

The Importance of Out-of-School Environmental Education Entities for Integrating Environmental Education into School Curriculum

– Perspectives from Finnish and Dutch Environmental Education Experts

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Politics of the Environment and Regions
Master's Thesis
April 2014

UNIVERSITY OF TAMPERE, School of Management

Politics of the Environment and Regions

Jin MURANEN: The importance of out-of-school environmental education entities for
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Master's thesis, 82 pages + 3 pages of appendix

April 2014

Abstract

It is imperative to integrate environmental education into school curriculum, which requires an educational change nationally. The implementation of such change can be chaotic in the beginning and thus demands highly the collaborative work of all involved actors. This study analyses how important out-of-school environmental education entities can be in helping all the main influencing factors and actors during the change's implementation. Arguments on this topic by the environmental education experts from Finland and the Netherlands are analyzed in the light of the conceptual background of both environmental education and impacting factors of an educational change. Out-of-school environmental education entities can be helpful in integrating environmental education into school subject by primarily demonstrating its need, clarity, complexity, quality and practicality; inspiring and training the teachers and principals how and what to teach, and networking with all other relevant factors such as principal, parents and local government. The co-existence of out-of-school and in-school environmental education will be strengthening each other and making environmental education more efficient.

Keywords:

Environmental education, out-of-school environmental education entities, educational change, school curriculum, Finland, the Netherlands

ACKNOWLEDGEMENTS

The entire process of writing this thesis has been so long that I have had moments in the middle to take a pause, talk to teachers, colleagues and friends, reflect, reconsider and rethink what should be included. This experience represents one of the most powerful and abundant knowledge-gaining experiences in my life. There were many occasions of me feeling high and low along the way when I tried to find what interested me and what were feasible to be studied. When Environmental Education as a research area emerged, I did not hesitate at all in grabbing it due to my long term interest in both Environment and Education, and it was a perfect combination for me.

There have been lots of people who have helped me in making this thesis possible. My greatest gratitude should go to my supervisor Professor Yrjö Haila for his always wise and humorous questions and soothing attitude and teacher Helena Leino for her warm empathy as well as sharp and constructive comments. Without their wise guidance, I would have wondered in lost much longer. I would like to thank all the teachers in the Master Program of Politics of the Environment and Regions. I dedicate special thanks to Minna Santaoja for being there encouraging and supporting our class to write thesis in a progressive way and Jouni Häkli for guiding us in research and theory. I am also grateful to the cooperation and support from the staff of the school of Management, University of Tampere where I did my Master study.

I am indebted to my wonderful colleagues in the Finnish Nature- and Environmental-Schools Association, where I did my three-month internship. They have inspired me in finding this research area as well as taught me basic research methods and guided me towards first-hand research material providers, the interviewees. The special bond and family atmosphere we had together were comforting and encouraging, and it was a crucial aspect that made my thesis project kick-off successful and my goals clear and achievable.

For all my ten interviewees, five from Finland, five from the Netherlands, I raise my hat and bow to them, but keep their names anonymous. Without their generous sharing of information and expert knowledge, I could reach nowhere. The kindness and generosity I have experienced with my interviewees have inspired me later in assisting other researchers in either finding interviewees or being myself an interviewee for their research. It has gone to a good-cycle.

I owe a lot of my gratitude to my family for believing in me and encouraging me to go for my dreams. I thank my husband for his consistent love and support throughout all these years together, he teaches me great values that I wasn't aware of; he praises me yet keeps me grounded and he encourages me to work hard yet makes sure that I also rest well. I am thankful to my two wonderful children, their presence have charged my life daily with full of laughter, caring, gentleness and liveliness, which allow me

continue well the next day. My deep gratitude goes to my parents-in-law for their understanding and readiness to help in taking care of my children and giving me time to study and rest.

My friends have played a great role in supporting me both mentally and some also academically when I mostly needed it, for that, I want to thank Changchang Wang, Charisse Reyes, Danyi Liu, Elias Pekkola, Eugienna Ng, Kaisa Kurkki, Kisti Kallio, Laura Lindeman, Megumi Asano, Mihaela Jokinen, Petri Jokinen, Sari Saastamoinen, Seppo Hölttä, Shuwei Fu, Simo Lahtinen, Toini Lahtinen, Terhi Mikkolainen, Ulla Virtanen, Wei Wang, Xia Qu, Yuhua Sun, Yulia Shumilova, Yuzhuo Cai, Zhen Huang and Zuting Zheng. They made me believe that I should go for and I can reach my dream. I also would like to dedicate my special thanks to Professor Sirkku Kotilainen for encouraging me to go for further studies and for supporting me in the process. Finally, but in no way least, I am grateful for the financial support from Pirkanmaa TE-services (Public Employment and Business Services of Pirkanmaa Region), without which my studies would not have been realized.

Tampere, April 2014

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1 INTRODUCTION

1.1 THE NEED OF ENVIRONMENTAL EDUCATION

Since the first Intergovernmental Conference on Environmental Education (EE) held in Tbilisi in 1977, environmental education has been really on the move. UNESCO published a report to pinpoint the main guiding principles laid down by the Tbilisi Conference for the introduction and development of environmental education. It stated in the chapter of “Education and environmental problems”:

“Since environmental education should be a lifelong process, available to all, it should be provided at all educational levels, both in and out of school. Institutional structures will therefore need to be changed so that these two types of education may be established on a complementary basis, and it will be essential to coordinate, indeed even integrate, all the educational resources in each community (UNESCO 1980).”

In the light of these statements and guidelines, independent environmental education entities have been starting in the member countries of UNESCO in addition to environmental education carrying out in ordinary schools, slowly but firmly.

However, environmental education is still in its infancy. No matter how much we wish it grows faster, it takes its own pace and time. *“We have been educated by and large to 'compete and consume' rather than to 'care and conserve'. As the UNESCO report points out, just as we have learnt to live unsustainably, we now need to learn how to live sustainably.”* (Sterling 2001) Change and transformation of the whole society’s behavior takes much more efforts than we could imagine.

There have been various approaches and initiatives in different contexts and formats to carry out EE. Some countries believe in top-down approach: first issue guidelines from national policy level and hope the states and municipalities could supervise schools taking into implementation as in Britain (Palmer 1994). Other nations have more active NGOs that involve volunteers and parents from grass-root level: first launch projects and programs and hope to get more attention from wider audiences and then influence the top level decision making like in the Netherlands (Stohr 2013). Some have both formats going on at the same time, as in Finland at this moment. No matter which format a country is applying to implement environmental education, some experts think current EE is still quite a failure.

UNESCO made a powerful statement in 1997 in the report “Educating for a Sustainable Future” that *“Education is humanity’s best hope and most effective means in the quest to achieve sustainable development”*. Sterling believes that *“the only way to achieve this is to elaborate, develop, practice and argue for a changed educational paradigm”* (2001). Blumstein and Saylan published an essay called “The failure of Environmental

Education (and how we can fix it)” in which they believe that the current EE problems lie not only with what has been taught, but also with the way EE curricular have been developed and evaluated (Blumestein & Saylan 2007). The concept of sustainable education or EE cannot be just a simple 'add-on' anymore; it needs to be embedded into our daily educational practices and change our curriculum fundamentally. Education for all is the ultimate way to achieve a sustainable future.

Though EE for all citizens is necessary, in this study, I am primarily referring to EE for children and youngsters that are studying in kindergarten-through-12th grade schools, their educators and parents. There has been abundant research to prove the importance of educating our young generations to the national development and the sustainability of our mother earth. I am not exceptional. I genuinely believe in what UNESCO stated above that education is the best and most efficient way. And starting the education from a younger age will be more influential and long-lasting. This belief has guided my interest towards carrying out this research.

1.2 THE RESEARCH TASK

Before I started this research, I had followed a Finnish-student group participating in a one-day EE program offered by the local Nature School. The program was so well-designed that within limited time frame, students got to apply and practice all kinds of skills without realizing it themselves. Before I present this study, I would like to describe that field-trip first by quoting my diary on that day.

21st May 2013

Sunny

I got on the city bus No. 90 with twenty cheerful 7th-graders led by two school teachers. Bus trip took about forty minutes and led us to the suburb of the city, an area with full of greenness and freshness. The sky above seemed bluer and brighter than in the city. Giggling children became quiet. Probably they also noticed the difference. All I wanted to do in the end of the bus trip was gazing outside, facing up, and embracing the sunshine pouring through the bus window.

The teacher of the Nature School was already waiting for us outside. Right next to where we stood was a steep valley, after the valley, rises up sharply a mountain covered fully with typical Nordic upright spruce, pine and occasionally decorated with some birch. Only two primary colors within our reach could be spotted: blue and green. The scenery was breath-taking. The Nature School was located within the local primary school. I could not help thinking: how lucky the children were when they could study in such a magnificent nature!

The theme of the day was Vertebrate, which was chosen by the student group themselves beforehand. The whole day program, if I am only allowed to use

three words to describe the day, it would be playful, funny and educating. Kids basically played all day, play wooden puzzles of vertebrates made by the Nature School teachers, 'treasure-hunting' in the forest by solving hidden hints, and drama play of food-chain etc.

A wide range of skills were used while looking for solutions: writing, counting, drawing, reading loud, presenting, listening, observing, and group-working and role-playing. As the landscape is also versatile, we have passed by wetland, crossed bridge and river, sit by the rapids, climbed up hills and slid down hills, jumped over stones and sang together with birds. And I even for the first time tasted the newly sprouted spruce and heard about spruce syrup and spruce soap.

The leading two school teachers were present during the whole program. They didn't have to do anything, but following, observing and enjoying, enjoy seeing how curious, free, happy, creative, active, collaborative and clever students they have. They said that they got to see a different side(s) of their students and how students could learn knowledge well, at the same time, had fun in the nature.

Now almost one entire year has passed since that day, I still remember so vividly the blue sky, the green forest, the warm spring breeze touching my face and hair, the musical sound of the running rapid, the smoke of the resting site that made me tear and the sweet taste of newly spruce sprout with a tiny bitterness. I believe that group of kids must also remember some part of the day. And I believe this is the experience worthwhile to have for our children.

There was a small detail on that day, which I didn't write down in my diary. When we reached our furthest location, a camp fire place, where students can light up fire, warm up their food and grill sausage. While waiting for the sausage ready, some students very naturally took out their phone or tab from backpack; lowered their head; locked eyes onto the tiny screen; and their thumbs became active. The Nature School teacher immediately stopped those students with a hardly noticeable gesture and encouraged everyone to communicate, share with classmates and observe the nature.

What does this little detail tell us? The latest generation has been given many different names, such as "Generation in the backseat", "Thumb generation", in China even called "Lowering-head generation". These names really visualize the life of the young generation. They sit in the car instead of walking or riding bicycle; their heads lowering down and eyes gazing at phone or pad and their thumbs are always playing with all kinds of keypads. A 4th-grader in San Diego says "I like to play indoors better 'cause' that's where all the electrical outlets are" (Louv 2009). In a country like Finland, where children have abundant forest resource, they are lucky that they can hardly avoid

encountering nature. But in many other countries like the Netherlands, where almost no land is left without man's touch, children can so easily lose their touch with nature if adults don't teach and guide them to build up the connection. They will most likely be the ones, what Richard Louv (2009) called, children with *Nature-Deficit-Disorder*.

Finland's National Board of Education is right now (spring 2014) in the process of renewing its curriculum. It is based on the country's government program guidelines:

"Prepare the basic objectives and distribution of lesson hours for the 2016 occurring reform to strengthen its art and skill subjects, physical exercise, and the society and social value education and the role of environmental education, as well as cooperation between school subjects and the diversification of language programs. (Valtioneuvoston Kanslia 2011)"

In the new draft for the changing curriculum, on the very first page, it states that *"curriculum renewal would like to strongly respond to the changing environmental challenges. Globalization, environment and climate related questions will be taken into account in the renewing work. (National Board of Education 2012)"* This draft will be open for public comment for the third round in April 2014 (National Board of Education 2014), and will be implemented in August 2016 in all Finnish schools. By then, EE should be integrated into five primary school subjects: biology; geography; physics; chemistry and health studies (Halinen 2014).

This is a favorable development. But once environmental education is integrated into each subject and is taught in ordinary schools, what is going to happen to those existing independent, so-called out-of-school environmental education entities such as Nature Schools, Environmental Centers, and Camp Schools. This Master thesis studies the importance of the Finnish out-of-school environmental education entities after the integration of EE into school subjects in the new curriculum reform that will be implemented in August 2016. In order not to draw shallow views, after discussing with the Finnish environmental education experts, also to their learning interests, I decide to take another country into study in addition to Finland.

Among all the well-developed out-of-school EE countries, Finnish EE experts know quite well about the practices among the Nordic countries, especially practices in Sweden, Norway and Denmark. Choosing another central European country as the studying target is firstly decided since European continent leads the world in EE policies and programs (Stohr 2013) and I'd like to learn the advanced EE country. In order to select the most appropriate studying country, a pre-survey among thirteen countries was carried out. The survey and selection process will be described in detail in the methodology section. In the end I chose Netherlands as the second studying country.

While Finland's EE is experiencing curricular change, the Netherlands' counterpart is going through administrative change. From the first day of 2014, more than hundred Dutch Environmental Centers are changing from municipality-owned to market-oriented and financially independent. Although two countries are experiencing different types of changes, the affected parties are the same: out-of-school EE entities. And thus it is fruitful to compare the experiences from these countries.

I have interviewed EE experts from both Finland and the Netherlands to try to find answers to the question: How do the EE professionals see the role of out-of-school environmental education entities while integrating EE into school curriculum?

This study consists of seven parts. The first is this introduction that provides an overview picture of this entire study briefly. The second part is "setting the scene", which introduces the background of this study and relevant terms, formulates detailed research questions. The third part gives the conceptual backgrounds for this study in terms of both EE theory and educational change theory. The fourth one elaborates in detail what methods are used in doing research, collecting data and analyzing data and how the research process went in practice. The fifth one presents the research results. Based on the collected data, research results are categorized in three themes in responding the research questions and each theme is illustrated and supported with data and conceptual discussion. The sixth one discusses the two most crucial players in the future of environmental education. In the last part, I conclude what has been learnt from this study, what has been omitted due to limitations and constraints and what could be studied further.

2 SETTING THE SCENE

From April to June 2013, I was doing my internship at the Finnish Association of Nature and Environment Schools. During that time, what I constantly heard and felt was that the status of nature schools was not stable. This has encouraged me to find out more about the reasons behind and possibly learn the status of nature schools or corresponding EE entities from other countries for comparison and learning purposes.

This part will give some clarifications of relevant terms used in this study, the history of EE development in targeted study countries Finland and the Netherlands and the research questions. All these together form up the background and construct the platform for this study.

2.1 RELEVANT TERMS

The most important four terms to be clear about in order to understand this study are environmental education and in-school, out-of-school and outdoor environmental education.

2.1.1 ENVIRONMENTAL EDUCATION

Early in 1970, the International Union for the Conservation of Nature and Natural Resources (IUCN) held a working meeting on “Environmental Education in the School Curriculum” in Nevada, USA. The definition drawn up at the conference is accepted by many organizations and countries in the world:

*Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and **attitudes** necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision making and self-formulation of a code of **behavior** about issues concerning environmental quality (emphasis is added by the author of this study) (Palmer 1994).*

The same organization IUCN launched in 1980 the World Conservation Strategy, which includes a chapter on environmental education; the message below clearly stated the significance of attitudes and behavior. It still remains true after more than thirty years:

*Ultimately the **behavior** of entire societies towards the biosphere must be transformed if the achievement of conservation objectives is to be assured...the long term task of environmental education [is] to foster or reinforce **attitudes** and **behavior**, compatible with a new ethic (emphasis is added by the author of this study) (ibid, c. f. IUCN 1980).*

From these official statements, what could be observed are that attitudes and behavior of an individual and collective behavior of a society are crucial to achieve a sustainable future. While Johnson says “*intelligence is learnable*” (Jacobs 2010), I say,

thankfully, attitudes and behavior are trainable. Who can give the training and how it can be trained then?

2.1.2 IN-SCHOOL ENVIRONMENTAL EDUCATION

“An environmental dimension can be found in most aspects of education - thus environmental education may be considered to be an approach to education which incorporates considerations of the environment (Italic in the original text), rather than being a separate part of education” (Palmer 1994). This has worked as the foundation for later curriculum change and integration of environmental education into ordinary school curriculum. In the UK, environmental education is an officially recognized and documented cross-curricular theme of the National Curriculum for schools. (ibid., p. 23) For the environmental education initiated and offered by kindergarten-through-12th grade schools, especially the ones taught along with other subjects, I call it in-school environmental education in this study.

2.1.3 OUT-OF SCHOOL ENVIRONMENTAL EDUCATION

In addition to in-school environmental education, there are also several types of and versatile units and institutions outside of schools offering environmental education; these are called nature schools, environmental centers, camp schools, youth centers, museums, zoos and so forth. The environmental education that is not initiated and provided by kindergarten-through-12th grade schools, I call out-of-school Environmental Education in this study. In Finland, the mainstream of Environmental Education is provided by Nature Schools (NSs) and in the Netherlands Environmental Centers (NCs).

2.1.4 OUTDOOR ENVIRONMENTAL EDUCATION

Outdoor environmental education is one of several approaches of environmental education. Some also call it out-of-school approach, out-of-classroom studies or field work, field studies (Palmer 1994). Environmental education in this approach is based on as solid first-hand experience as possible so that the idea of moving out of the confines of the traditional classroom is well rooted in the environmental approach (ibid.). Both in-school and out-of-school environmental education could apply outdoor environmental education approach.

Now as we have clarified the most important four terms related to this study, let's take a look at the history of environmental education in Finland and the Netherlands.

2.2 DEVELOPMENT OF ENVIRONMENTAL EDUCATION IN FINLAND AND THE NETHERLANDS

2.2.1 HISTORY OF ENVIRONMENTAL EDUCATION

In the end we will conserve only what we love. We will love only what we understand. We will understand only what we are taught.

Charles Saylan & Daniel T. Blumstein (c. b. Stohr 2013)

Nowadays we hear more and more about education for sustainable development (ESD). EE as a primary part of the ESD shares the similar history and roots. ESD has its roots in the history of two distinct areas of interest of the United Nations – education and sustainable development (UNESCO 2005). In more and more cases, national level developments are motivated initially by the development at the international level. EE is one of the many cases. The international EE movement in particular evolved from two independent advancements in law: the Right to Education movement and the subsequent environmental movement (Stohr 2013).

In 1948, the Declaration of Human Rights stated, *“Everyone has the right to education.”* Later in 1989, this right to education was even more reinforced by the Convention on the Right of Child (CRC), which declares that primary education should be compulsory and available free to all. In the immediate following year 1990, the Jomtien Declaration on Education for All (EFA) further elaborated *“Basic education should be provided to all children, youth and adults. ... The most urgent priority is to ensure access to, and improve the quality of, education for girls and women, and to remove every obstacle that hampers their active participation. All gender stereotyping in education should be eliminated.”* (UNESCO 2005) In many more international laws and declarations, the importance of education has been addressed by the United Nations (UN) repeatedly.

International environmental movement has couple of quite well-known milestones along its development history. The first one would be the landmark United National Conference on Human Environment in Stockholm in 1972. Now when I am asked about the EE history, two key words would emerge in my head: 1972 and Stockholm. That conference has led to the establishment of the UN Environment Program (UNEP) and many environmental protection agencies (EPA).

EE, as an independent concept, emerged soon after that foundation was laid in 1972. In October 1975, UNESCO and UNEP joined together in International Workshop on Environmental Education at Belgrade to complete the Belgrade Charter. The Charter called upon national governments to

form a “new global ethic” through public education, promoting individual attitudes and behaviors consistent with recognized environmental goals and supporting economic

growth that enhances, rather than harms, the human environment. (UNESCO-UNEP 1975 c. b. Stohr 2013, p. 6)

In October 1977, the first intergovernmental conference on EE commenced in Tbilisi, Georgia, that officially recognized EE as one solution for environmental problems and the need for integrating EE within national education policies (UNESCO 1978).

In the light of this Tbilisi conference, many countries started to take concrete actions. Finland and the Netherlands were among them. In order to encourage the promotion of EE and SDE (Sustainable Development Education) in Finland, a national strategy for EE (Kansallinen ympäristökasvatusstrategia, 1992) has been created, as well as a strategy for SDE (Kestävää kehitystä edistävän kasvatuksen ja koulutuksen strategia ja sen toimeenpanosuunnitelma vuosille 2006-2014, 2006)(Jeronen et al. 2009).

EE in the Netherlands also dates back to the beginning of the twentieth century. At that time, the government sought to raise environmental awareness through non-formal education (out-of-school education). In 1989, the Dutch Parliament enacted the National Environmental Policy Plan (NEPP) on recognizing the role of education as a necessary component of the government's environmental agenda. In 2000, the national government developed the "Learning for Sustainability" Program. In 2009, a revised National Environmental Education Program was developed. (Stohr 2013)

Both countries have had national level strategy and program concerning EE. Under such strategies, both in-school and out-of-school or formal and non-formal EE have been developing. Especially out-of-school or non-formal EE has been blossoming. A large proportion of EE in Finland is provided by Nature Schools (NSs) and in the Netherlands by Environmental Centers (NCs), the developing history of EE in these two countries can be illuminated very much by the history of Nature Schools and Environmental Centers respectively.

2.2.2 HISTORY AND OBJECTIVES OF NATURE SCHOOLS (NSs) IN FINLAND

The first nature school in Finland was established in Siuntio in 1986 by the Finnish Society for Nature and Environment (FSNE) (originally in Swedish called Natur och Miljö). By 1997, the number of nature schools rose to 18; by 2006, to 21; by 2006, to 26 (Jeronen et al. 2009) and by 2010, there were 29 nature schools in Finland (Mykrä 2011). And since the beginning of 2014, while this study is about to be published, it is confirmed that there are 46 corporation members in the Finnish Association of Nature and Environment Schools (based on the discussion with the Manager of Finnish Nature School Association on 14.3.2014).

The task of nature schools is to support nature and environmental education: they don't have pupils of their own, but they offer pedagogical day programs for groups from ordinary schools and kindergartens, and training courses for teachers (LYKE

2013). In 2010, a LYKE-network project (LYKE-network in Finnish language stands for Luonto – ja Ympäristökavatuksen Tukiverkosto and in English, Nature – and Environmental – Education Supporting Network. LYKE comes from the Initials of ‘Luonto – Ympäristö – Kestävä Elämäntapa’ in English ‘Nature – Environmental – Sustainable Lifestyle’) was launched to support and coordinate activities among nature schools. Later actors with similar goals, such as visitor centers of national parks, youth centers and camp schools joined the network. Each member of LYKE-network provides environmental education services for the children and youngsters. Ways of education vary, but objectives are similar.

The objective of LYKE-network is to communicate with customers and policy makers, give support to members (for example, provide training courses), deliver good practices and help in co-operation with municipalities and schools.

Programs and trainings provided by nature schools are designed based on the national curriculum. Learning is experimental, experience-based, hands-on learning in authentic learning environments. The final goal is that every kindergarten and school in Finland has a possibility to get professional help with their environmental education from members of LYKE-network.

2.2.3 HISTORY AND OBJECTIVES OF ENVIRONMENTAL CENTERS (ECs) IN THE NETHERLANDS

In order to find out how the blooming Environmental Centers in the Netherlands were started, I quote two Dutch policy-makers’ words from the interviews done for this study:

“I think it started the idea that school days are very busy with all the things they have to do for the test, so there is some extra time, you know, lot of NGOs, for example, that did EE, also change to, ‘let’s try and see how we can do in after-school hours, or how can we provide to help the schools with programs and things’. And I think the municipalities have a leading role in that. Because the schools are responsible for a good education, reading, writing and mathematics. But also the municipalities found themselves responsible for creating good citizens and to provide kids with knowledge about their surroundings, about how nature and the cities work together. So they usually provide it in Environmental centers (EC). It’s not all schools that have their own EC, there is few in the municipality that the schools can go to. I think that’s how it started.”---- Dutch Interviewee One (DI1) on 2nd Sep. 2013

Environmental centers in the Netherlands were not originally like the current form, nor owned by the municipalities.

“...I think it (EE) got important around the seventies, when people became more and more aware that children living in the city didn’t know much about

gardening or farming and they started to create petting zoos and gardens for kids to learn.... But in the seventies the government took over and they bought the land because it became more and more important part or, or basically the reason I think why it's a part of EE, is a part of the government and why they pay so much for it also because they want us to explain a lot of policy in that we're making, about environmental things as well. So around the seventies they took over and a lot of petting zoos and educational gardens became part of the government."----- Dutch Interviewee Four (DI4) on 4th Sep. 3013

When we talk about the latest development of EE in the Netherlands, GroenGelinkt would be the representative icon. GroenGelinkt, Green Link, is the Dutch information and communications technology (ICT) platform that aims to improve the access to activities and teaching materials in the field of nature, environment and sustainability (GroenGelinkt 2014). The ambitious and profound goal of this platform is to bring sustainability within the reach of the younger generation.

Similarly, the Finnish LYKE-network is also developing a Material Bank. The ideas and goals are quite the same between the Dutch GroenGelinkt and the Finnish Material Bank. With these two platforms, anyone who is looking for teaching materials and hints and outdoor activities and venues can come to these two "inventory storages" to find their desired materials or tool-kits.

Comparing two countries' EE objectives, they are almost identical: to educate coming generations to become responsible citizens to guarantee a sustainable future. However, strategies and methods are not completely similar due to various reasons, such as difference in political strategy, educational system, geographic features, national culture, family structures and people's characteristics in general.

2.2.4 STATUS AND PROBLEMS OF ENVIRONMENTAL EDUCATION

Environmental Education in both Finland and the Netherlands is going through a series of changes in administration, pedagogy, structure, funding, and employment. In Finland, the National Board of Education is renewing the curriculum for pre-primary and basic education with more emphasis on in-school EE, integration of EE into school subjects that will be completed by the end of 2014. New school curriculum should be started to implement at the beginning of the school year 2016-2017 (Finnish National Board of Education, 2014). And in the Netherlands, since January 1st, 2014, all environmental centers will be facing an administrative change; they are no longer part of the municipality, no longer automatically in the city budget, or on the pay list. Every environmental center will be on the market economy and make its own ends meet.

Facing these changes, people who care about environment and EE would responsively come up with some questions and doubts. Which direction is EE going after the change? Is it going to be emphasized or disregarded? Why it is so crucial to have EE in-

school? Is it going to work in-school? What roles in-school and out-of-school environmental education are and will be playing after the change? What are the roles of each actor in this change? How can they contribute to the change? These questions are all related to the issue. Although I can't answer them all in this Master thesis, I try to find answers to some of them.

2.3 RESEARCH QUESTIONS

As the renewed version of core curriculum for basic education is upcoming already in the end of 2014 in Finland and local curriculum in school year 2016-2017, all the actors in this field are naturally interested in what is going to happen, what the changes mean and how it is going to happen? In the case of the Netherlands, even there is not a curriculum change in the near future; the administrative change is as well fundamental and dramatic. How the Dutch EE experts see the future role of the Dutch environmental centers? And how they think of the Finnish counterparts' curriculum change? Although the Dutch government has launched National Environmental Education Program, without integrating into school subjects, how efficient their EE can be?

Based on all this background, I draw my research question of this study:

How do the EE professionals see the role of out-of-school environmental education entities while integrating EE into school curriculum?

In order to answer this big question, a series of subsequent questions need to be clarified.

- 1) Why is it so important for children and youngsters to have environmental education?
- 2) What is the status of in-school environmental education? How realistic is it to integrate environmental education into school subject teaching?
- 3) How important are the out-of-school environmental education entities at present and after the school curriculum change takes place? What are the problems and challenges?

After the curriculum change, how are the Finnish schools going to respond to it? How the change concerning environmental education would and could be implemented in practice? Would the existence of out-of-school environmental education be threatened or strengthened? With so many questions in mind, I went through some literatures and present what I see the most important ones in the next section.

3 CONCEPTUAL BACKGROUND

Conceptual background of this study functions as building up a foundation; demonstrating how this study advances knowledge; conceptualizing this study and providing a reference point for interpretation of the findings (Rocco & Plakhotnik 2009). A conceptual background synthesizes existing theories and related concepts and empirical research, to develop a foundation for new theory development (ibid.).

In order to identify a proper theory as the conceptual background of this study, we need to first take a close look at the research question, cut it open and find the perspective that we look into. The process of finding the right theory represents very much the author's learning process of this topic.

As this study is primarily concerned with EE, I searched firstly for resources related to EE. It was helpful to understand the field indeed. However, comprehension of concepts is still far from finding the perfect link between the concept and my data. I was, for a long time, like a person lost in woods, holding all the data, but could not find my way out. Nevertheless, I kept reading and thinking back where and how I started. It was indeed, the upcoming curriculum change in Finland that inspired the whole research. Accordingly, I broadened my view and looked into Educational Change literature.

The "Change Force" Trilogy (Fullan 1999, Fullan 2003, Fullan 1993) author Michel Fullan has observed over years that "strategies strong on both sets of theories (theories of Education and Theories of Change) are more likely to experience success" (Fullan 1999). Fullan's change force had not doubt hit me. Indeed, in order to guarantee the success of a new educational change implementation, we need to be strong on both education and change theories. Similarly, in my study, in order to understand how a curriculum reform concerning EE can be implemented successfully, I need also be strong on two kinds of concepts: concepts on Environmental Education and concepts on Educational Change.

3.1 ENVIRONMENTAL EDUCATION

Much has been written over the past three decades about the many perceived purposes of Environmental Education (EE) (Jeronen et al. 2009). It is generally accepted that education related to the environment includes three threads (Palmer 1994):

Education ABOUT the environment seeks to discover the nature of the area under study often through investigatory and discovery approaches; the objectives are chiefly cognitive ones in that the aim is to amass information.

In educating FROM the environment, teachers must have sought to forward the general education of the child by using the environment as a resource in two main

ways: firstly as a medium for enquiry and discovery which may lead to the enhancement of the learning process, the most important aspect being learning how to learn; secondly, as a source of material for realistic activities in language, mathematics, science and craft.

To be educated FOR the environment... is education which is environmental in style with emphasis on developing an informed concern for the environment. The objectives go beyond the acquisition of skills and knowledge and require the development of involvement to the extent that values are formed which affect behavior... Thus the aim is to develop attitudes and levels of understanding which lead to a personal environmental ethic; that is, to educate pupils so that their actions and influences on collective action will be positively for the benefit of the earthly environment. (p. 19) (Capital emphasis in the original text).

Forty years have passed since the first wave of environmental education. The fields that have been studied related to it in the academic world are quite abundant, not only from the familiar pedagogical perspective, but also from neurophysiological, biological and social perspective.

Howard Gardner, a professor of education at Harvard University, has argued that the traditional notion of intelligence based on I.Q. testing, was far too limited; he instead proposed eight types of intelligences to account for a broad range of human potential in children and adults. These included (Gardner 1983): 1) linguistic intelligence---word smart, 2) logical-mathematical intelligence---number/reasoning smart, 3) spatial intelligence---picture smart, 4) bodily-kinesthetic intelligence---body smart, 5) musical intelligence---music smart, 6) interpersonal intelligence---people smart, 7) intrapersonal intelligence---self smart, and 8) naturalist intelligence---nature smart.

Gardner explained:

The core of the naturalist intelligence is the human ability to recognize plants, animals, and other parts of the natural environment, like clouds or rocks. All of us can do this; some kids (experts on dinosaurs) and many adults (hunters, botanists, anatomists) excel at this pursuit. While the ability doubtless evolved to deal with natural kinds of elements, I believe that it has been hijacked to deal with the world of man-made objects. We are good at distinguishing among cars, sneakers, and jewelry, for example, because our ancestors needed to be able to recognize carnivorous animals, poisonous snakes, and flavorful mushrooms.

Gardner's monumental work...used findings from neurophysiological research to pinpoint parts of the brain that correlate with each identified intelligence.... (Louv 2009). In light of Gardner's finding, Johnson also says "intelligence is learnable" (Jacobs 2010). Environmental awareness, attitudes and conceptions can be changed by using

repeated experiences and long-term nature education (Jeronen et al. 2009). We now can understand the necessity of integrating EE into school curriculum to train our children to develop naturalist intelligence and make a change on children's environmental awareness, attitudes and conceptions.

In educational history, there have been a lot of theories developed and written to be in favor of raising children in the countryside, outdoor environment and forest schools. The earliest, we can go back to 1792, when Jean-Jacques Rousseau published his work *Emile*, told the story of a boy called Emile is to be raised in the countryside. Rousseau in the book introduced a “*pedagogical way of thinking that took its starting point in a child's reality and natural surroundings, believing that from children's experiences of the natural real world around them they construct their understanding and knowledge* (Williams-Siegfredsen 2012)”. Later Johann Heinrich Pestalozzi took Rousseau's ideas, developed further and published his work in 1801 with an emphasis that every aspect of the child's life contributes to the formation of personality, character and reason (ibid.). Two hundred twenty years have passed since the publication of *Emile*, in 2012, Jane Williams-Siegfredsen (2012) published the *Understanding the Danish Forest School Approach*, which gives a full picture of the Danish Forest School theories and practices, which were considered by the Finnish EE experts as the inspiration origin of Finnish EE and Nature Schools. In Williams-Siegfredsen's work, looked at the Danish early year's pedagogical practice of using the outdoors and drew up seven pedagogical principles of practice. And for each of the principle, a number of theories from around the world were provided to support. (pp. 16 - 31):

1) A holistic approach to children's learning and development. 2) Each child is unique and competent. 3) Children are active and interactive learners. 4) Children need real-life, first-hand experiences. 5) Children thrive in child-centered environments. 6) Children need time to experiment and develop independent thinking. 7) Learning comes from social interactions.

Richard Louv (2005) in his *Last Child in the Woods – Saving Our Children from Nature-Deficit Disorder* says:

“Given a chance, a child will bring the confusion of the world to the woods, wash it in the creek, turn it over to see what lives on the unseen side of that confusion.” (p. 7)

Rachel Carson says: “Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts.” Ancient Chinese philosopher Lao-Tzu says: “From wonder into wonder existence opens”. (p. 37)

In both Finland and the Netherlands, not every child gets a chance to visit Nature School or Environmental Centers, the ones who get, they get about once in their whole school time, like the seventh-grader group I followed. Jeronen et al. (2009) have stated that environmental awareness, attitudes and conceptions can be changed by using

repeated experiences and long-term nature education. Neither the Finnish Nature School nor the Dutch Environmental Centers can guarantee 'repeated experiences' or 'long-term nature education'. Who can then? The answer is our schools.

The significance of schools' role in national and societal development has been discussed quite much since the end of World War II (Fägerlind & Saha 1989). Nations have been spending vast amounts of money on educational programs (ibid. c. f. Coombs, 1985) due to the realization of schools' importance. Investment in education has traditionally been justified by two optimistic assumptions: one is that an educated population contributes to the socio-economic development of the society as a whole and the other is that education contributes to the well-being of individuals within the society (ibid. c. f. Schultz, 1980).

Fägerlind and Saha (1989) after careful study of the educational reform of Sweden have come to the conclusion that "Educational reforms, when linked with reforms in other sectors of society as part of a consistent and compatible development strategy, represent a potentially powerful force for changing society in a desired direction. (p. 166)" For the coming curricular change of Finland, one out of many reasons is for the good cause of sustainable development. However, is it enough to realize that schools are important platform for sustainability and environment education? Does it happen automatically that the state tells the schools to change and include or integrate environmental and sustainable education into the existing curriculum and teaching?

Pedagogy of EE in Finnish Nature Schools has not been studied thoroughly. We can find writings about adventurous and experiential pedagogy in Finnish language, for example, Dr. Seppo J. A. Karppinen's dissertation from University of Oulu "Seikkailullinen Vuosi Haastavassa Luokassa – Etnografinentoimintatutkimus seikkailuja elämyspedagogiikasta", if I translated it into the closest English "Adventurous Year in Challenging Class – Ethnographic action research on adventurous and experiential pedagogy". While outdoor adventure education is considered to be added in the comprehensive school curriculum as an alternative teaching and learning method (Karppinen 2005), EE would not be enough to be an adjunct to the normal curriculum. Environmental concerns must be seen as an ever-present dimension and function of education in the broadest sense of the term.

While the most EE experts, especially out-of-school EE experts compliment their so-far achievements, Daniel T. Blumstein and Charlie Saylan (2007) criticized the current EE was a failure. In addition to the criticism, they also gave concrete suggestions on how to improve EE in future. They have suggested seven ways as following, most of them are about the EE teaching contents:

- 1) *Design environmental education programs that can be properly evaluated, for example, with before-after, treatment-control designs.*

- 2) Need to teach *people to change their non-sustainable consumption pattern, primarily in developed countries.*
- 3) Need to teach *that nature is filled with nonlinear relationships, which are characterized by “tipping points” (called “phase shifts”): there may be little change in something of interest across a range of values, but above a particular threshold in a causal factor, change is rapid.*
- 4) Need to teach *a world view. A greater appreciation of the diversity of cultures and people in the world should help us realize the selfish consequences of our consumption.*
- 5) Need to teach *how governments work and how effect change within a given socio-political structure. Understanding how the system works will empower subsequent generations to change it.*
- 6) Need to teach *that conservation-minded legislation may deprive us of some of the goods and services that we previously enjoyed. Self-sacrifice will be necessary to some degree if we are to avoid or minimize adverse effects of imminent environmental threats with truly global consequences.*
- 7) Need to teach *critical thinking. Environmentally aware citizens must be able to evaluate complex information and make decisions about things that we can’t currently envision.*

Blumstein and Saylan believed that with these improvement measures will help ensure that kindergarten-through-12th grade EE has a measurable impact on the environment. I fully agree with them on all these seven points, especially the first one, the need of an evaluable EE effect, which I think would be necessary to study further as soon as possible. All the rest six measures are concrete teaching themes and contents for students.

I am not so familiar with the Dutch literatures on EE, but there are two recent Finnish Master Theses from the same department where I am also studying deserve to be addressed here. One is about Finnish schools and kindergartens participating into Green Flag program implementation and found out the program is encouraging and supportive for them to carry out EE work (Skaffari 2011). Another one is about environmental citizenship as an educational ideal in Ilmari-project, a project aiming at developing environmental responsibility and active environmental citizenship among secondary school students (Kantele 2013). Both Master theses work on EE have involved Finnish schools and youngsters. Although I have a quite different studying target from my earlier schoolmates, their studies have provided me some background information and perspectives on Finnish environmental education.

History of conscious EE is rather young, history of education and educational change is much longer. There has been research on EE and EE related pedagogy issues. But research on EE's change – integration into school subjects and the importance of out-of-school EE entities has not been so much, if not none at all.

3.2 EDUCATIONAL CHANGE

The primary and ultimate purpose of any educational reform is and should be to benefit all students. That's the moral purpose of educational reform. Moral purpose in education means, at the micro level, making a difference in the life-changes of all students - more of a difference for the disadvantaged because they have further to go; at the macro level, moral purpose is education's contribution to societal development and democracy. A strong public school system, as I shall argue, is the key to social, political and economic renewal in society. (Fullan 1999)

However, moral purpose is never so straightforward or easy to be achieved. If it would have been that easy and simple, educational reforms in the world would have not experienced any failure. Fullan claims that there are two primary reasons why achieving moral purpose is complex. One concerns the dynamics of diversity, equity and power; the other involves the concept and reality of complexity itself. (ibid., p. 1)

As the first concern may seem insurmountable, there may be other resources and ideas available for accomplishing more comprehensive reform, which brings us to complexity theory. (ibid., pp. 2-3)

Complexity theory is also called chaos theory. The guru of chaos and complexity theory Ralph D. Stacey has captured the essence of complexity theory and believed that in a complex situation, *the real management task is that of coping with and even using unpredictability, clashing counter-cultures, disensus, contention, conflict, and inconsistency* (Stacey 1996). If this is too difficult language for us to grab, I could put it shorter and simplified sentence, in any complex change or reform, we need to prepare to handle instability, irregularity, difference and disorder.

Stacey's theory is for managers and business entities. In this current study, we don't have managers, but all the people involved in this EE integration into school curriculum may function as a manager. With the mindset of state of chaos, each organization (schools, nature schools, communities, and states etc.) and each individual (principals, teachers, nature school teachers, officials, volunteers, and parents etc.) should understand that the action of one agent or agency can provoke more than one response from other agents or agencies.

Senge and colleagues (2000 p. 5 c. b. Fullan 2007 p. 117) argue that fiat or command can never solve complex problems; only a learning orientation can.

This means involving everyone in the system in expressing their aspiration, building their awareness, and developing their capabilities together. In a school that's learning, people who traditionally may have been suspicious of one another – parents and teachers, educators and local business people, administrators and union members, people inside and outside the school walls, students and adults – recognize their common stake in the future of the school system and the things they can learn from one another.

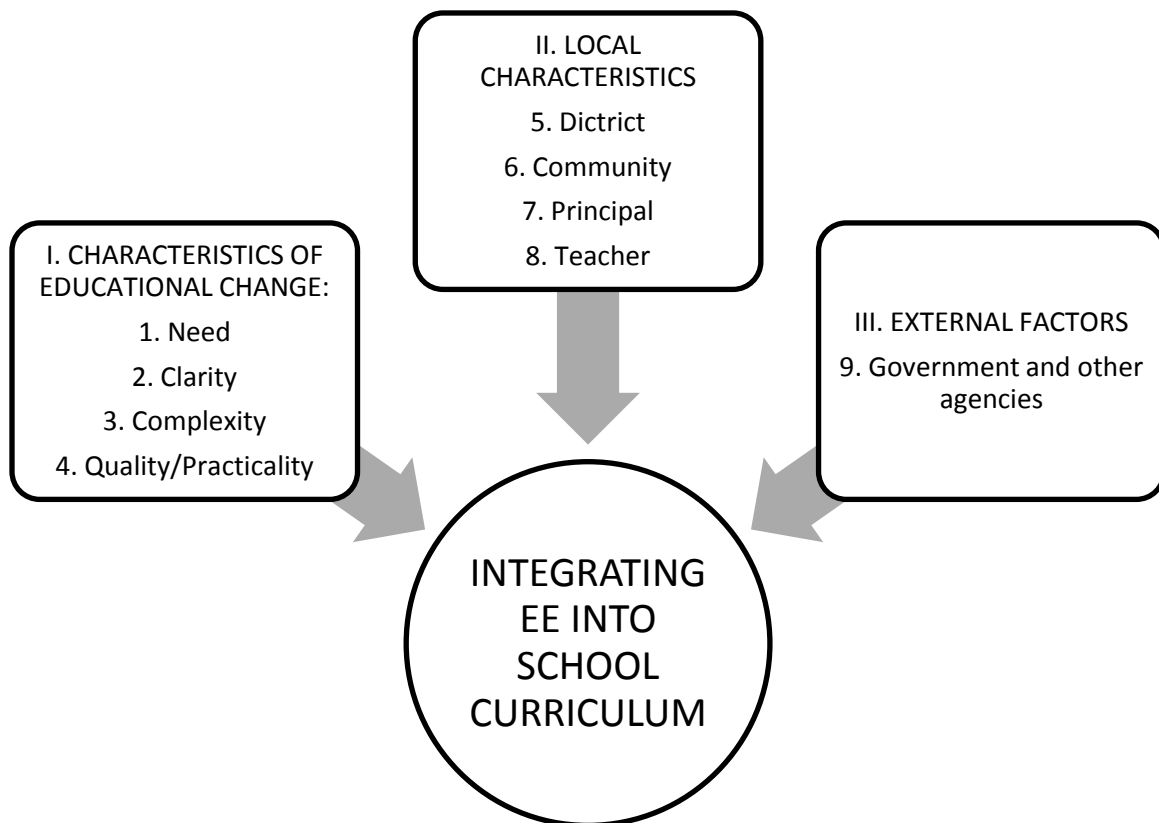
All involved partners need to learn from each other and impact each other, complex indeed! Each one of the involved actors is an affecting factor of the change. They form up a network together. As a form of practice, networking of all involved actors for Finnish schools is very familiar. The Finnish curriculum reforms have gone through a phase of networking already twenty years ago. It was the National Curriculum Reform in 1994, which has been regarded as the major educational reform in Finland. In that reform, all schools were encouraged to collaborate with others schools as well as to network with parents, business, and nongovernmental organizations. At the administration level, this new collaborative movement reached its peak in the Aquarium Project, which was initiated to allow all Finnish schools, principals, and teachers to network with each other and in the end transform schools into active learning communities. (Sahlberg 2010) These learning communities comply very much with the learning orientation of Senge and colleagues above.

In order to understand the importance of out-of-school EE entities during the implementation process of the change, we need to understand first the critical factors that will be impacting the implementation process of an educational change in general. Using the complexity and networking theory as the base and reference point, we shall elaborate how out-of-school EE entities can comply with, not complicate the change; accordingly get a better grasp of the meaning of the environmental educational change coming up in Finland or any other countries with similar settings. And the importance of out-of-school EE entities reveals itself in the end.

3.3 KEY FACTORS AFFECTING THE IMPLEMENTATION OF AN EDUCATIONAL CHANGE

According to Michael Fullan, there are nine key elements that influence an educational change. In this study, the educational change refers to integrating EE into school curriculum. Fullan organized them into three main categories relating to first of all, the characteristics of the change project, secondly local factors and thirdly external factors. They could be illustrated in the figure 1 below:

Figure 1. Interactive factors affecting the implementation of integrating EE into school curriculum (Fullan 2001):



3.3.1 FACTORS RELATED TO CHARACTERISTICS OF THE EDUCATIONAL CHANGE

NEED. It has been confirmed through various research projects in the US that it is important to relate need to decisions about educational change directions. The Rand Change Agent study identified problem-solving/orientation (i.e. identification of a need linked to selection of a program) as strongly related to successful implementation (Fullan 2001).

However, even though the importance of identified need is obvious, its role does not always so easily get to be emphasized due to various difficulties. Fullan has listed at least three reasons that complicate this issue (2001, p. 76):

First, schools are faced with overloaded improvement agendas. Therefore, it is a question not only of whether a given need is important, but also of how important it is relative to other needs. Needless to say, this prioritizing among sets of desirables is not easy, as people are reluctant to neglect any goals, even though it may be unrealistic to address them all.

Second, precise needs are often not clear at the beginning, especially with complex changes. People often become clearer about their needs only when they start doing things; that is, during implementation itself.

Third, need interacts with the other eight factors to produce different patterns. Depending on the pattern, need can become further clarified or obfuscated during the implementation process.

CLARITY. Clarity (about goals and means) is a perennial problem in the change process. It has been very often that many people agree that some changes are needed, but when the changes come, they are not clear at all about what teachers should do differently. Lack of clarity---diffuse goals and unspecified means of implementation, Fullan believes, represents a major problem at the implementation stage; teachers and others find that the change is simply not very clear as to what it means in practice. (Fullan 2001)

The importance of clarity in a change is no doubt essential, yet its meaning is subtle, as Fullan has noticed, too often we are left *with false clarity* (italic in the original text) instead. False clarity occurs when change is interpreted in an oversimplified way; that is, the proposed change has more to it than people perceive or realize. (ibid., p. 77)

COMPLEXITY. Complexity refers to the difficulty and extent of change required of the individuals responsible for implementation. The actual amount depends on the starting point for any given individual or group, but the main idea is that any change can be examined with regard to difficulty, skill required, and extent of alterations in beliefs, teaching strategies, and use of materials. (ibid., p. 78)

Complexity makes any changes or reforms more difficult, but it is also said "*little ventured, nothing gained*" (ibid, c.f. Berman 1980, quotation marks in the original text). In other words, if we aim at gaining more, we should be prepared also to lose more. Search for a clear path among the complexity is never easy, the process could be painful.

QUALITY AND PRACTICALITY. The fourth and also last factor connected directly with the nature of change is the quality and practicality of the change project – whether it is a new curriculum, a new policy or a new structure of administration.

While earlier implementation was neglected, people, including Fullan himself thought that curriculum materials were less important, Fullan later drew a different conclusion after doing more study and research (Fullan 2007):

To achieve large scale reform you cannot depend on people's capacity to bring about substantial change in the short run, so you need to propel the process with high quality teaching and training materials (print, video, electronic). There is still the problem of superficial implementation when new materials are in use, and even new practices in evidence, without the deeper understanding required for substantial and sustained implementation. But you get farther, faster by producing quality materials and establishing a highly interactive infrastructure of pressure and support. Finally, the materials do not have to be treated as prescriptive. Many judgments can and should be made during implementation as long as they are based on evidence linking teacher practices with student performance.

This is so true. Any meaningful change requires time, patience and high quality materials, which are both the product and the proof of the change.

3.3.2 LOCAL FACTORS

It has not been rare to observe that the same program that succeeds in one school, or one city, fails in another. Therefore, it is necessary to examine the social conditions of a change (such as social values and priorities) and the organization or setting in which people work (such as district, community or school) and key driving forces (such as principal and teachers). Fullan (ibid, p. 80) recognized that the individual school may be the units of change, but frequently change is the result of system initiatives that live or die based on the strategies and supports offered by the larger organization. This is especially true of multilevel, complex system-oriented innovations where what is being changed is the organizational culture itself.

As Fullan's research is mainly in the Northern America environment, the local factors are identified according to the local system and structure. For example, the school board plays quite important role in the northern America environment, yet in the Finnish and Dutch school system, it might not be the same case. In this section, I illustrate the local factors according to Fullan's original research. Later when I present my research results in 5.3.2, I shall modify the local factors a bit in order to adapt into the Finnish and Dutch context.

THE SCHOOL DISTRICT. Districts, provinces or states, and countries can develop an incapacity for change as well as a capacity for it. Nothing is more gratifying psychologically than attempting a change that works and benefits students. Success can inspire more success. It has been tested by all major studies that the local implementation process at the district level is essential if substantial improvement is the goal. (ibid., p. 81)

BOARD AND COMMUNITY CHARACTERISTICS. When the school board and the district are *actively* (Italic in original text) working together, substantiated improvements can be achieved, compared to conflicted or uninvolved boards (ibid., p. 82 c. f. LaRocque & Coleman, 1989). The role of communities and school boards is quite variable ranging from apathy to active involvement---with the latter varying from conflicted to cooperative modes depending on the conditions.

THE PRINCIPAL. The principals as the main agents of a change have been studied much. According to Fullan, the principal strongly influences the likelihood of a change, but it also indicated that most principals do not play instructional or change leadership roles. The subjective world of principals is such that many of them suffer from the same problem in “implementing a new role as facilitator of change” as do teachers in implementing new teaching roles: what the principal should do *specifically* (Italic in the original text) to manage change at the school level is a complex affair for which the principal has little preparation.

THE ROLE OF TEACHERS. Both individual teacher characteristics and collective or collegial factors play roles in determining implementation. It is the actions of the individual that count. Since interaction with others influences what one does, relationships with other teachers is a critical variable. Change involves learning to do something new, and interaction is the primary basis for social learning. (ibid., p. 84)

3.3.3 EXTERNAL FACTORS

The last set of factors that influence implementation places the school or school district in the context of the broader society (Fullan 2001). In different countries, this means different things due to varying administrative structure. In the Finnish context, it means the municipal educational section, municipal environmental section the Finnish National Board of Education and Ministry of Education and Culture of Finland. In the Dutch context, it means the municipal educational section, municipal environmental section, Dutch Ministry of Economic Affairs and Ministry of Education, Culture and Science of the Netherlands.

GOVERNMENT AND OTHER AGENCIES. Government agencies have been preoccupied with policy and program initiation, and until recently they have vastly underestimated the problems and processes of implementation (ibid., p. 86). Government very often plays the triple roles of change: initiator, supporter and assessor and that pre-determines the difficult implementation process of a government has to encounter. In any case, with the increased focus on larger scale reform, some government agencies are becoming more adept at combining “pressure and support” forces in order to stimulate and follow through in achieving greater implementation (ibid., p. 87).

4 RESEARCH METHODOLOGY

This chapter describes the research methodology and methods applied in this study. The methodology adopted is qualitative research using a theory-oriented approach, and the data collection methods used were interviews, specifically the expert interview method. I proceed in this chapter by presenting how I understand the qualitative research methodology and theory-oriented content analysis approach and explaining how the expert interview method strengthens but not diminishes the validity of this study. Furthermore, I describe in detail the entire empirical research process starting from the initiation of research idea and data analysis method and process.

4.1 QUALITATIVE RESEARCH METHODOLOGY

For me choosing qualitative methodology was a rather natural choice as it suits the research goals of this study. Before I explain the goals of this study, I first present how I comprehend qualitative research methodology. I used the definition provided by Denzin and Lincoln (Cresswell 1998):

Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that makes the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them. (p. 36)

So I understand qualitative research as a method of exploring a hidden story and collecting data in various formats. After formulating in my mind what qualitative research is about, I go further to learn what can be researched among my interested topics. I was working in the field of education export and studying in the field of environmental policy while I started looking for research topics. So I was naturally interested in topics related to environment and education. Just pondering on the two fields I was equally keen to, I conveniently and simply combined them two together and formed up “Environmental Education”. Then I encountered in the book *Qualitative Research in Education* (Freebody 2003) under what conditions events can be turned into ‘research’:

- 1) *The procedures of distillation (i.e., the analyses and the bridge they form between the event and the conclusions drawn from its study) are publicly accessible and thus can be evaluated as publicly ‘knowable’ and ‘trustable’; and*
- 2) *The findings are disseminated in some way to other stakeholders in education, for information, for scrutiny and for challenge, and they are disseminated in ways that*

afford scrutiny and challenge. (p. 28, emphatic quotation marks and italic texts in original text)

The necessity and feasibility of studying the importance of out-of-school EE entities for integrating EE into school curriculum became gradually clearer to me while I was doing my internship at the Finnish Association of Nature and Environment Schools. However, although I have experiences in educational field and been studying about environmental issues, “environmental education” issues were totally new to me. As such, obtaining information and collecting data from EE experts was without doubt the most suitable and natural choice.

4.2 THEORY-ORIENTED CONTENT ANALYSIS APPROACH

There is an ocean of different content analysis approaches as well as definitions. What impresses me the most is Harold Lasswell’s simple formulation. He stated that the core questions of content analysis as “Who says what, to whom, why, to what extent and with what effect? (Lasswell 1962)” When we take a quiet moment and think about it, isn’t it just so true that the way we use to analyze any given contents is to find out answers to a series of fundamental questions: who, what, where, why and how?

Theory-oriented content analysis research follows a typical process of nine steps (Neuendorf 2001), which has guided me in this study. I simplified the nine steps of Neuendorf in his flowchart into the following four steps that I actually used in practice.

First, identify theory and rationale by asking if there are certain theories or perspectives that indicate that this particular message content is important to study. In this study, theory of environmental education and educational change functioned as the storyline to guide me in organizing the content. Secondly, decide themes. In my study, after reading the content again and again with the research questions in mind, in the end three themes were decided. Thirdly, code the relevant data. Collected data was much bigger than what I really need that is relevant to this study. So only the ones closely related to the chosen themes were coded. And as ten interviewees are not a big amount, I just did manually. Fourthly, report the results. Results generated from the content closely respond to the research questions.

Content analyses succeed or fail with the validity of the analytical constructs that inform their inferences (Krippendorff 2013). Analytical constructs are formulated by the thematic contents, available theory and literature, or consultation of acknowledged experts and valid inferences. However, deriving analytical constructs from established theories does not guarantee that the constructs will be flawless (ibid. p. 177). In this study, I have interviewed and consult the acknowledged environmental education experts to reinforce already the validity of the contents and accordingly that of the analysis, at least to a certain extent.

4.3 EXPERT INTERVIEWS AND VALIDITY

A common and straightforward method for data collection is through interviewing (Freebody 2003). Interviewing experts can make the exploratory phase of a research project more efficient (Alastalo & Åkerman 2010, Bogner et al. 2009). For example, in this study, finding the access to the Dutch EE experts, to five experts all over the country was not easy, because I don't have knowledge on Dutch language nor connections whatsoever in the Netherlands. Just as Boger, Littig and Menz (2009) believed that *"equipped with the added bonus of support of an expert in a key position, the research may then often find it easier to gain access to an extended circle of experts (p. 2)"*, I firstly found only one expert in Finland, and through this single expert found all the other four Finnish experts and one Dutch expert, again through that one Dutch expert, I got the access to the other four Dutch experts. So in the end, I have totally gotten experts in two countries through that one only expert.

What are the differences between interviewing an expert and a normal person then? For that Alastalo and Åkerman have given a clear table (Alastalo & Åkerman 2010) on interview application in phenomenal and cultural analysis:

Interview target	Experts	Cultural member
Interviewee selection	<ul style="list-style-type: none"> - limited historical process or phenomenal field expert - interviewees are rarely replaceable 	<ul style="list-style-type: none"> - whoever could be a cultural member - interviewees are usually replaceable
Information collected via interviews	<ul style="list-style-type: none"> - examined phenomenon, process, behaviors and facts - possible wrong answers 	<ul style="list-style-type: none"> - cultural meanings, reports, experiences and interactions - no wrong answers

Although the table above has an interview setting of phenomenal and cultural analysis, the differences between interviewing an expert and others are quite general.

"The anticipated promise of rapid and unproblematic access to objective data makes expert interviews an extremely appealing option for empirical social researcher", then Bogner, Littig and Menz (2009) question: *"is the expert interview method really quite so simple and uncomplicated? If so, does this then render methodological considerations superfluous? Do they not – in their naïve belief in the totality of expert knowledge – harbor the danger of advocating a pre-reflexive definition of what constitutes an expert? (p. 2)"*

The goal of this study is to find out the importance of out-of-school environmental education entities integrating EE into school curriculum. Is interviewing EE experts really going to provide us an objective view? You might doubt about it. As Giddens (Bogner et al. 2009) puts “*specialization might well safeguard the continued existence of the expert and the development of new forms of expertise* (p. 5)”. I would provide three arguments here to guarantee the validity of this study.

First of all, only two out of the five EE experts are directly working in out-of-school EE entities. The other three are national level EE coordinator, policy maker in education and university professor. The diversity of experts can guarantee a less biased view on the research topic.

Second of all, we are examining the importance of out-of-school EE entity in Finnish context, getting the views of five EE experts from the Netherlands on this issue in general also adds validity to the study. And the five Dutch EE experts are not all working in out-of-school EE entities either.

Third of all, the open-ended interview questions and request letter for an interview (see Appendix), that sent to all the expert interviewees beforehand were in no way indicating the actual goal of this study. They were very generally stated in the request letter that “I am writing my thesis. I have chosen my topic from the field of Environmental Education (EE) and try to find out more about the out-of-school environmental practices in Finland and the Netherlands and compare the EE situation in these two countries. (Appendix)”

4.4 EMPIRICAL RESEARCH PROCESS

4.4.1 DESCRIPTION OF RESEARCH INITIATION

The research idea was originally initiated while I was doing my three-month internship at the Finnish Association of Nature and Environmental Schools in Tampere, Finland. The task of nature schools is to support nature and environmental education: they don't have pupils of their own, but they offer educative day programs for groups from ordinary schools and kindergarten, and training courses for teachers (LYKE 2013). In year 2007, the Finnish Association of Nature and Environment Schools was established. In year 2011, the LYKE-network project was launched to support and coordinate activities among nature schools. Later actors with similar goals, such as visitor centers of national parks, youth centers and camp schools joined the network. Each member of LYKE-network provides environmental education services for children and youngsters. Each educational entity, in terms of focus, themes and topics, might differ from one another, but all of their primary objectives are similar.

Programs and trainings provided by nature school are designed based on the national curriculum. Learning is experimental, experience-based, hands-on learning in authentic

learning environments. The final goal is that every kindergarten and school in Finland has a possibility to get professional help with their environmental education from members of LYKE-network.

During the internship time, apart from reading widely literature on environmental education, I also visited Nature School, followed their teaching activities, and got to know environmental education organizations, programs and initiatives. Environment and School Initiatives (EnSI) was one of them. *EnSi is an international network which has supported educational developments, environmental understanding, active approached to teaching and learning, through research and the exchange of experiences internationally since 1986* (EnSI 2013). As EnSI member countries are the representatives of active environmental education activities, I took special interest in them. And later it turned out to be very helpful in proceeding my study in environmental education field.

4.4.2 PROCESS OF THE COMPARATIVE TARGET COUNTRY SELECTION

In order to select a country for comparative studies, a small survey was carried out. An email request with four small questions was sent off to twenty-eight representatives of ten EnSI member countries and three non-EnSI members, totally thirteen countries.

The ten EnSI countries are Austria, Belgium, Denmark, France, Germany, Hungary, Netherlands, Norway, Slovenia and Switzerland and three non-EnSI member countries are Turkey, Italy and Sweden. From all these, fifteen replies were received from ten countries: Austria, Denmark, Germany, Netherlands, Norway, Slovenia, Switzerland, Sweden, Turkey and Italy. Belgium, France and Hungary didn't respond.

The four questions that were asked from the thirteen countries above were as follows:

- 1) Are there environmental education centers that offer educational days for schools (e.g. nature center, nature school, camp school, environmental school) existing in your country?
- 2) Are those environmental education centers supplementing ordinary school educations? Is it common that school classes visit them? Who are the main visitors (age under 7, age 7-16, age above 16 etc.)?
- 3) If there are such centers in your country, who finances them? Who pays for the visits? Who pays for the teachers' /nature guides' wage in the center?
- 4) What else would you tell us about environmental education in your country?

Among those responded ten countries, except Switzerland, all the rest nine countries have the counterparts of Finnish nature schools, such as EE Centers, Nature Centers, Camp Schools, Center for School and Outdoor Education, which supplement to the environmental education of ordinary schools. Switzerland only has some NGOs and trainers working with kids or zoos or summer camps etc.

After careful comparison and thorough consideration, I chose the Netherlands as the targeted comparative study country at that time (spring 2013) for three reasons below:

Firstly, the contact person, who responded to my questions, was working in the country's national ministry. Not only that she could provide a complete overview on the national environmental education subject, but also she was so warm-hearted and always ready to provide all kinds of help: her own knowledge and expertise; supporting Dutch research and literature; and her professional network contacts etc.

Secondly, the Netherlands has a long tradition in EE, their EE is quite pioneering even on a global landscape. Apart from "physical" centers, they are also building a digital infrastructure at the moment. If Finland wants to learn the advanced experience in EE from other country, the Netherlands would be the most qualified.

Thirdly, concerning financing EE, almost every country is experiencing financial support cut at this moment, while everybody else is looking for solution; the Dutch Eco-schools are already promoting to have a special pool of "nature parents" trained to help the school with EE. The nature parents are volunteers, willing to help for free. And it is also interesting and beneficial for the schools since parent-participation is a hot issue at the moment in the Netherlands. Parents as a resource are also abundant and sustainable for the long run.

After the studying countries were decided to be Finland and the Netherlands, the next step was to find participants that were willing and able to provide me with information and give comments on this topic.

4.4.3 IDENTIFICATION OF RESEARCH PARTICIPANTS

The selection of the ten interviewees took the versatility of working fields, social roles and their location into account. In Finland, the interviewees were firstly targeted in five different cities, but due to one of the five interviewees didn't respond, two from Helsinki, the capital area were chosen. So in the end five interviewees from four cities were interviewed. Their working fields and social roles differ. Some is policy maker on the national level, some is university professor, and some is/are or has /have been nature school teacher. Among the five Dutch experts, their location, working fields and social roles vary quite much. Five experts were from five different cities, some are policy makers both from national and municipal levels, some are directly teaching students groups, some focus on pre-school kids and pedagogues, some focus on primary and secondary school children and teachers, some are experienced on training teachers, while some on children only. With such a selection of interviewees, I hope to get a full picture of environmental education around the countries and a less biased view on the role of out-of-school environmental education.

The five Finnish interviewees and five Dutch interviewees who participated in this study are represented as the combination of abbreviated letters and numbers in the order of the actual interview happening. Their working experience length was asked prior to the actual interview to provide an indirect view on the history of environmental issues and environmental education field. The basic information about ten participating interviewees and interviewing dates are shown as Table 1 below:

Table 1: Information about interviewees

Interviewees' code Finnish Interviewee (FI) Dutch Interviewee (DI)	Gender	Interviewee's Working Experiences in Environmental Education Field (years)	Date of Interview During the time period of Jul.- Sep. 2013
FI1	F	20	29 th Jul.
FI2	F	20	12 th Aug.
FI3	F	10	19 th Aug.
FI4	F	23	29 th Aug.
FI5	M	15	29 th Aug.
DI1	F	12	2 nd Sep.
DI2	M	35	3 rd Sep.
DI3	M	13	4 th Sep.
DI4	F	11	4 th Sep.
DI5	F	3	5 th Sep.
Totally 10 interviewees, 5 from Finland, 5 the Netherlands, 7 female and 3 male (1 Finn, 2 Dutch)			

All these EE professionals have their own expertise and have been working on different aspects of EE, here below I briefly describe their educational background, professional expertise or working fields and what have attracted them into EE field.

Among the ten experts I have interviewed, six out of ten hold a Master degree in biology, two out of these six hold a Doctor degree. The others were specialized in art, architecture, agriculture and forestry and museology. Their professions vary from directly working as a nature teacher who offers training to students and school teachers on daily base to indirectly as policy maker, coordinator or professor. The reasons that attract them into EE field are interesting. The inspiration could be from a song, an ambition, one incident or their studies, but most of them were inspired by the nature itself. With such an experienced, versatile-skilled and environmentally sensitive group of experts, I am confident to obtain valuable information to my topic from them.

4.4.4 CARRYING OUT THE INTERVIEWS

After ten interviewees were confirmed by email and phone call, two thorough travel plans were made. One was domestic in Finland and another was international in the Netherlands. All the travel costs were on my own. For the interviews in Finland, it was quite relaxed. For the ones in the Netherlands, I arranged five interviews in four days intensively. Although five Dutch experts are from five different cities, four were

interviewed in one city. I owe a lot of gratitude to those interviewees for their kind consideration of saving my trouble of traveling in a strange country in a limited time.

Such an arrangement was all due to practical considerations. Having Finnish interviews first was because Finns usually have their summer holiday in July and also it provides me better knowledge foundation before I departure for the Netherlands, an even stranger country for me. Very conveniently, Dutch people usually take their summer holiday in August, so I decided to interview all of them right after they came back from holidays and also before my autumn school period starts, so all the Dutch interviews were locked within the first week of September. Thankfully, all of my Dutch interviewees agreed to this arrangement and provided me with the most convenience and welcomed me with the most hospitality.

After recording the first three Finnish interviews with video-camera, the only equipment I had available in hand, and also as the trip to the Netherlands was approaching closer, I felt the urge of getting a real interview-recorder, for it is smaller, lighter and less aggressive to the interviewees. So I bought one professional digital voice recorder with separate microphone. The ten interview recordings, three were video tapes, the rest seven were audio tapes.

4.6 DATA ANALYSIS

Next I describe data analysis method step by step. The expert interview used the guide presented in Table 2 below. The table also shows the connection between the research questions and the interview guide, showing how data was collected.

Table 2: Interview questions used to address the research questions

How do the EE professionals see the role of out-of-school environmental education entities while integrating EE into school curriculum?	
Interview Guide Questions	Corresponding to Subsequent Research Questions
<ul style="list-style-type: none"> • Why it is so important for youngsters to have EE? • What can be learnt or trained through EE? 	1) Why is it so important for children and youngsters to have environmental education?
<ul style="list-style-type: none"> • Is it realistic to depend on in-school EE? • What are the challenges to carry out EE in ordinary schools? 	2) What is the status of in-school environmental education? How realistic is it to integrate environmental education into school subject teaching?
<ul style="list-style-type: none"> • What is the role of out-of-school EE at present and future? • What are the problems in EE? • What changes are needed to make EE more efficient? • What kind of relationship or dynamics are there among children, parents, ordinary schools, out-of-school education, community and the society? • What training and education do we have available for the teachers and trainers in EE? 	3) How important are the out-of-school environmental education entities at present and after the school curriculum change takes place? What are the problems and challenges?

The first research question dealt with research participants' own conceptions and beliefs, while the question addressed their perception and consideration what they believe are important for youngsters to have EE knowledge, skills and values. In a way, it also reflects their own values and why they enter this profession related to EE field

and what keeps them devoting their youth and life time into this career as some of them have been working in this field for thirty years long.

The second research question is how the non-school-teacher experts see the position of schools in carrying out environmental education, the current and the future positions, facing challenges and what are their attitude towards the curricular change with EE integrated into subject learning. Only after knowing the difficulties of schools, we could later see how out-of-school environmental education entities could play a role in assisting, guiding, supporting and/or strengthening the in-school environmental education.

The third question is the core of this entire study. Therefore, from the table above, we could also see that it was corresponded with a series of interview questions to try to explore and cover a wide range of aspects related to the topic. Also in order to guarantee an objective answer, open-ended questions were asked very generally and tried not to imply any of my attitudes or bias or lead the interviewee to believe what kind of answers I expect.

The analysis went through a couple of steps.

First of all, transcribing. I transcribed all the interview data verbatim. The primary language of the interviews was English, but some of the data was in Finnish, so I transcribed it directly in Finnish, and later translated into English. I printed them all in paper and read the data through and made notes on the transcripts whatever came to my mind while reading and marked the lines that I thought could be useful data. The notes could be a possible theme, a reflection, a reminder, or just a feeling at that moment, or just a smiley face mark for agreeing or well-said sentences.

Second of all, coding. The process of coding started with finding themes. While keeping the research question in mind as the general guide for identifying the themes, conceptual background was functioning as another dimension locating and categorizing the themes. After the determination of three themes extracted out of the data, I screened through each interview transcription for the three-theme-related data and categorized them in an excel file and gave each quote a theme-oriented code.

The data analysis was indeed a labor-intensive phase that required patience and persistence to repeatedly read the data, adjust and readjust categories, test and redefine them until they were stable and distinct. In the following chapter, I present the research results I got from this analysis process. I have to say that the boundary or time line between the results phase and analysis phase is quite blurry. Sometimes, while presenting the results, I had to go back to modify the analysis. With theory-oriented content analysis method, I present the most important results brought up by the data and structured by the conceptual background.

5 RESEARCH RESULTS

This chapter presents and discusses the results drawn from the data collected for this study. The primary focus is on the importance of out-of-school EE entities especially in Finland after the 2016 Finnish curricular change. But prior to the main focus, some attention is spared to the necessities for youngsters having EE. Only after that necessity is discussed, the whole research becomes meaningful.

Earlier literatures, theories and concepts on both EE and educational change are taken into good use while analyzing data. Especially those factors affecting educational change implementation is the main storyline while analyzing the importance of out-of-school EE entities.

While citing interviewees' comments, '...' marking represents words I have omitted. Brackets [] refer to author's added either explanatory, translated or completing words in order to make the sentence easier to comprehend. The language in the citations has been modified slightly when it is necessary to make better sense, such as omitting colloquial expressions and repetitive words while thinking, but with a lot of cautions in keeping the original meaning. In the quotations, the ten interviewees have been referred to, as earlier explained under 4.5.3, respectively as FI1, FI2, FI3, FI4, FI5, DI1, DI2, DI3, DI4 and DI5. In order to keep the data anonymous, when city or location names are mentioned in the quotes, they are replaced usually by "here" "city" or "institution" followed by explanation [municipality X, Y... or EE entity X, Y...].

5.1 NECESSITY OF ENVIRONMENTAL EDUCATION FOR YOUNGSTERS

The first question of the interview was designed to find out what the interviewed experts believe that the environmental education can bring to our younger generation. Among all the answers, two big categories can be clearly identified: 1) knowledge and skills and 2) attitudes and behavior. Knowledge includes understanding about the environment, about where our food is coming from. Skills include skills in physical balance, mathematics, finance, using all senses, how to be in the forest, how to be in nature in all seasons, how to collaborate with others, and how to socialize with others. Attitudes reflect a person's values. Attitudes include sensitiveness, appreciation and respect for the nature, seeing the globe as a whole, curiosity, interests, and fearlessness for the nature. Based on the understanding, youngsters can further formulate a certain attitude towards nature and behave accordingly. Behavior includes then impacting, making responsible actions and making environmental-friendly choice in both how to live and what to do.

What the interviewees have brought up varies due to their own background, work scope and expertise, but all of them belong to one of three threads: education ABOUT the environment, educating FROM the environment and to be educated FOR the environment. Category 1) knowledge and skills is ABOUT the environment and

category 2) attitudes and behavior is FOR the environment, “developing an informed concern for the environment (Palmer 1994)”. As for educating FROM the environment, the big context of this entire research is that all out-of-school environmental education is mostly happening outdoors in the natural or semi-natural environment. In other words, the environment is used as a resource both as a medium for inquiry and discovery and as a source of material for realistic activities in language, mathematics, science and craft etc. (ibid.).

5.1.1 KNOWLEDGE AND SKILLS

When the EE experts were prompted to express what knowledge and skills they believe EE can teach and develop in youngsters, prominent terms were that it helps children develop socially and emotionally; interactive skills and skills of working in a group. Only when they know enough of an environment, they then could be comfortable and feel easy and relaxed towards the environment. As one of the Dutch interviewees put:

Children that often go outdoors, go into the forest, or into meadow or whatever, they learn about how it is to be there, they learn to get used to that environment, so if they come there often or more times then it's a convenient space for them, they feel comfortable, so it contributes to their social-emotional wellbeing. And children who don't come there, who just stay indoors or in outdoor space which are without any green, for those children natural environments are really, can be really scary, cause they don't know it, they don't know what do to, how to act there. So that's one thing, [which] I think it's very important for them. Also related to same social-emotional development of children, I think it's important from being outdoors that children act more often without overview of adults because usually there are more bushes or trees or sometimes hills or whatever and they can hide themselves or they can just play somewhere without being seen by educators and there of course will be a lot of interactions, good experiences and bad experiences and when there's no adults controlling you, you have to deal with it by yourself, so you have to survive, more or less. I think it's very important for them. (DI3)

From the quotes above, we can see that children can learn a versatile of skills outdoors. They learn how to be outdoor environment safely, comfortably and independently. And that only can be guaranteed after children have got enough knowledge and skills about the outdoor environment. Very often, the learning and possession of the knowledge and skills are not conscious. It develops in the children like a natural habit, which will benefit the entire life of the children. In addition to this, group-work skill development is also widely recognized to be one of the many positive results of outdoor environmental education, as the same Dutch interviewee stated:

...another thing is natural environment. It challenges children more to work together, by realizing, for instance, huts, constructing huts, or crossing pool together by throwing bricks in it, or mud in it, so it's also challenging children to learn to work together, so that's the social development of children. (DI3)

Two others (FI4, DI5) also mentioned or gave examples about how group-work skills are developed while children work on the same environmental education project. The others, though, didn't directly point out group-work as a skill developed from environmental education, but most of them have worked as an environmental educator themselves and have applied and are applying the method of group-working while carrying out EE.

From the interview data, it's also interesting to see that when giving examples of children's learning, Finnish experts (FI4, FI5) give learning experiences in how to be in forests and Dutch ones (DI1, DI4) in how our food is grown. Here I quote their original words below.

How to be in the forest, [what] to do there, we learn a little bit ... so how to make kiehinen [English "wood shavings"], to help them make fire in the forest and they get used to be there at all seasons, in the mild seasons, but also when it's dark and rainy and when it's winter, so they also get that kind of feeling. A little bit [survival skills]. You can be there anytime. (FI5)

When Finnish EE experts talk about outdoor study, almost all Finns have the assumption by default that the outdoor settings are mostly in the wild. It can be in the forest, by the lakes or crossing a wetland etc. In the Netherlands, the outdoor context and landscape could be quite different, as our Dutch experts describe below:

...especially kids in cities, they sometimes forget that, you know, there is agriculture necessary to eat, it's not just supermarket that provide food. I think part of that is your basic needs are dependent on nature, that's one thing. (DI1)

...there's so much they can learn from EE, starting for example only with ,you know, kids usually don't know where the food is coming from, they don't really respect where their food is coming from, so for me nutrition and food is a large part of it, from what they can take out of EE; it's a big issue nowadays that people throw their food away or throw too much food away and there's not enough food in the world, etc. etc., so if you look at that little part from EE there's so much to learn if you have kids that, you know, that live in the city, don't go outside much and they don't know how much effort it takes to grow an onion, they will later in life buy an onion easily and not think about where the onion is coming from and just spill the thing , you know, and otherwise they might think better about what you're buying or if it's healthy or not or, you know, if it's grown environmentally or another way ... (DI4)

This context difference could be directly linked with two countries' landscape characters and EE development history. For Finns, forest is one part of their life, learning how to be in there is a basic survival skill. For Dutch people, there is hardly any non-man-made nature left.

In addition to those skills and understandings above, some expert (F14, F15, and D15) also gave example on how children get to apply all kinds of other interdisciplinary skills such as information searching, nature science and economy, mathematics, finance, drama, drawing, planning, construction, coordination and communication.

And also we can teach how to find more information, you know, in the nature, you always find something new and you, we hope that you want to know more, and then we can teach where you [could] find more information, from books and internet nowadays. (F14)

So, first time, in most groups that come here they pick up insects, so they see that there's a lot to find, you don't see them if you don't look for them, but this kind of the idea of getting the scientific method you have to find out things and when you find out them, then you get to think about them, what's the connections, who's eating what, and the second time there's foster class then we have the highest theoretical time, 'cause there's the food chains and the nutritional webs, so how they work out, so we have sugar factory and also there's food chain games they play themselves where they are plants and kasvisyöjä - vegetarians and then beasts eating them. So they get little bit idea how this whole system works. (F15)

Dutch experts have been very experienced in designing learning activities by perfectly combining local character such as material available, information related to children's daily life and children's learning capabilities, for example:

I believe that when you want children to learn something, you have to do them on different levels. So you give them something to read, but you also give them, like photographs or paintings, things to look at, you also give them things to touch, to hold or to take apart and put together, also you have to, I always say or call it that you have (to) learn with different senses. So I think to give an example, the dike, if you are here on the dike, and the wind is really blowing, you know, so your hair is going all directions, you are almost blown off the dike. You go down to the beach, not that much wind any more, you build, it's the same message, but on different levels. So, I think one child will always remember be standing outside on the dike with this wind. The other one will remember building, you know, with this sand because it's more hands-oriented. The other one will remember reading the chart. Because we have a chart on the door, you can, you have to buy stuff. If you want to build, you have to buy

stones, you have to buy sand, it's kind of, in the program, you have to, so we also look at how much, how expensive was the dike, how strong it is. So you also have to think about these. How much money do I spend? Some children will think about, remember that. Ok, if I buy that much sand, cost that much, if I buy stones, ok...Yeah, it's funny. Then you will see that the most expensive dikes are not the ones that are the strongest. (D15)

Knowledge and skills can be learnt, can be learnt at any time of our life. What a school or an educator should do is not to instill the knowledge into our students, but inspire them to look for knowledge and have the constant desire of learning. As one Dutch EE expert says:

I think what schools, primary schools (do) is to create curiosity. So they sent kids out, they sent them to waterways with fishing net, they can see what is growing there, or they can go to the field, and see what kind of flowers or what kind of season. (D11)

A person with curiosity will be motivated to learn through his or her entire life. It doesn't matter too much how early or how late a person learns about EE, as long as he or she has the will of learning new things, the education is successful.

5.1.2 ATTITUDES AND BEHAVIOR

Attitudes and behavior are defined as one of the aims and contents of EE by the Council for Environmental Education (1987, c. b. Palmer & Neal 1994) include that 1) to develop an appreciation of the environment and critical awareness of the natural and built environment, 2) to develop an attitude of concern for environmental matters and a wish to improve environmental understanding, 3) to be critical of one's own environmental attitudes and to take steps to change one's own behavior and actions, 4) to have a desire to participate in initiatives to care for or improve the environment, and 5) to wish to participate in environmental decision making and to make opinions known publicly.

The details illustrated above cover a full range of actions. However, in the context of this research, the targeted learners are school children and youngsters, less expectations of actions from youngsters were made by the experts, the 4) and 5) therefore are not shown from the data. Just as experts from both countries considerably and sensibly stated below where children's different age and comprehension capability have been taken into account:

We can also teach how to live in the sustainable way. And that always depends on the age of the children. So you can't put all the bad things around on his or her shoulder. You have to start with this sensible ways and the older the pupil is, then there will be more facts. (F14)

The topics in EE for really small kids are just getting to know nature, feeling independent and exploring. Sometimes, is also combined with arts, drawing, reading, that sort of things. For little older kids, secondary school, it is usually combined with climate change, with energy system, that sort of things, with water. You know ice caps, how does water flow around the world, more technical topics. (D11)

The EE experts have also raised topics respectively responding to 1), 2) and 3) contents categories such as:

1) APPRECIATION OF THE ENVIRONMENT AS A WHOLE

I think the most important is that they know that everything is connected, we need nature to live, we have only this one globe and we must take care of it because we need the nature processes to work for us. If we don't take care of those processes, the whole humanity is gone. So we must know that, sees how the system is going. ... And of course, I think the other thing is important to take care of each other. Humans and culture things that are important to have different kind of people, take care of all in the world. (F11)

Similar views are also shared by our Dutch colleague:

EE or perhaps more broadly, learning for Sustainable Development is very important to be able to see things as a whole, thinks systematically, maybe provide your kids with sort of overview, critical thinking, instead of just using all the topics. In school, everything is topics, little bit of reading, little bit of writing. Environmental Education can be nice bridge between all these things. Because all things are connected, they should know where they are from, what they need are from nature and environment, how their own environment is supporting them actually. (D11)

I think they can learn that they are part of environment and not living above. (D12)

2) AWARENESS, SENSITIVITY, AND RESPONSIBILITY FOR ENVIRONMENTAL MATTERS

Rachel Carson says: "It is not half so important to know as to feel when introducing a young child to the natural world." (Louv 2009) EE experts all believe that children can use their senses so well outdoor and by using their senses, they build up the inner connections with nature and develop a respect for nature, for life, for themselves, as experts from both countries observed below:

...the most important things I have an opinion that are concerning EE, they are to develop environmental sensitivity of the pupils and the students and then to

develop an environmental awareness and to develop responsibility concerning environment, local environment and also global environment. (F12)

This is something [pumping sea water out of the city continuously] we want to let children know that the way we live here in Holland, especially this part of the country, don't take it for granted, because it's not normal really. You know, a lot of work has been done every day to make it possible. And a lot of work has been done, a lot of special, or now kind of known, well-known Dutch men invented all kinds of things to make it possible. Or otherwise, the whole thing [city] was just wet. (D15)

I think that EE can teach respect for life, then respect for your own self, sensibility for the nature, use of all senses... (F14)

3) BETTER CHOICE, BETTER BEHAVIORS AND BETTER IMPACT

Children learn from adults. If we continue our unsustainable consumption pattern as parents and educators, they will definitely learn that way. But if we teach them to live in a more sustainable way from now, they will have more chance to continue a healthier living style, thus maintain a healthier planet. That's what our EE experts strong believe in. They say:

I think that it is important to know things that you yourself can do, every little thing you do has an impact to environment. So you must know those things how you can, how your lifestyle can make better environment, what kind of choices you must make or can make in your life, which are little choices, but which have all together big impact. If everybody takes care of those things, the world would be better place. (F11)

This is why it's very important that kids learn this [EE] because later on they can make healthy choice in their life; they can either make healthy choice in how they live or what they do. (D11)

Nobody can deny the importance of EE for our children and youngsters any more. The problems caused by the lacking of connections to the nature are ubiquitous. In answering to that, I would naively say: "well, if it is so important, why don't we just teach them and add it into the school system?" EE experts looked at me and smiled. It would have been so easy if everybody thinks as the way I would. However, the reality is always a bit more complicated than ideal. In the following section, I present the challenges for schools to integrate EE into their school curriculum. After studying that, I shall have more understanding and be less naïve.

5.2 CHALLENGES OF IN-SCHOOL ENVIRONMENTAL EDUCATION AT PRESENT

In the evaluation of sustainable development by the Finland's National Board of Education, Finnish ordinary schools have named the following challenges and obstacles: 1) Lack of finances and resources, 2) Lack of time, and 3) Attitudes and lack of information and co-operational skills (Loukola et al. 2001). Among many others, these three listed above were the most common ones.

From the data collected for this research, the whole perspectives on the challenge of carrying out environmental education in-school can be classified into five main categories shown in the Table 3 below:

Table 3: Challenges of Carrying out Environmental Education In-School

Challenges	Mentioned by interviewees
Lack of knowledge, skills and education	FI2, FI3, FI4, DI2, DI4, DI5
Lack of time	FI3, FI5, DI1,DI2
Lack of interests and enthusiasm	FI1, DI4
Lack of confidence*	FI4, DI3
Lack of finance	FI4, FI5

*Lack of confidence is expressed as that school teachers are afraid of taking students outside of schools.

As environmental education is part of sustainable development, we could compare a bit what I have found out with the results given by the Finland's National Board of Education. Lack of knowledge, skills and education and lack of time were and still are today the biggest problems for school teachers. If environmental education is not offered while the teachers were trained in college and universities, how can we expect them to train the younger generations? Also if EE is not in the curriculum, as compulsory like mother tongue literature and mathematics, most importantly, it's not tested and graded, it can never be the priority that teachers have time for. It is interesting to see that "lack of finances and resources" was ranked the greatest obstacle when asking school teachers in the evaluation done by the Finland's National Board of Education, but not very much mentioned when asking environmental education experts. There were two experts out of ten in their comments on this question mentioned about the finance as a challenge. Both experts are from Finland.

And then, of course, the lack of resources. Sometimes the teachers think that "we don't get more paid when we do more". So... for some teachers, yes, it [EE] has become [a burden]. (FI4)

Getting the funding has always been really hard in this area, but mostly for everyone in this area. (FI5)

A lack of time as the second most common obstacle remains the same also in this research. It is unfortunate that even in so well developed countries like Finland and the Netherlands, schools are still quite test-score driven, accordingly and very logically as well, teachers spend most of their time to do what is more 'important' within their limited time frame. It is very well put by a Dutch policy-maker:

There are a lot of challenges. Because at the moment, there is lot of pressure on schools to perform to the test. And at the end of primary school, they have test. The tests determine what secondary school you can go to. These tests do not check how good your systematic thinking is, or how critical you are, how well you know about environment. They test reading and writing skills, right? So because of the tests, lot of work in school is directly going into reading, writing sort of things. So there are not many hours to do environmental education. (DI1)

A lack of interests and enthusiasm observed by the EE experts in school teachers in this study is a bit similar to the 'attitudes' as the impediments felt by the school teachers in the evaluation of Finland's National Board of Education. As interests as the inner motivation for students to learn, interests are also the drive for teachers to teach. It becomes a huge problem when EE in one school classroom is totally depending on one single class teacher's interests (In the primary schools of both Finland and the Netherlands, there is only one class teacher, who teaches basically everything for one group). One Finnish EE expert expressed very well below:

Teachers are interested in very different many things, and if they are not interested in EE, that doesn't come to their teaching. So it depends so much of the type of the teacher and how it comes to the teaching and to the lessons. So I think some teachers do very good job in this field. And if everybody would be interested in EE, there would be very much EE in normal schools too. But people are not the same. Everybody isn't interested in that. So I think for example, in lower classes, where there is only one teacher, it's very bad if the teacher isn't so interested in EE, the whole class doesn't get that EE. In upper classes, maybe there are some teachers, who are very enthusiastic, so they get from different lessons these things, but lower classes are the problem, because the whole class doesn't get enough EE if the teacher isn't so interested. (FI1)

A lack of knowledge, skills and education is mentioned the most by the EE experts. I give one example respectively from the Finnish and Dutch experts.

And one thing is also that they might think that they don't know enough when they go out from the school class. They go out, then there are so many questions, the pupils have. If the teacher has the feeling that she can't answer that, she doesn't want to have that feeling. Even though we try to teach that

knowing is not the most important thing, you can always later find knowledge and information. But it's the experience in the nature is the most important thing. (F14)

For normal schools, I think a lot of teachers think it is very complicated. I think a lot of them think it is kind of technical. That's why it is complicated. But I think they are wrong because a lot of things can be explained, or can be shown very easily and very simply. You just have to know what kind of tools you can use or what kind of experiments to make kind of visible or let them discover, to find out. (D15)

And the last challenge is lack of confidence. It can be, in fact, also one result of lack of knowledge, skills and information. However, this confidence lacking, very often is due to inexperience and fear of danger that might happen to children.

I think the biggest challenge is to take the classes out of the school. Some teachers are afraid of taking class out of the school. They don't know how to handle the group. If they are not used to it, they can be afraid of it. (F14)

For this, one of our Dutch EE experts, who works especially with pre-school kids and pedagogues has a lot to say. He gives in details what the school teachers, or rather pedagogues are afraid of. For the convenience of us to grab his main points, to understand a different context from the Finnish one, I categorize his comments into four points and give a short title for each point:

1) *Inconvenient Weather*

The most important challenge is to convince the pedagogues working with those children to go, just to go outdoors regardless the weather. Because often pedagogues in Netherlands they see a lot of problems with going outdoors and the weather is just one of them, because it's too hot, too sunny, too cold, too windy, too wet, everything, only a few days are convenient.

2) *Losing Time in Dressing Children*

And another thing is especially those working with the youngest ones, so below four years or below two years, they see as a lot of time before all children are outdoors, especially when you have to dress them all in warm suits, or raincoats and they look at the time as if it's not worthy, as if the time is just lost. And we try to convince them, when you're working with a group of children, just helping them to put on their rain coats it's really worthy time, it's important time to do action with them and you can also organize or there will be spontaneous interactions between the children, but that's different way of thinking. So we try to help them to realize it's important time and not lost time.

3) *Danger Out There*

And another problem - they see or they feel is all the dangers children have to deal with when they go outside of the building and they see usually playground which is without trees, without grass, without hills, without water, is the best one because there's no danger. But we try to convince them that those are in fact the most dangerous playgrounds because children don't learn anything about real outdoor environment. So we help them to find a way to feel comfortable in an environment where there are some hills, some stones, or some trees, which they could climb and some water, deep water, some plants and herbs that they might put in their mouth.

4) *Worrying Parents*

So the problem is the weather, the risks, they have no time and another big problem they mentioned, pedagogues mentioned, are the parents. And because of parents see all the dangers, parents also see children getting dirty, which is also a big problem for some parents, not for all of them of course. But pedagogues use the parents to hide themselves behind - they create a wall, the wall of the parents, parents tell them: "Don't go outside" or "Please be careful, my child may not be dirty at all because of the clothing". A lot of pedagogues themselves feel uncomfortable with it, so that's also a big issue. (D13)

Dutch EE expert's comments are on one hand understandable due to it nearly represents the situation of majority countries in this world, on the other hand, it is surprising to me due to its contrast to the Finnish situation, which I have got familiar with and used to. It is surprising to most of Finns and Finnish parents, because in Finland we believe in 'there is no bad weather'. No matter rainy or cold weather out there, no matter the age of the kid (in Finland, children can go to kindergarten already at 9-month-old), Finnish pedagogues will try to take all children out to play on a daily base. However, this is due to this 'no bad weather' concept in Finland is commonly shared, including parents. In addition to that, the well-equipped facility of kindergarten and schools are also an important guarantee. In Finland, every kindergarten is equipped with drying machine regardless of its size and location. But it is not the same case in the Netherlands, as the Dutch EE expert put:

...buying or investing in a drying machine now is rather impossible because [at this time] while you have to close a location or you have to send pedagogues home because there's no work, it's really difficult to say at the same time: "We just buy a new drying machine". (D13)

5.3 IMPORTANCE OF OUT-OF-SCHOOL ENVIRONMENTAL EDUCATION ENTITIES

This chapter will present the primary findings of the entire research, how important out-of-school environmental education entities play after the national curricular change. Although the research context is in Finland, the principles enunciated which led out-of-school environmental education entities to be recognized as an important and supportive role, are applicable to any countries that will be experiencing similar curricular change.

As elaborated earlier in the theory of educational change, complexity theory, there are so many organizations and elements involved and impacting the implementation of a new curriculum. As Fullan (2001) claimed *“A large part of the problem of educational change may be less a question of dogmatic resistance and bad intentions (although there are certainly some of both) and more a questions of the difficulties related to planning and coordinating a multilevel social process involving thousands of people (p. 69)”*. We in this study identify those factors, which actually influence the implementation to a certain extent. Fullan has given a good explanation on what the extent is: *“the extent to which teachers and students change their practices, beliefs, use of new materials, and corresponding learning outcomes (ibid., p. 71).”* Among all the factors, the more supporting the implementation, the more successful the change will be. Otherwise, less effective. Furthermore, we have to realize that all these factors are not isolated from each other, *“they form a system of variables that interact to determine success or failure (ibid.)”*, and educational change is a process of dynamic and interactive, not static.

The following pages will be analyzing collected data concerning the importance of out-of-school EE in three parts: 1) importance in assisting factors related to characteristics of the change, such as need, clarity, complexity and quality and practicality; 2) importance in assisting local factors, such as district, community, principals and teachers; and 3) importance in assisting external factors such as government and other agents or agencies.

5.3.1 IMPORTANCE IN FACTORS RELATED TO CHARACTERISTICS OF THE CHANGE

The characteristics of a change, according to Fullan as described earlier at 3.3.1, include need, clarity, complexity and quality and practicality. In this section, I shall present these four characteristics one by one and find out how they are reflected in the change of integrating EE into school curriculum and how out-of school EE entities can assist in tackling the characteristic related challenges and difficulties.

5.3.1.1 NEED

As earlier described, the need of a change can be difficult to identify. This is very true in the coming new Finnish curriculum implementation with the integration of environmental education. School teachers are overloaded with all kinds of tasks and

agendas; they can hardly prioritize environmental education especially when they have neither knowledge and skills nor abundant time and finance resource.

Secondly, accurate needs are often blurry at the beginning with any change, even less clear with national curriculum change, which is complex enough at its own. People can only get a clearer picture of the need of change when the change is already happening.

Thirdly, need is not isolated, it interacts with the other eight factors. In the other word, any of the other eight factors can influence need; either makes it more obvious or more hidden.

How important role of out-of-school environmental education institutions can play in helping all involved actors to realize the need of integrating the environmental education into the curriculum?

At this moment, environmental education in many countries is like an added burden, one thing extra, and the last chapter of the teaching, which can be neglected and dropped easily if for any reason the teacher could not reach that far. But once it is integrated into normal subject teaching, it is not isolated any more, it is like mixed water and flour into dough; teachers could not simply leave the environmental education part out.

By now, in country like Britain, “environmental education is an officially recognized and documented cross-curricular theme of the National Curriculum for schools. It is one of the five themes to be documented, alongside health education, education for citizenship, careers education and guidance, and economic and industrial understanding. Themes are regarded not as an appendage to be ‘tacked on’ to the core and foundation subjects, but as a central element of the curriculum as a whole, having progression and continuity like all subjects areas. (Palmer 1994)”

In Australia, the Department of the Environment and Heritage published the second national statement on environmental education in 2005 (Gough 2011). This suggested a ‘*whole school approach*’, which sees successful implementation of environmental education requires action across the whole school: “*whole school approaches are advocated as best supporting the implementation of Environmental Education in a way that reflects the goals, aims, and purposes of this area... Whole school approaches also appear to be most successful when they build on the existing culture, priorities, and values of schools and their communities*” (Gough 2011 c. f. Bolstad et al. 2004 p. 95).

In Finland and the Netherlands out-of-school environmental education has developed thirty to forty years, which are not too long, but quite intensive. The big amount of nature schools and environmental schools in Finland and environmental centers in the Netherlands is a living proof. In addition to that, we could see also more and more people are making efforts to systemize and integrate out-of-school environmental

education such as the LYKE-network of Finland and the GroenGelinkt of the Netherlands. With a systemized system, more research works have been carried out in studying out-of-school environmental education in latest years, such as “*Environmental Education in Finland – A Case Study of Environmental Education in Nature Schools* (Jeronen et al. 2009)”, and Nature and Environmental School – Professional and Versatile Services (Luonto- ja ympäristökoulut – asiantuntevaa ja monipuolista palvelua) (Mykrä 2011) ”.

With rather abundant and matured experiences and research studies, it is not too hard for out-of-school environmental education to show the need of environmental education to their close working partners and colleagues – schools, school principals and school teachers and give them some guidance as a forerunner.

In addition to the versatile benefits for normal students, outdoor EE has been also widely studied for its great benefits for the students with special needs. In Finland, a great number of students need special education, for example, 12.7 percent of comprehensive school pupils in autumn 2012 received special support and from 2011 onwards, the support received by comprehensive school pupils became tripartite (Statistics Finland 2013). With such a great increasing percentage in need of special education, it’s definitely worthwhile to take a close look at it.

There have been arguments for integrating outdoor education into the special education (Wilson 1994). Wilson based on the previous studies on both outdoor and special education and draw four arguments for support his stands on the integration of the two education.

Wilson firstly compared the goals and objectives of both special education and outdoor education. Goals and objectives of special education are prioritizing the needs of the whole child over academic skills (ibid.). A student’s Individualized Education Plan (IEP) usually includes social, emotional, self-help and independence (ibid.). Outdoor education espouses a holistic approach to learning (Wilson 1994 c. f. Bunting 1989) and focuses on the proper balance among all domains of learning (Wilson 1994 c. f. Knapp 1989). As both education have a holistic orientation and impact studies prove its efficiency in contributing to the development of the whole child (Wilson 1994 c. f. Crompton & Sellar 1981). Therefore, the similarity of goals and objectives serves as the first support of integrating these two different disciplines.

Secondly, many students with special education needs feel the traditional school and classroom setting a less-than-positive place to be. Students with these negative feelings accordingly easily develop negative attitudes toward schools and are at greater risk than other students for dropping out before completing high school (Wilson 1994 c. f. Bender 1985 and Margalit & Zak 1984). In the contrary, outdoor education experiences foster positive attitudes toward school and school personnel

(Wilson 1994 c. f. Shaw 1975). Outdoor education experiences have also had a positive impact on improving school attendance, as Wilson found evidences from various resources like Crompton & Sellar 1981, Hammerman & Hammerman 1973 and Wasylyshyn 1988.

Thirdly, Wilson believes that the potential of the outdoor setting for providing meaningful learning experiences in any area of study – thus being appropriate for the individualized learning needs of the special education student. So outdoor education setting is almost unlimited in both providing learning experiences and being suitable for all age and ability levels, just as the Council on Outdoor Education stated (1989 p. 31 c. b. Wilson 1994):

Anything may be taught – mathematics, biology, geology, communication, history, political sciences, art, physical skills, or endurance.... Soil, water, animals, and plants make up the basic areas of study, but students may learn and practice the outdoor activities people pursue during leisure time.

Fourthly, which is a very strong justification for all, is the importance of environmental education for all students. Very often, educators, teachers, principals, policy makers are paying too much attention to ‘cover the basics’, all the five Dutch EE experts mentioned that Dutch schools focus too much on reading, writing and mathematics. However, a person’s sound growth requires much more than those ‘basics’ and excellence in those ‘basic subjects’ can be very far from growing a child successfully. As Wilson 1994 cited from Burrus-Bammel & Bammel 1990, Henderson 1990 and Iozzi 1989, “for the child, a number of personal growth and development areas warrant attention in any school curriculum; for the sake of the world in which we live, there is also the area of environmental education, which we cannot afford to neglect”.

One of our EE experts came across this topic in the interview and I also happened to notice this particular aspect of EE myself. In both Finland and the Netherlands, it is the school teachers who take their students to nature school or environmental centers to receive EE, and they stay by the side of the students and observe the students, as some of our experts say:

And what we see here in Nature School, when the classes are here, our teacher, you know , she can notice that those children who have, e.g. difficulties in learning inside, they are quite different outside. So if our teachers notice it, I am sure the teacher of the class notices it too. So I think we can give very good help for in-school EE. (FI4)

While I was following the Finnish 7th-grader group on their nature school day, I noticed that there was a student, who appears to be a bit like introvert and slower in general learning. While the nature school teacher gave tasks of writing, counting, presenting or performing, he just kept drawing. He drew all kinds of animals and landscapes with his

imagination and they were absolutely beautiful. I could imagine in a classroom setting that he would be so uncomfortable and awkward if it's some subjects that he is not good at. But in that outdoor setting, he was so relaxed and genuinely happy.

The same EE expert continued:

So when they [school teachers] come [to nature school]... I am sure the teachers also discuss together [after going back to their own schools]. (F14)

It is one part of Finnish teaching culture that teachers communicate among themselves both formally through meetings and informally at coffee table. This has been identified by Pasi Sahlberg (2011) and I have also heard quite much during my latest working years (2011-2013). The same strategy can be applied in EE. Those school teachers who have been in Nature Schools can go back to their own schools and share their positive feelings and experiences with their colleagues and inspire them.

5.3.1.2 CLARITY

The goals and ways to achieve the goals of a change might be very clearly defined once a new change is launched. However, it is very often that once the changes come to be realized, people get actually lost in what they should do and where they should go.

In current society, awareness of environmental issues among teachers might not be a big problem anymore. The more educated people are more informed about current events and social developments such as basic facts related to the environment (Kingston et al. 2003). It is well-known by the world through the outstanding performance in PISA (Program for International Student Assessment) that Finnish teachers are highly and well educated (Sahlberg 2011). Therefore, what the Finnish school teachers lack are not limited on the level of knowing the importance and need of environmental education, but a higher level: clear goals and detailed methods to reach the goals.

Out-of-school EE entities have developed along the latest dozens of year rather clear goals as well as methods. When the EE experts were asked about the role and importance of out-of-school EE in future, they say:

I would like that every teacher at school thinks if they don't have knowledge themselves, they know where to ask. That's my idea. And if everybody has the knowledge and resources for Environmental Education, you don't need Nature Schools, this kind of system. But it's very far in the future, the ideal. I think now we need this system, this LYKE-network, this system to get teachers to that level. (F11)

This was my first interview and I was very surprised to hear such comments. I didn't know that the goal of Nature Schools was primarily on training school teachers, not

only the students. The more surprising thing to me was the expert's vision on the future of Nature Schools. As a person who is basically living on the existence of out-of-school EE entities, what she showed and told was so neutral and objective. The first interviewee's comments resonated also later by more EE experts.

When we have, for example, courses for teachers, and then we take feedback. They are very happy. They say that they get ways of how to do environmental education at school. So we think we do important work. (F14)

I think it [out-of-school EE] is quite important because here you can see how the work out of school with the kids [is done], so you get kind of ideas and you also get support how to do it, if you're not very confident or you don't have skills, so I think it gives you much more opportunities and I think most teachers that come here so they kind of, they have some aspects they have learned here [to reflect] on their own teaching methods, so I think this gives quite a good value. (F15)

The similar idea and concept are also shared on the Dutch side:

Most of environmental programs have sort of "train the trainer" module in it. So they do give the teachers ideas what the teachers should do. Usually they prefer letting school teacher does, in a few years, or maybe with some practices does the project himself. (D11)

Clarification of the goal could be the most important preparatory task before starting any actions. Chinese have a saying that "Grinding a chopper will not hold up (delay) the work of cutting firewood", which means "more preparation may quicken the speed in doing work". This saying can be also applied in this case.

5.3.1.3 COMPLEXITY

For how out-of-school EE entities can help tackle the challenge of complexity, one of our Dutch experts describes it very vividly:

They [Dutch out-of-school environmental education entities] have sometimes three-year program. The first year, not the teacher, but the environmental expert or professional gives the lesson. The second year, they do it together with the teacher. The third year, the teacher should do it alone. So there are some programs that really emphasize on teaching the teachers also. Sometimes it is very big success because sometimes teachers are shy because they think: "yeah, I don't know all the names of the plants" if they do it once together with the professional, they think "Oh, I can do this myself", so the next year, they can do themselves. (D11)

As a learner ourselves, we must have experienced that we feel fear and uncertainty while facing a potential complex change, it could be small as choosing a new course, big as transferring to a new school, moving to a new city, but when there is someone, some friend, relative or acquaintance who has taken that course, who is from that new school or new city come to tell you, how is the new course, how is the new school or new city, to a great extent, we feel relieved and more relaxed after hearing those people who have had experiences on what you are about to experience.

Being a parent myself, I have also observed how my children learn or get to know a new skill, new game or a new environment. I demonstrate it myself first and try to divide the skill, game or environment into smaller learning steps or sections and explain step by step or from section to section, then take the hands of my children and do or experience it together with them and in the end they themselves realize the fun and good feeling while going through the new experience, and want to try on their own.

Learning process might differ from person to person, from culture to culture. But for any complicated matter, it is always natural and easier to simplify it by dividing it into smaller parts and conquering from part to part. For the implementation of new curriculum with a focus on integrating environmental education in current subjects, it is definitely helpful if out-of-school environmental education practitioners can break the complexity of it and show to the school teachers how to proceed.

5.3.1.4 QUALITY AND PRACTICALITY

As Fullan (2001, c. f. Fullan 2000a) re-concluded after a careful examination, there are three aspects that prove curriculum materials are significant in ensuring the successful implementation of a large-scale educational change and the quality of the change.

First of all, high quality teaching and training materials (print, video, electronic) supplement people's capacity. Secondly, high quality materials production and highly interactive infrastructure of pressure and support can avoid the superficiality of implementation. Thirdly, materials do not have to be treated a prescriptive, many judgments can and should be made during implementation as long as they are based on evidence linking teacher practices with student performance.

The Finnish curricular change will result a big amount of new teaching and training materials production in various formats for certain. In terms of the integration of environmental education into subjects teaching, there will be a lot of high quality material from the out-of-school environmental education entities either ready for direct use or for reference in designing new materials.

In order to evaluate the quality and practicality of learning material, we take a three-step method for performing a holistic evaluation (Bundsgaard & Hansen 2011):

- 1) *The potential learning potential, that is, the affordances and challenges of the learning material, and the competences supposedly supported when working with the material;*
- 2) *The actualized learning potential, that is, the potential for learning when the design for learning is enacted by integrating the learning material in a situation in a given context; and,*
- 3) *The actual learning, that is, how the participants actually develop their competences through working with the learning material or enacting a design for learning.*

Bundsgaard and Hansen (2011) believes that “no single evaluation of learning materials can comprise all aspects of this complex framework, but it can be used as a *heuristic* to evaluate and discuss the shortcomings and benefits of evaluations of learning materials and as a *tool for planning* an evaluation of a learning material” (emphasis in italic in the original text). They also claimed that the triple division can be understood as a temporal structure: before, in and after use.

So far, the already existing abundant teaching materials and rather mature environmental education pedagogy in both Finland and the Netherlands, of course also in many other countries, have already gone through the three phases: before, in and after use. In a way, they have been tested, updated and improved for many times.

All the learning materials can be also defined and categorized into three types according to Bundsgaard and Hansen (2011):

- 1) *Functional learning materials (tools) characterized by their facilitation of learning and teaching: including black and white boards, computer applications, projectors, and mobile phones.*
- 2) *Semantic learning materials (texts) characterized by their meaning as constituted by signs and semantic references: including film, literature, charts, pictures, paintings and other texts and objects with references to specific domains of experience.*
- 3) *“Didacticized” learning materials characterized by combining tools and texts and facilitating learning and teaching: including textbooks, online teaching materials, and educational games.*

There are no doubts in learning material provision from the out-of-school environmental education entities in terms of their quality and availability. But there are two problems existing mentioned also by the EE experts from both countries:

PROBLEM 1) NO EVALUATION ON ENVIRONMENTAL EDUCATION EFFECIENCY

During my interviews with ten EE experts, I usually ask them what are the criteria when they say they have been successful in environmental education, what they are using to measure, to evaluate and has there been any impact study yet, the answer is negative.

Some say: "I think it is very hard to really evaluate what the impact is. (F11)". Some say:

Jin: How efficient do you think out-of-school EE is in Finland? How successful or how can we evaluate? Do you think the students have changed their attitude, habit?

F14: There are no evaluations.

Jin: Not yet?

F14: Not yet. We can't say. We only know what we see happening. We only know what teacher gives feedback. What then later happens, we only hope that something happens.

As the studying result and learning efficiency of schools have been always a mainstream research topic, after the integration of EE into the curriculum, we expect this problem could be solved in near future. In this sense, to assist the implementation of the curricular change will be a win-win for both in-school and out-of-school EE entities.

The main reason for out-of-school EE entities in Finland and the Netherlands have not carried out any learning efficiency study is because their lack of funding and human resources. Most of them have been struggling for their stable status and all possible resources and energy have gone to the development of pedagogical material and teaching, this has left them with no research human resource nor capital resource.

As the basic goal of any environmental education consists of three aspects: knowledge to be learnt; skills to be acquired and values and attitudes to be cultivated and nurtured (Kwan, Chan 2004). As knowledge and skills could be learnt and taught in a short time, "values and attitudes education demands a long time to have the effects penetrate to form habitual behavior amongst students (ibid.)". So the integration of EE into school system can not only stimulate further research on the learning impact in a systematic fashion, but also can guarantee more likely to foster the values and attitudes of students towards the environment in contrast to the short visit to out-of-school EE entities.

PROBLEM 2)

DIFFICULT IN FINDING THE RIGHT MATERIAL

Certainly, we should hurrah for the abundance of environmental education material. Eight (FI1, FI3, FI4, FI5, DI1, DI2, DI3 and DI4) out of ten EE experts have mentioned the abundance of EE material. Here I just quote one of them below:

What we try here is to make it as easy as possible. So we provide materials, so they [school teachers] can start right away. They don't have to develop or search for things.... So the school teachers do not have to be expert in anything, they want to have easy access on materials, I guess. And lot of materials are available, we have also tool-kit.... (DI1)

However, at this moment, I think, so the EE experts think that we have too much repeated material production and even with the help of material bank, which are available in both countries, people usually get lost in the jungle of it, as one expert put:

But right now there is only a material bank, that everybody can put their material in, which is really helpful...but sometimes it's hard to find material that's really good and that really helps us, helps the teachers to find what's going on environmentally around their own area. (DI4)

The material bank of Finland is still in the process of construction at this moment, it will be operated in rather similar fashion as the Dutch one, hope they can take this problem into account and try to make it a bit easier to find while building up it.

5.3.2 IMPORTANCE IN ASSISTING LOCAL FACTORS

According to Fullan, there are four factors under local factors category: 1) the school district, 2) (school) board and community characteristics, 3) the principal and 4) the role of teachers. However, as earlier at 3.3.2 I explained, Fullan's research was within the northern American environment, which is not quite the same as the Finnish and Dutch context. Therefore, when the interview for this study was carried out, school board was not taken into consideration when designing and asking questions. Instead of using terms of school district and community, I used community and the society, the original question was asked as "what kind of relationship or dynamics are there among children, parents, ordinary schools, out-of-school education, *community and the society*?" By asking this rather open-ended way, I intended to reveal what the interviewee expert considers to be the most important factor, in the other word, what pops out of their mind instantly when it is asked generally. In both Finland and the Netherlands, both schools and out-of-school EE entities have been administrated under the municipality. Therefore, I would replace here the first two local factors with one called municipality, which represents *the community and the society*.

5.3.2.1 MUNICIPALITY

As the direct administrator, very often also funder, of both schools and out-of-school environmental education entities, municipality can definitely develop either incapacity or capacity for a change. During the data collection, I could clearly see that the thriving out-of-school environmental education entities with satisfied staff are most grateful to the municipality to which they belong. The ones that do not get much firm support from their municipality were helpless and struggling constantly for their survival.

From the municipality, which is very supportive in EE, the environmental programs are abundant and the coverage is wide, like one expert told:

In here [municipality X], in kindergartens, the governor, varhaiskasvatusjohto [early education leader] has decided that every kindergarten has to have a sustainable development program, either green flag, or this keke-päiväkotissa [sustainable development in kindergartens]. They have decided. This spring [2013], they made an evaluation in kindergartens; in 75% [of the kindergartens] the sustainable development is in their kindergarten. They [municipality governors] think that if in kindergartens, they [kindergarten headmasters and pedagogues] would understand that this osallisvuus (participation) is also sustainable development, the percentage would be 100. And in X, this autumn [2013], suomenkielisen opetus yksikkö [Finnish language teaching department] has said that every school has to have in their lukuvuosi suunnitelma (school year plan) sustainable development. So there are decisions, which have been made. But of course it is not the law, who says so, but in X, we have decided that we have to do these things and it is important. Little by little, it goes further. (FI4)

In contrast to the activeness of the municipality above, some other municipalities are quite reluctant, as the expert from one reluctant municipality told:

In Finland there has been a few nature schools, which have been established by the EU support from some programs and they usually died after the 3 or 4 years. Because there are the local official thought that: "We don't need this kind of [nature schools], this is just waste of money" or: "It's something good, but it's not our business to pay for it". (FI5)

The situation and status of the nature schools in those unsupportive municipalities are not optimistic. These nature schools could not have a long-term development plan because of no long-term funding. Every time, they get hardly funding for one-year or two-year period. And what they could do is to try to manage from year to year and try to survive. Environmental education experts working in such nature schools can only hope that the school will still exist in the following year.

Similar situation also happens in the Netherlands. The municipalities that are committed into environmental education or sustainable development are not only

generous in funding out-of-school environmental education entities, but also have their own municipal staff actively offering the education or education related material. An official from a Dutch city's environmental department told me that:

We have educational material or courses that schools can kind of rent from us... in here [municipality Y], we have 26 schools and 24 schools take our products into the classroom to teach something about it or come and do a class at the petting zoo or almost all the schools do gardening. It's pretty basically like 100% of all the schools are involved. (DI4)

Municipality like this can be or should be used as a model to disseminate to a wider range. If every municipality can encourage their schools carry out environmental education with such efficiency, the goal of reaching 100% of the whole country's schools will not be too far.

5.3.2.2 THE PRINCIPALS

Principal's actions serve to legitimate whether a change is to be taken seriously (and not all changes are) and to support teachers both psychologically and with resources. Berman, McLaughlin, and associates (1979, c. b. Fullan 2001, p. 128) note that *one of the best indicators of active involvement is whether the principal attends workshop training sessions*. If we recall the earlier dimensions of change (beliefs, teaching behavior, curriculum materials), we might speculate that *unless the principal gains some understanding of these dimensions (not necessarily as an expert or an instructional leader) he or she will not be able to understand teachers' concerns – that is, will not be able to provide support for implementation* (Fullan 2001, p. 83). Such understanding requires interaction, as our expert also observed:

I think this [sustainable schools] should be, it has to be written in curriculum and perhaps the headmaster is very important, so he or she decides and influences much how the school is oriented. (FI3)

What the Finnish EE expert said about school headmaster's influences is very true in Finnish contexts. During my latest working years (2011-2013), one part of my working tasks was guiding the foreign School Principals, teachers and educational officials, who came to Finland to learn the Finnish school experiences because of the Finnish success in PISA (Program for International Students Assessment), to local Finnish schools and interpreting for them. I have noticed that the school principals' personal interests have a huge impact on the school's specialization. For example, if the Principal is good in music, painting or sport, then most likely the school is specialized in music, painting or sport and have accordingly a lot more courses in the respective field. Therefore, it is not too difficult to make an inference that a school principal would prioritize environmental education in his or her school if he or she has a special interest on it. This inference works at least in the Finnish context. For example, principal of

Hönttämäki School, Finland, Mr. Seppo Saloranta, who is doing his PhD in the University of Helsinki on the topic of Environmental Education, is also the principal of Timosenkosken Nature School, Oulu Municipality (Saloranta 2012).

However, principals have quite many stresses. And in Warwickshire of England, for example, a district with 250 schools, 40% principals and deputy principals had visited the doctor with stress-related problems in the past year (Fullan 2007). Principals are facing quite tough challenges when they are asked to cut budget, which is very common nowadays. They struggle very often on what to cut. We have got so used to prioritize those things we consider to be the upmost important for our children. One EE expert in the Netherlands told me a story of a Dutch principal, who had to let two teachers go, one is music teacher, the other is art teacher due to insufficient budget.

He [the Principal] said: "I had to let them go, because they don't teach children how to read, write or count, which of course they do, but in a different way. That's a problem, because I don't have the means to show to the government that they do contribute to what children learn. I had to let them go. I am afraid, next year, you don't notice, next year after, you don't notice, but in about eight years, when you have the new children come and the ready ones go to secondary school, then you notice that they miss something in their education." So that takes time. And he said that in about five or eight years, you would say: "Oh, my god, that's terrible, what has happened, what we do?" What do we do then? So he said: "I am so afraid this happens, more and more these 'extra things' [music, art] will just be cut away. It takes time before we really find out what the damage is, when the damage is done, then you have to start all over again. Because you lost all the teachers, they got another profession or," So that maybe depress, that talk. And I think he is right. (D15)

Dutch primary school lasts eight years; children enter at four-year-old and graduate at twelve-year-old. So the Dutch Principal's concern is that within an eight-year-cycle of primary school or even shorter period, we shall have to pay a lot more price in near future for what we had lost due to short-sighted decisions today.

There have been quite many failure stories in our educational history due to short-sighted education system. For example, many educators believe that the current test-driven education has weighed down the China's education system for centuries (Bevis 2014). Prioritizing testing subjects over the so called un-useful subjects like art and music are quite common around the world, country like Finland that doesn't judge students or teachers based on tests is actually not common, we could say Finland is quite unique in that sense. But many principals seem very helpless on this issue, like the Dutch one above.

5.3.2.4 THE TEACHERS

Low morale, depressed, feeling unfairly blamed for the ills of society? You must be a teacher.

---Times Educational Supplement (1997, c. b. Fullan 2001, p. 115)

The quote above does not reflect that much of Finnish teachers, but very much of Dutch teachers. A Dutch policy maker described the status of Dutch teachers:

It's a profession that is valued, but not so much, it should be more, should be like old days, you know, doctors and teachers. Now it's different. It's different if you say: ah, I am a surgeon, or if you say: ah, I am a teacher. It's different. You know, maybe it's not in Finland, but in Holland, it is. Oh, you are a teacher, are you sure?

What should help is that the teachers get more recognition on what they do. Because now they get a lot of complaints from parents: they are not doing enough, they should do this, and they should do that. There is not enough room for (their) own initiatives because whatever you do is never enough. Because if you do a lot of environmental education, then you don't do enough music or sports. What should be done better is to sort of give the teacher more recognition, maybe more power, appreciation for what they do, let them make their own decisions. (D11)

In contrast, the Finnish teachers enjoy a very high status and respect from the society. The Director General of CIMO (Centre for International Mobility and Cooperation) at the Finnish Ministry of Education and Culture, Doctor Pasi Sahlberg has done a comprehensive study on what makes teaching a top job in Finland, he gives a series of reasons, the first one as well as the most important one, which makes their peers from other countries envious mostly is that Finnish schools allow teachers fulfill their moral missions. They can practice at work what they have been educated to do: to plan, teach, diagnose, execute and evaluate. And they experience professional autonomy, prestige, respect and trust in their work. (Sahlberg 2011)

It is not exaggerating to say that educational change relies on what teachers do and think – it is as simple and as complex as that. Fullan (2001) says: *“it would all be so easy if we could legislate changes in thinking (p. 115).”* He also believed that classrooms and schools become effective when 1) quality people are recruited to teaching, and 2) the workplace is organized to energize teachers and reward accomplishments. Therefore, if we want an effective environmental education on top of all the other education subjects in the classrooms and schools, the Dutch teachers have a lot to do in catching up with their Finnish counterparts.

However, though Finnish school teachers enjoy a high status and freedom of teaching in own way; *it is the actions of the individual that count* (Fullan 2001), they can't do it alone. *Since interaction with others influences what one does, relationships with other teachers is a critical variable. Change involves learning to do something new, and interaction is the primary basis for social learning (ibid.).* It is a big plus when out-of-school environmental education experts and professionals can come to schools to help teachers, however, we also need to remind our EE experts that their attitudes and considerations are also significant. As two Dutch experts emphasized:

Let's say environmental centers, the professionals work there, they have to listen better to the teachers because our environmental professionals don't usually ask questions. They usually tell that I have this, I have that, I have four tool-kits, and you should do this and that. You know, they never ask questions: what do you need in the class? They always have all sorts of things ready. So that would really help if we can somehow steal and run, let the teacher to be the most important person. (DI1)

It is very precious to have the Dutch policy-maker understanding the teachers so well and giving the teachers the most freedom. Some environmental expert has also such awareness and knows where is the line between out-of-school EE entities and schools:

Because teachers in school, they always, they are busy, they get more and more restrictions about what they can and can't do. So I think we have to keep in touch with them. So we make sure what we do fits their needs. At the same time, keep making sure that we don't cross the line. Cross the line for me is that my institution [EE entity X] doesn't try to be school because we are not school. We are something completely different. So what you do here should be something you can't do at school. It has to, like I said, it has to fit, it has to be supplementary to what they do. (DI5)

In the city of this commenting EE expert above, the city is very supportive and EE is also very efficient and successful, and the relationship between EE experts and school teachers are very close, yet within their own boundaries.

5.3.3 IMPORTANCE IN ASSISTING EXTERNAL FACTORS

Government and other agencies are also crucial in the implementation process of an educational change. In this study, other agencies are identified rather as agents instead. In both countries, parents have been mentioned quite often and in the Netherlands, school inspector, a profession not existing in Finland, has been mentioned by the Dutch EE experts also as an important agent. In Finland, it is rather a network of various actors instead of single one that influences a school's performance of a change.

5.3.3.1 GOVERNMENT

Government also lives in a world of “adoption”, not implementation – the timeline for implementation is always longer than the next election. Related to this is that it is easier to adopt structural changes rather than it is to engage in the hard work of cultural changes in relationships, capacity, and motivation. (Fullan 2001, p. 221)

Hargreaves and Fullan (Fullan 2001, pp. 232-234, c. f. Hargreaves & Fullan, 1998, pp. 121-123) in *What’s Worth Fighting For Out There* have offered five guidelines for governments: 1) Investing in the long term, 2) Go beyond left and right, 3) Use data for improvement, not embarrassment, 4) put capacity-building before compliance and 5) deal with the demographics. Among these five guidelines, the first two are quite relevant to this study.

Early childhood education is one of the best investments there is, but its benefits can be seen only after a long time while the governments who introduce it have gone out of office. So if we want EE or sustainable education, governments must put educational investment beyond their own needs for political survival, invest for the long-term benefit and disregard the party differences. *By showing such integrity they may paradoxically gain greater political support (ibid.).*

Among all of our EE experts, in addition to their almost ubiquitous opinion on that governments should integrate EE into school curriculum in order to reinforce EE, one also mentioned that the government should step in more in reinforcing the environmental laws and regulations, as the quotes below:

I think that it would help a lot if the government would step in more, even with rules about what you’re allowed to do and what you’re not allowed to do. I think they could be a little bit stricter. (DI4)

This expert also gave examples on where the government could be stricter and where could subsidize more:

When you think about how much money goes to waste, trying to take care of trash, just in the streets. How much government pays for that or the city government pays for that and no one really gets fined for throwing your stuff out... Or the solar energy, like it would help a lot if that would be more subsidized for a longer period, like three months in a row. When everybody who kind of wants to do it, it’s already too late, when they start doing it... So in the whole dynamics, I think there’s a lot of work to do for the government. (DI4)

As Fullan said, government is living in a world of adoption nowadays instead of implementation, EE does not happen separately from the whole societal context, the

current society is more a plurality of values than before; government needs to be adaptive to what is the best for the society in a long run.

5.3.3.2 PARENTS

Parents' and grandparents' participation into students' environmental education activity and development in Finland are not as much as in the Netherlands. Reasons are various, I could mainly draw up into three reasons: cultural; educational system and social and political difference. I noticed all these differences immediately when I carried out my first interview in the Netherlands. My first Dutch interviewee was a national level official, here below was from our conversation:

It's custom that, for example, both parents work part-time, so one day, the father is going to pick the kids up, next day, the mother, one day, the grandparents, one day, to after-school-care, then one day, the Mum again. So usually, they have a quite complex week.My parents pick the kids after school one day a week, on a regular base, one day a week, lot of grandparents do that.

Most kids who go to after-school-care are from parents that are richer. So they work. All the rest kids go to grandparents, Maybe Mum or Dad pick them up after school. Everybody is in school till 15:00. And then some go to after-school-care, some of them go home. After-school-care is quite expensive.

It's also good if you are willing to pay for 6 euros per hour [for after-school-care]. You can ask for a high-class nature activity. You have to pay for it, you can demand [that] the quality is good. There are some after-school-care, they are sports; they are nature; or they are arts or music focused. But not every kid goes there, it's usually the children of well-educated also rich parents go there.
(DI1)

From these quotes above and based on my own experiences in Finland, I could see almost all the three differences. The cultural difference is that in the Netherlands, taking care of grandchildren on a regular base is quite normal for the Dutch grandparents, in Finland, it is more occasional. Of course, there must be Finnish grandparents also do like the Dutch ones, but not that common social practice according to my observance. Educational system difference is that after-school-care service in the Netherlands is a private profit-oriented business, but in Finland is provided by the municipality, parents only have to pay very little. For example, City of Nokia, Finland, charges 45 euros / month if children stay in after-school-care either every working day within the time length of three hours (12:15–15:15); 45 euros/month if stay for only 3 full-day (12:15 – 16:30) a week; or 90 euros / month for staying every working day full-day (12:15 –16:30) (Nokiankaupunki 2014). If we count 5 days a week, 4 weeks a month, the price of Finnish after-school-care is between 0.75 and 1.06

euro per hour, only 12.5 –17.7% of the Dutch price, and the Finnish price even includes afternoon snacks for children.

The after-school-care system in two countries looks like that it is only a different educational practice arrangement, but it is more than that, it also reflects the differences socially and politically. The current practice is always related to various other elements, in the other words, any phenomenon is formulated or triggered by various causes, for example, Dutch Mum's maternity leave is much shorter, Dutch father and mother take turns to work part-time when children are young, Dutch students don't have free lunch in school, they need pack lunch from home and parents need to go to school during lunch time to have lunch with young kids etc. (based on the interview with DI1), all these demand Dutch parents' and grandparents' active involvement in children's development and their school activities. On the contrary, Finnish parents' situation are quite different, four out of five Finnish EE experts have commented on parents' role:

I think Finland, parents are not so part of the school than they could be....Some parents are not interested what is done at school. They say that they [the school or teachers] must take care of school things at school, they are not interested. And some who are interested, they are not interested [enough] so that they want to help. (F11)

It is a tradition that parents don't mix to the schools, schools activities. They let teachers to do it. They are trying to be polite in this. (F13)

Yes, they [family trips] are very popular. I don't know at schools and from kindergartens how active the parents are, but I think here [municipality X], parents are quite interested. Because the people who live here, they are highly educated, so they are interested in what happens. But sometimes, they want to affect too much and not in a sustainable way. (F14)

I think, it gets also here the parents, so they are interested about the kids' school and sometimes we ask that they can come, so we even get sometimes grandparents. (F15)

Most of Finnish EE experts are welcoming the idea that getting parents and grandparents more involved in nature activity, get them interested in environment and nature issues and through their guidance and company, children can develop knowledge, skills about and feelings towards nature. Out-of-school EE entities can definitely offer abundant experiences by organizing family visit or trip to zoo, farm, exhibition, forest and lake.

In the Netherlands, it is a very mature practice already to have parents as volunteers, nature parents in assisting EE. In the Dutch context, the assistance could be helping the school design, build up school garden, as one Dutch EE expert, also a parent told:

At the primary school where my children were, I worked about eight years voluntarily as a lot of [other] parents on Saturdays and evenings. I was organizing the change of the outer play area into natural playgrounds, including school gardens. And we took about eight years for it and all these years there were between twenty, thirty, forty parents working together with me and together with some teachers. About six, seven or eight Saturdays throughout the year we change and work on school surrounding. Every time we changed small part of it. Now it's green. There's water, a swamp; there are animals; children can climb up trees; there are ropes and it's beautiful! So a lot of people from other schools come to visit it, to see how it is, to see how the children play, to hear the story of how to realize it. Without the help of all those parents voluntarily, school wouldn't have realized anything of these plans. (DI3)

I told this Dutch expert and parent's story to a big group (around thirty people) of Finnish environmental field experts after I came back from the Netherlands in October 2013, they commented that it would be impossible to have the same story happening in Finland.

5.3.3.3 SCHOOL INSPECTORS AND OTHER AGENCIES

In addition to all those factors listed above, EE experts also revealed some influencing factors that are not earlier familiar or obvious to all of us. In the Dutch school system, there is a post called School Inspector, which is quite a strange position to Finnish, as Finland is well-known by the world that there is no whatsoever monitoring of teachers sort of thing. During my latest work years (2011-2013), when I took Chinese school principals to the Finnish ones, one the most frequently asked questions was "how you monitor your teachers' performance?" And the answer was always as simply as "No, we don't monitor." The typical response from Chinese school principals was "but, but you must have some ways, someone" with a very confused expression. Pasi Salhlberg (2011) has given a comprehensive and clear answer to this question through the whole book, especially dedicated one chapter titled "People trust schools" (p. 130). He states about the Finnish culture of trusting teacher and schools that:

"The culture of trust meant that education authorities and political leaders believe that teachers, together with principals, parents, and their communities, know how to provide the best possible education for their children and youth."

I believe the Finnish teachers know the best, but it would be even better if all Finnish teachers will also get EE while doing their teacher training. This will be discussed in the section 6.2 behind. For the Dutch EE experts, school inspectors can be also one factor

to influence the EE integrating into school curriculum, as one Dutch official stated below:

We have spoken with the school inspectors. In Holland, every school has a regular station of inspectors, and they come to the schools, sit in the class, observe, and do some tasks. And we spoke to them about if it is possible that somehow sustainable development could be an issue in what they check...but for now, it's not. Well, you know, we are still talking to them, but it's not concrete yet. (DI1)

For me it [EE] would be a big success if it was tested. So if somehow the school inspector would be also asking the teacher or school about their EE, not only their reading, what else, their mathematics skills. That would be a real success. (DI1)

It is really sad to hear such comments that everything has to be tested these days. It would be even worse if one day EE will be really tested. In Finland, *primary school is, to a large extent, a "standardized testing-free zone" and pupils are allowed to focus on learning to know, to create, and to sustain natural curiosity (Sahlberg 2011)*. Finland does not focus on test, but focus on collaboration. All involved partners and actors, though they might appear to be irrelevant, Finns take everyone into account. As a Finnish EE expert told about their practice:

Last few years, in here [municipality X], we have gathered together around the same table those actors who are involved in environmental education or actually we say sustainable development education at school. And that means, they are the governors: so there is Finnish language Education (suomenkieliopetus); there is pre-school education (varhaiskasvatus); there is Swedish speaking [representative] and teacher; then there are those who take care of the school. [Among them] there is the facility maintenance (kiinteistöhoito); there is catering; and then there is cleaning. And we have been talking what are the problems, when a school or kindergarten wants to act in a sustainable way. And we have been trying to solve the problems. We are going forward step by step. But it's a question about sometimes very big things, and what is the term for hankinta sopimus [acquisition contract or purchase agreement], you know... there is one department here [municipality X], they take care of that. And what kind of information they give to schools and kindergartens are not always so sustainable. So we have to affect them too. That's our next challenge. So it is a big question and if we want to act in a sustainable way, we have to take care of all these stakeholders, get them around the same table. And we have started that work, but we have to continue. (FI4)

In order to promote sustainable development through the whole city, there is a lot more for a local Nature School to do than just guiding one group of school children to nature on each day. The quoted story above is from one city, but if we could imagine that this kind of Nature School initiated collaborative model could be disseminated to each city in that country, to each country in this world, the influence of out-of-school EE on school curriculum change would be the most efficient, profound and thorough. In addition to close collaboration among all related actors, what else we could do to make environmental education more efficient and more sustainable? From the data, we could see at least two. One is students themselves and the other is teacher training.

6 THE FUTURE OF ENVIRONMENTAL EDUCATION

The current out-of-school EE can't reach each student mainly because too little local EE entities. Even the Finnish Nature Schools and the Dutch Environmental Centers receive one class of school children (twenty students in average) per day throughout the year; it is still not enough to reach each student. Integrating EE into school curriculum would be the most efficient, systematic and sustainable way to guarantee a more successful EE future. The two direct involving parties in this study and teaching would be students and teachers. What they should do in order to assist EE's integration into school curriculum, improve the EE efficiency and better guarantee the success of EE.

6.1 STUDENTS' ENGAGEMENT

When we adults talk about school curriculum change, we think of students as the potential beneficiaries of change, but rarely as the participants in a process of change (Fullan 2007). After all, most the changes happening in schools mean something to the students. *All successful education ends up engaging the hearts and minds of students* (ibid. pp. 170-171). So once students themselves are engaged in EE, they do not have to always be the receivers of an education, they can also make an impact on the ones surrounding them, as one EE expert told:

We don't know how much we affect the parents, but we know that in schools and kindergartens where they have started their KeKe (Kestävä Kehitys – sustainable development) programs and children learnt how to do more, how to live more sustainable way, they tell at home. At school, we do like this, why don't we here at home do like this? Pupils are children; they are good teachers for their families. (FI4)

In earlier researches, focus on students' experiences has been limited. As Erickson and Schultz (1992, pp. 467-468 c. b. Fullan 2007, p. 173) concluded that

We do not see student interests and their known and unknown fears. We do not see the mutual interest of students and teachers or see what the student or the teacher thinks or cares about during the course of that mutual interest... Rarely is the perspective of the student herself explored.

In EE, students' experience on learning is especially important. If they are happy, comfortable and inspired during the EE learning, that experience could influence them for their whole life. Erickson and Schultz continued (ibid.):

...the evolution of student experience with curriculum should be studied across the entire student career in school. We know relatively little about the social and cognitive ecology of student experience of curriculum. ... Presently we do not understand how intellect, will, culture, and politics meet at the intersection of curriculum materials,

classroom arrangements, pedagogical approaches, and students, within whose subjective experience learning presumably takes place.

Students' involvement can change the way teaching occurs in the classroom and shape the culture of the school (Fullan 2007). Therefore, students' positive experience with out-of-school environmental education entities, like the local Finnish 7th-grader group I have followed, will certainly be welcoming and helpful to the future integration of EE into school curriculum.

6.2 TEACHERS' TRAINING

As earlier in 5.3.2 illustrated that any *educational change depends on what teachers do and think* (Fullan 2007, p. 129). But what if teachers themselves do not have the awareness of EE, how can they welcome the integration of EE into the school curriculum and how can they guarantee a successful EE. As Sarason realized already more than thirty years ago:

The fact is that our primary value concerns our need to help ourselves change and learn, for us to feel that we are growing in our understanding of where we have been, where we are, and what we are about, and that we are enjoying what we are doing.... To help others to change without this being preceded and accompanied by an exquisite awareness of the process in ourselves is "delivering a product or service" which truly has little or no significance for our personal or intellectual growth. (Fullan 2007, p. 264 c. f. Sarason 1982, p. 122)

Fullan dedicated two entire chapters "Professional Preparation of Teachers" (Chapter 13) and "Professional Learning of Educators" (Chapter 14) (Fullan 2007) to elaborate how important it is to have a team of well-trained teachers and educators to guarantee the success of an educational change. This is also commonly realized and agreed by the Finnish government and the society, just as one EE expert as well as national level policy-maker stated:

Then of course when comes to these bases of the new curriculum, that will be launched in 2016 and taken into implementation in schools, in my opinion, also gives signals that Nature Schools' position is important in the future. However, we need teachers' complementary training and teacher education development. Then, if I could add, that Ministry of Education and Culture has carried out national evaluation of sustainable development. In that evaluation, one of the greatest problems related to environmental education, at this moment, is teacher education, which doesn't include enough compulsory subjects of sustainable development and environmental education. It was seen there as the most essential problem in teacher education. (F12) (I translated from the original Finnish interview transcript into English).

As the current teacher education in the universities does not have enough environmental education, the importance of out-of-school EE entities can be seen well especially on training the teachers. For example, in the School of Education, University of Tampere, Finland, where all the future teachers are trained, there is only one 2-credit optional environmental course offered at this moment. If school teachers in service are interested in learning environmental issues, they turn to local Nature Schools, which offer a versatile of training courses in cooperation with the Environmental School of Finland.

Environmental School of Finland, known in Finnish as SYKLI (Suomen ympäristöopisto), offers both short course and long-term training that leads to a diploma (Espoo 2014, SYKLI 2014). Theme-oriented training can be as short as half-day, such as Nature School of Espoo City offers three-hour long course on “Sustainable development in early child education – from words to actions” lasting three hours” (Espoo 2014) and together with SYKLI offer one-day long (9:00 – 16:00) course on “Go to the yard, there is owl – School yard as the Environmental Education Learning Environment” (Espoo 2014, SYKLI 2014). These kinds of courses are practical, useful and easy for kindergarten pedagogues and school teachers to arrange time to participate.

SYKLI also organizes diploma training that can last 1.5 – 2 years for people at work. For example, in May 2014, SYKLI will launch a training program for Environmental Educators and it lasts until December 2014 (SYKLI 2014a). The program consists of 56 studying weeks and average 15-day face-to-face training, about one day per month and the rest will be done via distance- and online-learning. This kind of program design is also extremely practical for educators-in-service. They don’t have to leave their daily work and the training is realizable without too much extra load for educators since it is “competence-based qualification” (in Finnish näyttötutkinto).

“Competence-based qualification” is designed especially for adults and it can be achieved flexibly and simply by demonstrating your skills in practical situations (Halinen 2014). And it is a well-recognized way of pursuing a competence diploma or certificate by the Finnish National Board of Education (FNBE) that is a national development agency, subordinate to the Ministry of Education and Culture and responsible for the development of pre-primary, basic, general upper secondary, vocational upper secondary and adult education.

Moreover, if we keep in mind that teachers’ and educators’ professional development is not only about courses and trainings; rather, *it is at its heart the development of habits of learning that are far more likely to be powerful if they present themselves day after day* (Fullan 2001, p. 253), the out-of-school EE entities could be there by the side of the school teachers and inspire as well as make easy access for our school teachers to learn continuously and willingly.

7 CONCLUSION

Integrating environmental education into school curriculum is not a brand-new topic, but becoming compulsory for school teachers to teach is new, at least this is what the new change aiming at. New change will create chaotic situation for a certain time period during its implementation. This research studies the necessity of integrating EE into school curriculum for real in the sense that it is not only written in the text book but will be taught by class teachers and subject teachers and the important role of out-of-school environmental education entities in supporting schools and other relevant factors such as teachers, principals and parents through the chaotic phase. This study conducts expert interviews on their professional perspectives of the EE's necessity and EE entities' assisting roles in the integration of EE into school curriculum.

This thesis set out to answer one big research question consisted of three sub-questions, and the findings show that all the questions were well answered. In responding to the research questions, three themes were drawn up: (a) necessity of environmental education for youngsters, (b) challenges of in-school environmental education at present, (c) importance of out-of-school environmental education. Among these three results, primary attention was paid to (c) as it provides the most direct answers to the research question. Understanding of (a) makes the whole study meaningful and (b) functions as the foundation of (c).

Environmental Education experts from both Finland and the Netherlands agree on the necessity of EE for youngsters. In addition to equipping the youngsters' with necessary knowledge and skills, changing their attitudes and behavior is another goal. Especially the two recommendations "environmental education is interdisciplinary and holistic in nature and application" and "viewing the environment in its entirety including social, political, economic, technological, moral, aesthetic and spiritual aspects" made at Tbilisi (1977) are reflected well in the data.

Challenges of carrying out EE in kindergarten-through-12th grade schools are probably universally similar, not only between Finland and the Netherlands. Despite of all the primary difficulties: educators' lacking of EE education, time and interests, Finnish schools have a rather good foundation for EE in terms of well-respected teachers, the national government's strong will (integrating EE into school curriculum) and well-built infrastructure (e.g. drying machine equipped in each kindergarten).

The importance of out-of-school EE entities revealed by showing how those entities may reinforce, strengthen, influence and/or assist the primary affecting factors of integrating EE into school curriculum successfully. Simple changes may be easy to implement, but they might not bring a big difference to the existing system (Fullan 2001). The coming curricular change in Finland is definitely a complex one. Despite that Finland seems particularly successful in implementing and maintaining

educational policies and practices (Sahlberg 2011), the success for the next change is not guaranteed automatically.

For all the school principals and teachers, at least at this stage, EE is hardly their primary concern. Without clear instructions on what to do, how to do, without a constant, strong and professional support or push, it is almost certain that the whole 'change' will be left either undone or will fail miserably. Therefore, out-of-school EE entities for a long time after the new curriculum implementation agenda is in practice will play the role of 'wake-up-alarm', continuously remind school teachers about EE until it becomes their automatic and in-built habit.

The strategy of Master Sun-Tsu in the Art of War can be borrowed here: "One who knows his own strength and that of the enemy is invincible in battle". In this context, the integration of EE into teaching in the new curricular change is the "enemy". If we make teachers see what it is like and practice gradually under the supervision of professionals and experts of environmental education, like a toddler learning walking with little assistance of the parents, school teachers will certainly have less to fear and least chance to fall or fail.

We are living in a high-stakes testing era, when statistics, teacher pay, administrator job security, and school district reputation all depend on students getting the right answer, the outcome of such a system is a graduate (or very likely a drop-out) whose natural curiosity and passion for learning has been squelched (Mckay 2009). In order to reinforce environmental education, the current model of test-driven education should be changed. For that, the Netherlands probably may learn from Finland, where children and adolescents have hardly any test until the matriculation exam when they are about 16 years old.

However, is it enough to have excellent school principals and teachers and can they do EE alone? This research tells the answer: No. The success of EE, the integration of EE into school requires a comprehensive networking effort, including a wide range of players and organizations such as municipalities and governments. What will it take to mobilize more people and resources in the service of educating all students? Parents and other community members are crucial and largely untapped resources who have (or can be taught to have) assets and expertise that are essential to the healthy development of a student. On one hand, parents as their children's very first educator can make a huge difference in environmental education. On the other hand, parents very often also need to be influenced by school and teacher practices in order to be capable of creating the "curriculum of the home". (Fullan 2007)

Epstein's (1988, Chap.1 c. b. Fullan 2007, pp. 194-195) argument on the parents' influence on children can tell us its irreplaceable significance: *There is consistent evidence that parents' encouragement, activities, interest at home and their*

participation at school affect their children's achievement, even after the students' ability and family socioeconomic status is taken into account. Students gain in personal and academic development if their families emphasize schooling, let their children know they do, and do so continually over the years. Coleman (1998, p. 14 c. b. Fullan 2007, p. 191) on the other hand reveals to us the "power of three" (parent, student and teacher collaboration): When the development of student responsibility occurs it is a function of the attitudes and practices of all three triad members. The vital elements are: a) for teachers, beliefs about parental involvement, student capabilities, and the importance of deliberate teaching of responsibility in classrooms; b) for students, communication with parents about school, confidence in the ability to do the work, valuing school for its importance to the future, and collaboration with teachers; c) for parents, valuing school, an "invitational" teacher attitude, and communication with students about school.

In Finland, volunteer parents and grandparents are not so popular concept yet as in the Netherlands. There are of course cultural, social and political reasons behind it. But after I came back from the Netherlands, I found out that there are also "environmental grandma and grandpa" volunteers emerging in the City of Lahti, Finland. It is one part of Lahti kindergarten's sustainable development work. The project initiating kindergarten's headmaster Anu Rautanen said that the goal is in near future each kindergarten in Lahti would have its own environmental grandma or environmental grandpa, who visits the kindergarten regularly and get children familiar with the nature and nearby environment (Lahdenkaupunki 2013). It would be excellent to have this kind of movement spread widely around the country.

The research results have shown that offering EE training for school teachers and demonstrating how to teach EE are the most primary functions of out-of-school EE entities, they can solve a chain of other difficulties and challenges posed by many other affecting factors while integrating EE into school subjects.

Students' engagement in EE and teacher's EE training will be the core to guarantee a successful EE. For that Finland has made a great leap forward, and the Netherlands' conditions are not so optimistic yet. Although the Netherlands out-of-school EE has been quite successful, as long as it is not systemized into school curriculum, EE can't reach every student or every teacher, it is then hard for students get engaged or teachers feel the need of EE training.

It will be chaotic when a new change takes place, the bigger the change's coverage, and the more chaotic. Everyone will be on the edge of chaos for some time when the outcomes are unknown and no one can be 'in control'. The Finnish new curriculum's implementation will impact all schools across the country, integrating EE into school subjects will be only a small part of the curriculum reform, out-of-school EE entities can at least guarantee the smooth implementation of this small part.

After integrating EE into school curriculum, the next task for EE educators probably will be the integration of technology and EE and study what studying media(s) interests the youngsters the most. This is also one of my strong interests, but due to limited time, I could not cover it in this study. No matter what type or form of EE we apply: in-school or out-of-school, formal or non-formal, indoor or outdoor EE, one primary goal is getting students interested and motivated to learn themselves. If our students are more interested nowadays in playing with their phones or tabs, all involved actors cannot just ignore this fact, but try to adapt into students' interests. Instead of forcing them raise up their head, move their thumbs away from the screen and keypad, we could make our EE more attractive and integrate EE into also mobile phones and tabs.

The Finnish LuontoPortti (NatureGate) has launched NatureGate mobile app with which we can make digital diary on nature, easily identify species and share observations (Luontoportti 2014). Instead of making herbariums like we did earlier, children can make digital herbariums nowadays. The Finnish Kuusamon Suurpetokeskus (The Predator Center in Kuusamo) has installed online camera in their center to lively broadcast their lynxes and hibernating bears (Kuusamon-suurpetokeskus 2014), which have attracted children and adults to get a closer look of these predators' lives while sitting at their own home wherever it is located. Darwin found the mechanism of nature in 1838 that "*Evolution is the product of natural selection* (Worster 1995)." If the ultimate goal of EE is to keep the nature sustainable, why we could not learn the wisdom from the nature itself? Our education should also evolve. If technology development is the trend and children like the new technology, we can turn our back to neither of them. The wise solution for us would be taking the technology into use.

While discussing with all EE experts for this study, I also asked them if they have had an evaluation criteria for their success of EE. Everybody said that it was hard to evaluate and no such study had been carried out either. Therefore finding ways to evaluate the EE effects and creating evaluable (different from testable) EE program could be another future study fields. Integrating EE into school curriculum will also provide opportunities for such study. Because once EE becomes a school subject, or part of the other subjects, becomes systematic and long-lasting, the studying effects then need to be and also could be assessed. Once an evaluable EE program is created, it could be also easily disseminated around the globe. The PISA program is at this moment assessing reading, mathematics and science three fields, in future, adding one more Environmental Views, Environmental Citizenship sort of field will definitely make the schools in the world could no longer ignore or avoid environmental education.

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APPENDIX

REQUEST LETTER FOR AN INTERVIEW

Dear Sir/ Madam,

I am Jin Muranen, a Master student of the University of Tampere, Finland. I will be graduating as a Master in Environmental Politics in 2014. Now I am writing my thesis. I have chosen my topic from the field of Environmental Education (EE) and try to find out more about the **out-of-school environmental education** practices in Finland and the Netherlands and compare the EE situation in these two countries.

In Finnish context, the out-of-school EE is carried out by the LYKE-Network, which includes Nature Schools (NS), Camp Schools and Youth Centers etc., in the Dutch context, the EE Centers (EEC), national parks, zoos and museums.

In order to collect data for this research, I would need to interview environmental education actors, practitioners, policy makers and professionals in Finland and the Netherlands.

The purpose of this research is to learn possible aspects related to EE in Finland and the Netherlands in order to improve the EE efficiency and guarantee a sustainable EE for our future generations to come.

The discussion during interview will be recorded and used in the thesis anonymously.

Your kind assistance to this research will be highly appreciated!

Best wishes,

Yours sincerely,

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20.6.2013
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GUIDING QUESTIONS FOR JIN MURANEN'S MASTER THESIS INTERVIEW

Interviewee's Background Information	
Name	Gender
Age	Nationality
Current work place	Title at work
Email	Telephone number
How long have you been working in Environmental field?	And how long in Environmental Education field?
What kind of Education background do you have?	How did you end up working in EE field?
Open-ended questions for interview	
<p>Knowledge, Values and Skills:</p> <p>1) What kind of knowledge, values and skills do you believe are important for children to learn and can be learnt or trained through EE especially?</p> <p>In-school Environmental Education</p> <p>2) In your opinion, what are the challenges in carrying out EE in the ordinary schools? How realistic is it to offer EE with interdisciplinary teaching method? What kind of training programs have there been to enable the teachers to offer EE within their own teaching subject?</p> <p>3) What kind of actions are needed that EE in the ordinary schools would become more efficient? Why this has not been done?</p> <p>Out-of-school Environmental Education</p> <p>4) What kinds of places do you think offering out-of-school EE in your country? How many places or actors are there? How many school groups, kindergartens or pupils visit them or have had a chance to accept out-of-school EE per year? How many children are there in one age group in your country?</p>	

Do some pupils usually have many meetings with EE-educators in a year?
Do they have chance to accept out-of-school EE many times during their school path?
If you don't know, do you know anybody from whom I can ask?

- 5) In your opinion, how was the out-of-school EE started in your country at the first place, under what kind of situation or condition?
What kind of developing history of out-of-school EE has been in your country?
- 6) What different ways of funding EE do you have in your country? (the state, municipality, private funding, customers or other channel)
What is the main source of funding?
Do you know the process, how and when the funding started?
- 7) How successful do you think the EE has been in your country since its beginning?
What are the evaluation criteria for EE's success?
- 8) If out-of-school EE is supplementary to the in-school EE, how important role the out-of-school EE is playing?
How efficient do you think the out-of-school EE is in your country?
- 9) What kind of teaching methods do out-of-school EE use?
What kind of learning environments do they use? (School class, nature, water environments, lakes, forests, exhibitions, zoos, recycling centers etc.)
- 10) What are the challenges the out-of-school EE facing?
Are there any solutions for the challenges?
- 11) In your opinion, what kind of relationship is there among children, parents, out-of-school EE, in-school EE and the community?

Teacher/Trainer Training

- 12) What are the most common educational backgrounds of your out-of-school EE teacher or trainers?
What kind of training programs do you have for training EE teachers/trainers?

Others

- 13) Is there anything else you would like to mention related to the EE in your country?
Any suggestions or comments for the policy makers?

Thank you very much for your time, knowledge and opinion sharing! Best wishes, Jin Muranen, University of Tampere