are outside, they are very happy.*

REO 1, "*Outdoor experiences help the children feel connected to it and animals. Everything we do inside we can do outside; we spend almost all day outside every day even if it is raining/bad weather, the children prefer it even*".

It has been a long Norwegian tradition that preschool teachers expose children to their outdoor environment daily. This tradition has been around for decades, and the same goes for my findings regarding recycling and reusing (Lysklett, 2013, Sageidet, 2014).

The answers show a trend that outdoor experiences are valued when talking about sustainability issues to children amongst preschool teachers regardless of their background. This approves what the Ministry of Education (2017) notes about getting a good experience with outdoor activities all year, natural phenomena, and experiences belonging to nature. It also shows that they follow the kindergarten acts principle; to take care of each other, nature, and wellbeing and develop basic knowledge and skills (Kindergarten act, §1, 2010).

A follow-up question that none of the preschool teachers got to prepare for was: Have you used

Arne Næss's approach (about ecology and holistic mindset) when talking to the children? I chose to have a question like this to find out if the kindergartens in this study are inspired by Arne Næss ecological way of thinking. A reason was that It would be an interesting and varied perspective, and some of the Waldorf kindergartens already had this focus in their answer, so I did not need to ask them it. Another reason was the similarities of Steiner and Arne Næss approach with perceiving things in a holistic view, ecological self, and being a part of the web of life.
The last reason for choosing this question was in order to link it with the theory of the Davis model. Four out of seven public preschool teachers had heard of Arne Næss thinking, but their answer was very vague. Several of them had to rethink and recollect in order to remember properly. The other three had not heard of him; they also claimed that they did not focus on talking with children about ecology. On the other side, Two of the four public preschool teachers that had heard about him also claimed to practice it.
RE 1: "*Sometimes I focus on it when necessary or something has happened while we are out for our daily walks. For example, if we throw glass bottles around, the animals/people can hurt themselves on it; we would not want that because we care about each other*. RE 4; "*We are all dependent on each other, nature, animals, and people. I try to make understandable examples of this to the children".* In sum, my interpretation of these statements regarding this issue is that Arne Næss ideology is not central in these particular kindergartens.
However, as shown in my example on page 29, I believe it is more common for preschool teachers to teach the children about ecology, even if they do not think of it as "teaching/learning" about ecology. Some teachers have stated that they tell the children to take care of the environment, nature, and animals. This could be looked at as a simplified way to talk about ecology with the children. Their answers might also have to do with the fact that they do not know what the term ecology is precisely about (I tried to explain it in simple words and it being a broad term). Besides, I argue it is a positive and essential fact that some public preschool teachers had heard of him and used the approach to increase the children's awareness of a sustainable mindset and actions, as Bjørndal and Lieberg (1975) claim vital.
Four out of five Waldorf preschool teachers mentioned their focus on ecology without me asking it. Therefore, I chose to ask the fifth if she did; she confirmed and said every day.
WA 5; *Our children experience being a part of the cycle; we grow food and then harvest and prepare it in our foods then recycle or use it the next day, the children are always involved.*

Moreover, WA 4 said*; We teach the children to take care of the hens. Our food waste goes to the hens, and we use their eggs in, for example, baking, and we have talked about that we rely on the hens to bake.* My interpretation of WA 4 and 5 and other similar responses from Waldorf teachers is that the children experience the cycles every day and understand that they must take care of it to get goods back from it and maintain/care for it.

To connect these replies with Davis (1998, 2010) model on education *in, for,* and *about* the environment, there is a pattern for all of them to the preschool teachers in various degrees**.** Education *about* the environment is much more focused in the Waldorf kindergartens than in the public kindergartens. This has to do with the foundations of Steiner's values from 1924 on ecology and regenerative gardening and a holistic perspective on how the world works that permeate through their pedagogic practices (Steiner, 1924). Also, all the Waldorf teachers claim that the children are with them preparing local organic food, gardening/ reaping, exposure to natural elements, and learning about how these cycles are processed.

However, it must not be forgotten that two of the public preschool teachers used education *about* the environment. It is better than none, but preferably a higher number of preschool teachers should be more mindful of education *about* the environment.

On the other hand, all the preschool teachers in this study seem to focus on education *in* and *for* the environment. Education *in* the environment focuses on the direct experiences with the environment and the development of positive feelings and attitudes toward nature (Davis, 1998, Giske et al., 2010, Ministries, 2004, Mjaavatn & Fjørtoft, 2008, Sandseter, 2010). The preschool teachers expose the children to outdoor environments every day for several hours and talk about nature and its elements. Another important implication to education *in* the environment is the increased concept of connectedness to nature for both adults and children**.** It's done, amongst other things, by teaching about plants and animals' needs, their habitat, and how to reduce, reuse and recycle materials used to keep ecosystems linked to forests and water (Gadotti, 2010,p.232), which the informants claim to do in various methods. Outdoor activities help promote environmental concern and pro-sustainable behaviour (Sahin & Alici, 2019, Nisbet et al., 2009, Shultz, 2002,). Since theory (Lieflander et al, 2013, Heggen et al., 2019, Chawla, 2006, 2007) confirms that outdoor experiences can increase positive and pro-environmental action and attitudes to nature/environment, I argue that this is a reliable method for sustainability work. The

kindergartens in this study are lucky to have nature close and around them and being outdoor every day is highly valued.

Though, outdoor/farming kindergartens spend from 60-80% of their day outside every day regardless of the weather (according to REO 1,2 and 3). REO 2 similarly claimed as REO 1 that they personally loved being outside a lot which helped create a connection to nature. Two of the outdoor preschool teachers claimed the children preferred being outside, which I argue shows their increased connectedness to nature. REO 1 also claimed that; *the staff at outdoor kindergartens has to like being outside a lot in order to work there*". Therefore, I debate increased connectedness for nature applies to the adults working in outdoor/farming kindergartens. Even if they have not claimed it, all the preschool teachers in this study are outside several times daily; connectedness would naturally apply to them.

Finally, related to education *for* the environment, all the preschool teachers address this to some extent; some of them are naturally more engaged and have more knowledge around sustainable practices than others. Their perception and sustainable approaches have a somewhat link in their answers if they teach the children about sustainability and their detailed methods.

To no surprise, everyone claimed to do some recycling which is a normal practice in Norwegian kindergartens and has been for decades (Sageidet, 2014). The one kindergarten I got to visit was where RE 1 belonged. They showed me some of the children's environmental projects, food plans, garbage/sorting bins, and reused/repaired toys after the interview. RE 1 had personally bought a book where children would color the items that did not belong in the woods, sea, and land. Their sustainability approaches corresponded with the response RE 1 had given. Unfortunately, I did not get to visit more kindergartens, that would have given me a better perspective on their sustainable practices.

More "advanced" sustainable approaches like reuse and repair of toys, no plastic toys inside, recycling stations, own produced food, focus on ecology, control on food waste, compost box and environmental projects/visuals methods varied from teacher and kindergartens of this study, whereas I claim the Waldorf teachers are one step ahead.

5.1.3 Learning in social context

Another aspect regarding working with sustainability in kindergarten was the pattern of learning in a social context. 9 out of 12 preschool teachers claimed that sustainable practices are learned in a social context. The informant's replied;

WA 1; *We should be role models for the children; they watch what we do and learn from it. Several co-workers are engaged in environmental organizations like I am, which transforms through to the children.*
WA 4; *Many people applying for work in Waldorf kindergartens have an above-average interest in the environment and nature. Thus, our children learn from our personal attitudes and interests towards sustainable practices*
WA 3; similarly stated; *What preoccupies me transfers over to the others in the kindergarten. The adults are very important, and the quality of the staff. Adults are role models for the children; they mimic what we provide of information and actions*". *Our staff has increased focus on utilizing resources; some are better at food waste, recycling, reuse, and gardening.*

REO 1; *It is very important to be a good role model. For example, I clean up after myself. The children see and learn by what I do. In addition, the children learn to care for nature and animals in it.*
RE 2; *Considering my job in kindergarten, I feel that I have a very important task, specifically, to be a good role model for the little ones. We help to form them as human beings. We need to inform, learn and show what to do for our planet, and if children are used to it from an early age, it is much easier to get children to grow up to love nature and that they end up as people who want to take care of it. After all, they are the future, and we need them to reach later goals.*
RE 4 "*The children receive attitudes through me; the adult role is very important. We talk a lot with the children on how to take care of the environment and show them how to do that through activities inside and out".*
REO 2; "*It is necessary to search and be updated on new information arriving on various topics. In my contract, it says I shall educate myself regularly; that is my duty because my attitudes, values, and information are important for educating the children".*

These statements from the preschool teachers, reveal that they are aware of their attitudes and values towards the children. They highlight their behavior as a crucial aspect for the children. This in order for quality learning processes and activities to happen in the social context (Bell, 2016, Sageidet et al., 2019). I believe this is crucial for the children how their preschool teachers' perceptions and attitudes form the children and learn sustainable practices.

It further confirms Vygotzky's (1986) theory that learning processes happen increases when it happens when interacting with others. Several of the informants also emphasizes that their support and love for children is fundamental in the kindergarten, and this could be another key for sustainable attitudes and behavior, which is confirmed by various scholars (Deci & Ryan, 2001, Johansson, 2001, Frønes, 2007, Schreiner, 2006, Sageidet, 2014).

There was revealed a pattern from their responses that adults are role models. Hence, Teachers' roles are of high priority in the kindergarten act, by the Ministry of Education and in the Waldorf pedagogic (Ministry of Education, 2017, Kindergarten act, §1, 2010, Loebell 2017, Rawson, 2018, Boyd, 2018, Kjensli & Rise-Knutsen, 2018). The Ministry of Education (2017) describes this as kindergarten teachers are trained to fulfill tasks assigned to the kindergartens and be good role models.

Preschool teachers have a large task in promoting values, attitudes, and practices for more sustainable societies (UNESCO, 2005, Bell, 2016, Hagser & Elliot, 2017). Particularly considering that research done on how children's brain development in early years shows that environmental factors such as the child's quality of care and interaction can have a long-lasting effect on its development (Young, 2002). In light of theory and the teacher's answers, it further strengthens the effect of preschool teachers' perception to raise responsible individuals.

Another question I asked the informants was, " Do you use the framework plan or the 17 sustainability goals consciously in your pedagogical work with children about sustainable development, and if you do, how?". A question like that could be an indicator for sustainable practices in the social context. Also, the united nations (2015) argue that it is vital that the children learn about the SDGs early on. However, none of the preschool teachers used the goals consciously in their work, and some had never heard of them. On the other hand, all of them claimed to use the framework in their work. Several claimed it was vital to follow it and use it in their pedagogical work. Since the goals are highly related to the kindergarten act and regularly updated to new standards, I argue they use the goals just not consciously. "*The kindergarten shall*

be based on fundamental values... such as respect for human dignity and nature, intellectual freedom, charity, forgiveness, equality, and solidarity…rooted in human rights" (Kindergarten act, §1,2010). This statement relates to the goals of 4 (quality education), 5 (gender equality), 10 (reduced inequalities),16 (peace and justice).

Also, the act aims at; *"Learn to take care of themselves, each other and nature. The kindergarten must meet the children with trust and respect and recognize the intrinsic value of childhood. It will contribute to well-being and joy in play and learning and be a challenging and safe place for community and friendship"* (Kindergarten act, §1,2010). Correlated SDGs for these aims are 3 (good health and well-being), 11 (sustainable cities and communities), 12 (responsible consumption), 13 (climate action), 14 (life below water), 15 (life on land), 16 (peace and justice). Thus, in a way, by following the act, one also follows the SDGs.

Furthermore, while I conducted the interviews, there was an event called Kindergarten day - small steps for the globe. This day is to talk about sustainability and the environment and do mini projects that focus on these issues.

However, not all kindergartens in this study felt the need to make a big event out of this day. For example, none of the Waldorf kindergartens had a "focus" on this day. Three of the Waldorf preschool teacher had similar response as to why not. WA 2 stated; *We focused on these issues for a long time before it was "popular," it is not a day we set of for these issues; we focus on it every day." We even fulfill the certification to green flags, but to be honest, it is too much work in order for us to participate in it*." This confirms again what the rest of the WA teachers said about sustainable practices as a part of their daily practice.

On the other hand, five out of seven public preschool teachers focused on this day. How much effort they made of the event varied from just putting a poster up to others working on artwork, visuals (looking at a film), and talking about it in groups. The two public kindergartens that did not focus on this day did not give any reasons why not. It did not seem like they were interested in giving reasons.

Of course, it is positive to have a day set for this type of focus every year. Still, I argue it should be a daily focus in kindergartens, especially when ECEfS theory and research show how critical it is to teach children about these issues. Another aspect to why it is important to integrate these issues in everyday life is that in the early years of childhood, one lays down the basis for later learning (Perez-Ferra et al., 2020, Young, 2002, Boyd, 2018). And preschool age is the most

favorable age to start lay this basis for sustainability and natural connections (Lamekhova, 2020).

5.1.4 Challenges with practicing sustainability

To find challenges for practicing sustainable work, I chose to question the informants about challenges for sustainable approaches. It is also an important aspect toward sustainability work in kindergartens to see where one can find obstacles.

RE 1; *The biggest challenge is the lack of knowledge toward sustainable practices by the staff. Another issue is that we do not have the funds to do a lot; therefore, the easier, cheaper, and often worse solutions are used (toys that break easier and cannot be repaired).*

RE 2; *I would say it is food waste; we throw away an incredible amount of food. Under this pandemic, we use too much cardboard. The children draw a lot, and we educators print too many sheets for meetings, etc.*

RE 3; *We could have more focus on recycling. We could be better at that. It would help if we had someone who was engaged in environmental issues or got more information.*
RE 4; *The adult role is a challenge regarding time, competence, and getting people motivated to increase sustainable practices.*

REO 1; Some *challenges are having the rest of the staff on board when practicing sustainability.*

REO 2; *The hardest part is food waste and recycling all the time.*

REO 3; *Food waste and not buying new stuff, trying to reuse. We need more knowledge.*

WA 1; *Since we prepare all the food, food waste can be an issue, and we try being conscious about using it later. The children pay attention to see that we do not throw away food.*

WA 2; The *biggest issue is recycling food waste because, in Trondheim, it is nonexistent; everything goes in residual waste.*

WA 4; Economy *is an issue - we closed for some time due to corona, and some of the food expired. Another issue is to have an overview and planning of food before the holidays.*

WA 5; *We could be better at recycling; also, Bergen commune is not the best on it.*

Based on the information received, several of the issues are similar and seemingly a problem. Whereas food waste, recycling, lack of interested staff, economy is recurring. Interestingly, RE 3 and REO 3 highlighted that it would help gain more knowledge and staff engaged in environmental issues. The reason why it is interesting is that their perception of their own sustainable approaches does not matter. I interpret that their lack of sustainable development knowledge can explain their little interest and focus on teaching children about sustainability. RE 1 and REO 3 also highlighted a lack of knowledge from the rest of their staff. Therefore, it would be beneficial to receive courses regarding environmental education or sustainable practices for greener kindergartens. This issue will be further discussed down below.
I also had a question about if the preschool teachers had about sustainable development in their education. The older participants had no courses that focused on it when they took their degree, while the younger participants had a little more focus on it. RE 2 said; We have probably had a little about it, but there has not been much focus on it. Apart from the fact that it is in the framework plan, I know we will focus on it throughout the children's kindergarten year. Moreover, REO 1; W*e have had little about it*. RE 4; *We had natural science course, although I cannot remember that we talked specifically about sustainable development or sustainable practices. It should have been more about it*. RE 4, RE 2, and REO 1 went out of the university within a five-year framework. This is an interesting find because, in the framework, it is claimed and emphasized that preschool education has about sustainable development (Ministry of Education, 2017, Kindergarten act, §1, 2010). And for this study, it did not seem that there was much focus on this area in their education. Fortunately, though, this information cannot apply to others than the participants in this study. Throughout universities in the country, their practices toward sustainable development in preschool education differ. I believe this depends on what

their professor is focusing on in their course, and this varies from each professor teaching the courses. Also, sustainable development had no long-lasting effect on them from their statements even if they had about it. I argue that it would be a good start to give the preschool teachers formal environmental education or course on these issues for more efficient and better sustainable practices. For example, the state or commune could regularly give them updated courses on various subjects that would refresh their memory and increase their knowledge. This is especially true since kindergartens play an important role in promoting values, sustainable communities, and practices (Ministry of Education and Research, 2017).
On the other hand, All the Waldorf teachers had focus on it in their education.

WA 1; *In my 5-year degree, sustainability is permeated throughout the courses because of our values and attitudes. The main focus has been on ecology, nature, and the environment and having a green kindergarten. In arts and craft, we learned and talked about taking care of things and how to repair them*".
WA 4; *In our education and the pedagogic, it is fundamental to focus on nature and the environment and have been for a long time*.
WA 3; Yes, *there was a focus in my education, especially on short-traveled food. Our pedagogical courses are similar to the public ones, but we also have different areas of focus*.
WA 2; We focused on it in my time (decades ago), but I know it is even more now.
WA 5; *Yes, in my master's degree, we had about nature, ecology, and the environment and looked at it with a holistic perspective, in line with Steiner's view*.

Their answers show that they have a big focus on sustainable development. It further shows that it has been in their higher degree education (they attend pure Waldorf universities) for decades, even more focus today than before. The statements also show why they have more focus on "advanced" sustainable practices within their kindergartens and increased teaching "*about*" the environment than the public kindergartens. This is because they learned about it in their education to a higher degree than the public ones. Three reasons for these differences are first, the fundaments from a holistic Steiner's view on ecology and nature are permeated in Waldorf education (different subjects and focus areas than the public preschool education). There seem to be some sociocultural differences between WA (Steiner view) and public teachers. Second reason

is WAs focus on arts and crafting to repair and build their things in natural materials (learned in their education). The third reason is that when they have increased knowledge and interest about these issues, it is easier to work with them in kindergarten and teach the children.
Furthermore, I asked should employees in the kindergarten receive a formal education/course in environmental education?
All informants did not see any issue in receiving some course or formal education on environmental education. On the contrary, some of them encouraged it and hoped they would receive it. Three of the WA teachers said that through the Steinerfederation, they meet at yearly conferences where they receive information on sustainability and other topics. All the WA teachers claimed that after the pandemic, they got offered online courses on sustainable development, as WA 3 stated; A*fter Covid-19, there are more and more online courses*. Two of the WA teachers claimed to have taken courses on nutrition/gardening and food waste.
I did not receive any information about it from the public teachers that they had such a thing as the WA teachers. However, given earlier statements and theory, it shows the importance of quality education to meet challenges and practice sustainable green communities, and preschool teachers being important role models in the field of ECEfS (Ministry of Education, 2017, Boyd, 2018, Bell, 2016, Davis, 2010).

5.2 Summarizing discussion

First, I will answer the first research question and summarize the main differences. Then I will briefly summarize and answer the second question.
How do early childhood teachers work with sustainability, in kindergartens with Waldorf pedagogy, and in public kindergartens, and what are the main differences?
The QCA analysis (see table 2, p.42) revealed codes on how childhood teachers work with sustainability in kindergartens. Besides, the chapters above have illustrated in detail how they work with sustainability in the different categories and similarities with challenges. However, the main differences from their work will now be summarized and discussed, and I will use inductive reasoning when answering these main differences.
1) The first main difference attained from the empirical findings was the preschool teachers' perception of sustainable development with examples. The WA teachers tend to have increased biospheric values than the public teachers from their examples. WA teachers appeared to be more

conscious of why and how they could practice sustainable approaches. This difference had to do with their action-oriented part from their pedagogy, education, and personal values (Carlgren, 1978, Liebendorfer, 1997, Rikner & Ozolins,2010, Van der Werff et al., 2013, Nguyen et al., 2016). Besides, it has also been confirmed by another research paper done on Waldorf teachers measuring pro-environmental behavior and biospheric values in Sweden (Barr et al., 2005, Rikner & Ozolins, 2010). Therefore, I argue in line with the theory that it reveals that WA teachers seem to have increased pro-environmental behavior. Of course, this is not to say that none of the public teachers in this study do not have pro-environmental behaviors because they do to some extent which is a positive aspect. However, the public teachers seemed to have lower biospheric values when comparing replies, RE 1 and RE 2, with REO 3 and RE 3 and WA teachers, we can see a difference. Capturing these beliefs and examples reveals a better perspective and overview of sustainability practices in both public and Waldorf kindergartens (Alvestad & Løvberg, 2005, Davis, 2010, Hollins, 2008).

2) The second main difference regarding working with sustainability was how they taught children about it. Everyone claimed to teach the children about sustainability. The examples were similar to some extent regarding outdoor experiences, picking up trash, recycling to reuse. However, the WA teachers tended to start their day in a conscious organic/sustainable way with, for example, local organic foods, access to a garden, recycling, using compost station, using hand-made wooden toys, and no plastic toys. They consciously transfer the ecologic principles and nature's sensitivity by teaching the children how nature works and taking care of it. Also, here the WA teachers reveal more advanced integrated sustainable approaches in daily life. They emphasized that it had been a fundamental holistic part of their schedule for decades and was nothing new, confirmed by Boyd (2018). On the other side, the public preschool teachers did not reveal the same information as the WA teachers. Therefore, it is harder to make solid correlations. My interpretation is that teaching children about sustainable approaches is not nearly as focused on their daily lives as WA teachers.

I connected this with Davis model on education *in*, *for,* and *about* the environment (Davis, 1998, 2010). Which revealed that everyone focused on education *in* and *for* the environment, but WA teachers focused more *about* the environment consciously than public teachers. This confirms that the WA teachers follow and work the fundaments of Steiner's view and the adjusted framework, which they claimed they did. They recognize that humans, animals, nature, and the

whole earth are an ecosystem and interdependent (Kjensli & Rise- Knutsen, 2018, Steiner, 1924, Loebell, 2017, Rawson, 2018). This difference is also due to their Waldorf education, emphasizing sustainable development in line with Steiner's original view.

3) The third main difference was that all the WA teachers received online courses on sustainable development to keep their knowledge updated regularly through the Steinerfederation. These courses contribute to it being easier to know how to work with sustainability in kindergarten and teach the children. The public preschool teachers did not reveal any information that they had received similar courses, which should be investigated. These empirical findings in light of theory show that Waldorf kindergartens in this study focus more on sustainable practices than the public ones, even if they are under the same Norwegian government framework.

Which elements from the Waldorf pedagogy may enrich early childhood education for sustainability?

1) The first element that could enrich the field of ECEfS is to learn more about Waldorf pedagogical framework. The Waldorf environment felt the need to create an adjusted framework to fill in gaps they needed which the common Norwegian framework did not cover. Moreover, look deeper into why they created it and what they teach the children from it.

2) A second element is to investigate their educational history and subjects in Waldorf degrees. For example, the Waldorf teachers in this study show increased biospheric values and pro-environmental behavior and action, stemming from their educational background (Carlgren, 1978, Liebendorfer, 1997, Rikner & Ozolins, 2010, Van der Werff et al., 2013, Nguyen et al., 2016).

Furthermore, their pedagogical approach correlates to their focus on teaching more *about* the environment than the public preschool teachers in this study. The reason for this is because their fundaments built on a holistic and ecological focus with sustainable approaches permeated through the Waldorf approach. Davis (1998, 2010) claims it is important to teach more *about* the environment to the children from a young age.

3) A third element is that they do not focus on a one-sided cognitive view regarding knowledge and how children learn and develop. Instead, they consider all forms of knowledge activated, such as emotional, social, and cultural parts when learning. Indeed, they look at the child as

unique and must evolve to their best self and an ongoing life process (Kjensli & Rise-Knutsen, 2018, Steiner, 1924, Loebell, 2017, Rawson, 2018). These elements also contain smaller elements as presented such as increased biospheric values and pro environmental behaviour and action. Waldorf pedagogy has a special focus on preschool teachers as important role models and the traits mentioned are essential for children to learn. Especially since the study done in Waldorf schools in Sweden concluded that its students became more responsible citizens than their public peers. Also, they felt more responsibility to social and moral questions of society due to their educational methods and teachers (Dahlin, 2007, Dahlin et al., 2006, Rikner & Ozolins, 2010). My findings also confirm that the Waldorf teachers in this study show more responsibility and critical reflection on social and moral questions related to environmental issues.

Therefore, I argue that the Waldorf approach profoundly impacts its students, and the Swedish study can naturally apply to Norwegian Waldorf institutions. In addition, I claim that these elements from the Waldorf approach presented are justified to enrich the field of ECEfS. However, it is important to keep in mind that the discussions above pertain to the preschool teachers in this study and cannot be generalized for all Waldorf or public kindergartens in Norway. Still, there is a trend.

Beyond this research question, I may add that this study also revealed that even if the funding seemed like a challenge for several public kindergartens, they tried their best to focus on sustainability approaches despite this fact.

CHAPTER 6: CONCLUSION

6.1 Conclusion

This study has addressed the topic of sustainability work in ECEfS, which tries to inform and transform the education system and is continuously evolving. Besides, this thesis is built on the history and theory of Waldorf and the Norwegian framework and principles with a social constructionist point of view.

It also showed the importance of sustainability as a concept of performing sustainable approaches and knowledge from preschool age to meet future consequences and demands. In addition, this paper tried to give a piece in the limited literature and research into sustainability work in Waldorf kindergartens, comparing it with the public kindergartens.

Furthermore, the study done on Waldorf teachers in Sweden seem to underline earlier research and strengthen the hypothesis; *The Waldorf kindergartens focuses more on sustainable practices than the public approach, even if they are under the same Norwegian government framework.* Which also assisted in the creation of the research questions for this study. *How do early childhood teachers work with sustainability, in kindergartens with Waldorf pedagogy, and in public kindergartens, and what are the main differences?*

In order to answer the research question, this study conducted twelve qualitative interviews from public and Waldorf kindergartens, using relevant theory and QCA analysis, which revealed patterns and codes for sustainability work.
These four categories revealed how the preschool teachers worked with sustainability:

1) Preschool teachers' perception of sustainable development
2) Teaching about sustainability
3) Learning in social contexts
4) Challenges with practicing sustainability

With this in mind, the study further revealed that preschool teaches in Waldorf kindergartens have increased biospheric values than the public teachers. It further revealed that teaching about sustainability was similar *in* and *for* the environment, but the biggest difference was teaching *about* the environment. Another difference was that Waldorf preschool teachers received online courses on sustainable approaches and were updated regularly through the Steinerfederation. Finally, I will present two simplified overviews of the main differences found and potential Waldorf elements enriching the field of ECEfS.

1) Sociocultural difference. Waldorf preschool teachers have increased biospheric values leading to pro-environmental behavior and action-oriented
teaching.
2) Their fundamental holistic pedagogy values and their specific Waldorf education lead to increased conscious teaching *about* the environment.

3) All WA teachers claimed to have received online courses from the Steinerfederation, keeping their knowledge updated regularly.

Which elements from the Waldorf pedagogy may enrich early childhood education for sustainability?

1) The Waldorf pedagogical strong focus on teaching *about* the environment and its focus on holistic, ecological, and sustainable approaches.
2) Research the educational history and subjects in Waldorf degrees. Also, their increased biospheric values and pro-environmental behaviors and actions
3) All forms of knowledge activated, no one-sided cognitive view to obtaining knowledge and how children learn and develop.

This thesis has revealed several ways to work with sustainability; it shows a correlation between preschool teachers' perception and sustainable practices. Also, it shows that the preschool teachers' knowledge and values are vital in performing sustainable practices for the children and are central role models. Therefore, quality education is essential for both adults and children.

6.2 Limitations

The first limitation is to properly quality check a kindergarten; one needs to observe it and have a professional overview of the quality in how their pedagogical practices are performed (Haugset, 2019). However, this overview is problematic in a pandemic where kindergartens work with half-staff and strict visiting rules. Unfortunately, I only got to visit one kindergarten in my commune. Therefore, I chose to interview different kindergartens in the country to get a broader analysis of their approaches.
A second limitation is that this research conducted twelve interviews, and this sample size is not nearly enough to generalize how preschool teachers work with sustainability in kindergartens.

A third limitation is that there might be some biased interpretations from the researcher because of inductive reasoning in chapter 5 and from the interviews. This reason could also have affected the preparation of the questions from the interview guide.

6.3 Suggestions for future research

This study revealed challenges and insight regarding work with sustainability and how the Waldorf approach could enrich ECEfS.

The first suggestion is to research more into the Waldorf sustainability approach because there is missing information on this topic. For example, conduct interviews and visit Waldorf kindergartens throughout the country. Besides, it could be worth investigating how the Steinerfederation organizes and execute the courses and conferences offered to their community. Hence, also looking at sustainability work in public kindergartens.

A second suggestion is that preschool teachers should routinely receive online courses on sustainable practices (food waste, ecology, consumption habits, gardening, etc.) to increase their knowledge and refresh their memory on these issues. These courses should come from the state and commune and be open for everyone since kindergartens are commune and state governed.

The final suggestion is to capture the beliefs and perceptions of preschool teachers when doing ECEfS research since this is highly valued and correlated with revealed pro-environmental behavior and action, which potentially can show more sustainable practices.

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Appendix: Interview guide

1) How long have you worked in kindergarten? Which age group have you worked the most with?

2) What is your understanding of sustainable development? Do you personally feel you can make a difference for the environment? Examples?

3) In your education, where there a focus on sustainable development?

4) What is essential for the children when they are outdoor playing? Examples?

5) What relationship do the children have to nature and the environment locally and globally? (children from 2-6)

6) Do you teach the children about sustainability (taking care of the environment/sustainable methods)? Examples?

7) What are the biggest challenges concerning practicing sustainable development in kindergarten? Examples?

8) What supplies does the kindergarten use to facilitate a sustainable everyday life?

9) Should employees in the kindergarten receive a formal education/course in environmental education?

10) What values and norms do you have in kindergarten related to the 17 sustainability goals?

11) Do you use the framework plan or the 17 sustainability goals consciously in your pedagogical work with children about sustainable development, and if you do, how?

12) **For Waldorf educators.** Do you use Waldorf pedagogy consciously in your pedagogical work with children with sustainable development, and if you do, how?