JONNA HÄRMÄVAARA

Exploring the Teacher's Experience in Environmental Education

CASE STUDY OF VIHREÄ LIPPU

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School of Arts, Design
and Architecture

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Abstract

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Scientists suggest that increasing outdoor nature education for children is an effective step to take in transition to sustainability. In schools this can be promoted by participating in an environmental education programme. There a teacher plays a central role as being not only the one facilitating learning for the pupils, but also often participating in managing the programme in the work community. Therefore, a teacher's user experience contributes to valuable knowledge for the service-provider in building a user-centered service.

The practical context of the research is a study in the case organisation of Foundation for Environmental Education in Finland (FEE Suomi) and specifically their Vihreä lippu programme. Generally, environmental education, teacherhood and design are much researched topics in their own fields but no previous research is made in the intersection of them. Additionally, there is previous research done on developing the programme but they lack concrete suggestions for aligning the service with the research results. This study researches that gap from the design perspective with the focus on the overall experience of a teacher as a member of the community.

The aim of this master's thesis is to study how teachers in comprehensive schools experience an eco-school programme by identifying and communicating users' needs, experiences and values in the context of Vihreä lippu. These findings are gathered to support the improvement of the existing service towards a better user experience.

Qualitative research data was collected through service design methods, namely workshops and semi-structured interviews. Altogether 11 comprehensive school teachers around Finland were interviewed. In order to build a versatile image of the teacher's experiences, people of different ages and differences in experience of both teaching and in Vihreä lippu programme were chosen. Data was analysed using qualitative content analysis.

The findings reveal that although teachers are generally motivated to participate in the programme, they need support for it throughout the process. This research suggests that different factors on personal, school and programme level influence how the service is experienced by teachers. Negative factors for self are laboriousness, feeling of inadequacy and being active alone. Positive factors on a personal level are experience of meaningfulness, added value and being in nature. Added value of the programme is the meaning it generates both on personal and school level. The findings indicate that teachers' stress factors in the programme are lack of time, amount of work, arduousness of the programme and pressure set by the community. To cope with the stress factors teacher's explicitly express the need for support in different forms. Research results formulate a general overview of the teacher's current user experience in Vihreä lippu programme.

Based on the data, two sets of design proposals are introduced for service development. First, ideas directly from the teachers explicitly expressed in the interviews are combined. Second, design proposals by the author are created based on the interpretation of the overall results. In short, the suggestions are (1) to support teacher's flow, (2) to create a sense of community and (3) to aim for systemic level change.

This thesis creates a better understanding of how comprehensive school teachers experience an eco-school programme in their existing educational system. Design proposals suggest how teachers can be supported in creating meaning through environmental education work, if the Vihreä lippu programme is developed to be a more user-friendly service in the future.

Keywords: eco school certificate, environmental education, teacher's experience, user experience, service design

Tiivistelmä

Tekijä	Jonna Härmävaara
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Tieteentekijät suosittelevat lisäämään lasten ulkona tapahtuvaa kasvatustyötä yhtenä tehokkaana keinona kestävän kehityksen edistämiseksi. Koulussa tähän voidaan pyrkiä osallistumalla ympäristökasvatuksen ohjelmaan. Siinä opettajalla on keskeinen rooli oppimisen fasilitoinnissa oppilaille, mutta myös ohjelman läpiviennissä omassa työyhteisössään. Siksi tieto opettajan käyttäjäkokemuksesta on palveluntarjoajalle merkittävä tekijä käyttäjälähtöisen palvelun rakentamisessa.

Tämän tutkimuksen käytännön konteksti on ympäristökasvatusjärjestö FEE Suomi ja heidän kestävän kehityksen ohjelma Vihreä lippu. Yleisesti ottaen ympäristökasvatus, opettajuus ja muotoilu ovat tutkittuja aiheita, mutta tutkimusta niiden leikkauspisteessä ei ole aiemmin tehty. Vihreän lipun kehittämistä on tutkittu aiemmin, mutta niistä puuttuu konkreettiset ehdotukset palvelun muuttamiseen tulosten mukaisesti. Tämä opinnäytetyö paneutuu tutkimusaukon tarkasteluun muotoilun näkökulmasta ja keskittyy opettajan käyttäjäkokemukseen kokonaisuutena ja osana omaa yhteisöään.

Tämän opinnäytetyön tavoite on tutkia miten peruskoulun opettajat kokevat ympäristökasvatuksen ohjelman tunnistamalla heidän tarpeita, kokemuksia ja arvoja Vihreän lipun kontekstissa. Tulokset on koottu edistämään nykyisen palvelun käyttäjälähtöisyyttä.

Tutkimuksen laadullinen aineisto on kerätty palvelumuotoilun menetelmin, tarkemmin työpajoin ja semi-strukturoiduilla haastatteluilla. Kaikkiaan 11 peruskoulun opettajaa ympäri Suomen on haastateltu tutkimukseen. Opettajat ovat eri ikäisiä ja heidän kokemuksensa sekä opetuksessa että Vihreä lippu -ohjelmassa vaihtelevat, jotta kuva opettajan kokemuksesta olisi monipuolinen. Aineisto on analysoitu käyttäen laadullista sisällönanalyysia.

Löydökset tuovat ilmi, että vaikka opettajat ovat yleisesti motivoituneita osallistumaan ohjelmaan, he tarvitsevat tukea koko prosessin ajan. Tutkimus osoittaa, että eri tekijät henkilökohtaisella, koulun ja ohjelman tasolla vaikuttavat siihen miten palvelu koetaan. Kielteisiä tekijöitä henkilökohtaisella tasolla ovat ohjelman työläys, riittämättömyyden tunne ja yksin toimiminen. Myönteisiä tekijöitä henkilökohtaisella tasolla ovat merkityksellisyyden kokeminen, lisäarvo ja luonnossa oleminen. Ohjelman lisäarvo on sen tuottama merkitys sekä henkilökohtaisella että koulun tasolla. Löydökset osoittavat, että opettajia kuormittavat tekijät ovat ajanpuute, työn määrä, ohjelman vaativuus ja yhteisön luoma paine. Selvitäkseen kuormittavien tekijöiden kanssa opettajat täsmällisesti ilmaisevat tarpeensa tuelle eri muodoissa. Tutkimustulokset muodostavat yleisen katsauksen opettajan tämänhetkiseen kokemukseen Vihreä lippu -ohjelmassa

Aineistoon pohjautuen tutkimus tarjoaa kaksi erilaista muotoiluehdotusten kokoelmaa ratkaisuksi palvelun kehittämiseen. Ensimmäiseksi on koottu opettajien haastatteluissa täsmällisesti ehdottamia ideoita. Toiseksi tekijä ehdottaa muotoiluratkaisuja tulkintana tutkimuksen kaikista tuloksista. Lyhyesti ehdotukset ovat (1) opettajan flown kokemuksen tukeminen, (2) yhteisön kokemisen luominen ja (3) pyrkimys systeemiseen muutokseen.

Tämä opinnäytetyö kasvattaa ymmärrystä peruskoulun opettajan kokemuksesta kestävän kehityksen ohjelmassa nykyisessä opetusjärjestelmässä. Muotoiluehdotukset esittävät ratkaisuja miten opettajia voidaan tukea luomaan merkitystä ympäristökasvatuksella, mikäli Vihreä lippu -ohjelmaa kehitetään tulevaisuudessa käyttäjälähtöisemmäksi palveluksi.

Avainsanat: kestävän kehityksen ohjelma, käyttäjäkokemus, opettajan kokemus, palvelumuotoilu, ympäristökasvatus

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1

Introduction

In this chapter the background and motivations for the research are explained. The gap in existing research is pointed out and research questions addressing that are introduced. This chapter ends in presenting the thesis structure.

1.1 Background

Our planet today is not feeling well. As a result human consuming natural resources in an unacceptable manner, we are living in the middle of many environmental crises. Climate change, biodiversity destruction, forest loss, continuous human population growth and marine depletion are few to mention. To avoid the escalation and consequences of this course we must shift towards a more fundamentally sustainable course. This same message was manifested already in 1992 by the Union of Concerned Scientists, including many Nobel laureates in sciences at that time, as they published "World Scientists' Warning to Humanity". In 2017, scientists (Ripple et al, 2017.) gave another notice by publishing a review of the current state, as in most respects the earlier warnings had not been adhered to. In their manifestation one effective step to take in transition to sustainability was in "increasing outdoor nature education for children, as well as the overall engagement of society in the appreciation of nature". Outdoor nature education equals environmental education, which is a central element in the most recent Finnish comprehensive school curriculum. Execution of it is also a grassroot level measure to improve the wellbeing of our planet.

Design competencies are relevant in solving wicked problems of the planet as well. It is widely acknowledged that designers do not only design nice looking things inside of their studios but they have started entering corporations and organisations up to management level, even in the public sector, in order to make changes and cultivate creative culture when tackling greater problems and complex systems. These again require certain competencies. In 2017, Unesco determined competencies that aim to enable individuals to contribute in achieving Sustainable Development Goals (SDG). There are 17 different goals ranging from zero hunger, no poverty and gender equality to sustainable cities and communities and responsible consumption and production (United Nations, 2015). The skills listed to enable achieving these goals include such as systems thinking, strategic competency and integrated problem-solving. Hakio & Mattelmäki (2019) argue that many of these competencies "resonate with design competences, and are in line with the characteristic skills and abilities of designers working in the fields of sustainability, social innovation and services". According to Coughlan & Prokoff (2004, cited in Jyrämä and Mattelmäki, 2015, p. 56), design can be applied as an aid for transition as it helps people in seeing familiar things from unfamiliar perspective thus supporting or even provoking to see the deficiencies and advantages of the current system. Overall, designers are a valuable resource for contributing to sustainability.

Practical approach to increasing outdoor nature education is for a school to participate in an eco-school certificate. By registering for such a programme a school binds to participate in practical projects that are later assessed and evaluated in their sustainability and other measures. Success grants them the certificate for a certain amount of time. One convention for this in Finland is Vihreä lippu by the Foundation of Environmental Education (FEE Suomi) that is part of the global Eco-School programme.

Teacher's experience in environmental education and in its applicable programmes is central. They are the link between the certificate, i.e. service provider, and the target, i.e. pupils. In practise, teachers are not only the ones facilitating learning for the pupils, but they are the ones managing the programme in their own work communities. However, that is not the teacher's core competency but rather an additional task to master. Their core competency of teaching has been surrounded by other tasks. Overall, the system in which teachers operate is complex. Based on the research, teachers are paradoxically doing both well and feeling ill in the current status (Koli, 2014, p. 2). On one hand, teachers are burdened because of, for example, the constant changes in their working environment but on the other hand many are content because of the characteristics of their jobs such as high levels of autonomy. This illustrates the cross-well in which teachers operate. Therefore, how teachers experience an eco-school programme as a service contributes to valuable knowledge for the service-provider in building a service that meets the needs of the users. That is the focus of this study, too.

Generally, environmental education, teacherhood and design are much researched topics in their own fields. Similarly, Vihreä lippu in particular has been the focus of various studies. However, in the past majority of the user studies have been conducted on surveys and questionnaires, or they have lacked concrete suggestions for aligning the service with the research results. No previous research is made in the intersection of them all: environmental education, teacherhood and design. This study researches that gap from the design perspective. With the use of qualitative research methods it is possible to build deeper understanding of the user and find meanings, which might not be possible in surveys and questionnaires. I am interested in studying how teachers currently experience an eco-school programme in the case of Vihreä lippu and how human-centered design approach can be used as a framework for improving the service systematically by utilising service design methods. Point of departure for the research is set in the literature view and those are introduced in the following chapters.

In summary, sustainability, education and design are at best all factors contributing to the idea of a good life. Those are also three important themes intertwined in this thesis work. In this study, I examine the comprehensive school teachers' experience in an eco-school programme. The aim of this master's thesis is to study how teachers experience an eco-school programme by identifying and communicating users' needs, experiences and values in the context of Vihreä lippu. These findings are gathered to support the improvement of the existing service towards a more human-centered user experience. I see that it is valuable to find ways in supporting teachers in their existing educational system particularly when they are expected to contribute extra on top of their everyday tasks via an eco-school programme. If they have a positive user experience in that extra contribution required by the programme, they are more likely to continue with it in the future. The more teachers are involved in it, the more children are exposed to outdoor nature education and the greater the impact of changes in the service is.

1.2 Motivation

The angle for this research rises from both my professional and personal orientation. Primarily, I am interested in examining the phenomenon of a teachers' experience in environmental education from a trained designer's perspective. However, I also draw from being a mother and intuitive educator, an active nature explorer and of my personal education. Although the study touches on education as a science, the focus is mainly on the design perspective and the nature of it is multidisciplinary.

The good work done in education takes decades before it can be seen. Back in the 1990s as a primary school pupil I turned over the compost in our school yard and studied the changing seasons in the nearby forest with my classmates. For a long time I thought that was everyday in all Finnish schools. However, in reality these actions took place due to my school having a special orientation in environmental education with the lead of a visionary head of school. Only later as an adult I understood how privileged I had been in my education. It has also had a great impact on my environmental consciousness in life. My circle of environmental education began to close as I found this thesis topic and one of the first publications read for this research was a doctoral thesis by educational theorist Seppo Saloranta. He was that visionary head of school as well as my teacher almost 30 years ago. My example is a good one in illustrating how slow and far-reaching the impact of education can be and how the impact has been on the systems level of my life. The same is summarised aptly by Jukka Sipilä: "The quarter of education, similar to for example forestry, is 25 years" (Seminar for the Union of Private Schools, 30.9.2010, cited in Salminen, 2012, p. 281). That together with my own experience inspire me to try to make an impact at system level. In this project, I wish to offer my expertise in design for the good purpose of promoting and developing environmental education to pay it forward to future generations.

Lastly, one personal motivation for this research is learning to apply service design methods in practise. Being a design thinker is natural for me as I have practised as a designer for a decade but the knowledge on service design was inadequate and informal. Thus, this research not only allows me to study in depth but also apply my learnings.

1.3 Research gap

Generally, education, teacherhood and teachers are widely researched topics in their own fields. Similarly, environmental education and design both are independent areas of study. Combining design and education have been researched before. For example, tools and operative models for helping early childhood educators have been developed with service design methods (Smedman, 2019) and how design thinking can create a new education paradigm by bringing them into the classroom (Noel and Lu Liub, 2017). However, no previous research is made in the intersection of environmental education and design in particular.

In this research, the approach is interdisciplinary, being at the intersection of environmental education and design, with the scope in a teachers' experience of environmental education with research methods of service design. The practical context of the research is a study in the case organisation of FEE Suomi and in specific their Vihreä lippu eco-school programme in Finland.

Many studies have been conducted in the context of Vihreä lippu in the past. The programme has been researched from multiple fields of study. For example, educators have researched the impact of environmental education in early childhood education (Aho, 2004) and about assessing the impact of the programme through engagement (Vartiainen, 2014). The meaning of Vihreä lippu programme for the teachers' growth in environmental education (Vilén, 2007) has been approached from the perspective of bio science and contributor's work and development in Vihreä lippu programme (Skaffari, 2010) from the angle of environmental policy. Additionally, developing the programme has been approached from multiple angles. For example, developing an environmental management system at schools and colleges (Hämes, 2009) from the perspective of technology of environment and creating a practical handbook for environmental education from the perspective of social sciences (Kettunen, 2013). Despite their focus on developing the programme either at the level of a single unit (Kettunen, 2013) or generally (Hämes, 2009), they both lack concrete suggestions for aligning operations with the research results. Additionally, in the case organisation the dimensions of design utilised have been limited to styling and form giving in the past. This study researches that gap from the design perspective, which is novel for both design research but also for the case organisation.

Further research for eco-school programmes is needed. The global Foundation for Environmental Education in their Eco-school report (Foundation for Environmental Education, 2019, p. 59) set the questions: "How do we get people to engage more as well as more people engaged?" and "What are the blank-, blind- and bald spots in the Eco-Schools programme?" These questions validate the need for this research.

1.4 Objectives and research questions

This thesis has two main objectives. First objective is to create an understanding of the teacher's experience in environmental education in the context of an eco-school programme, which is the chosen case study of Vihreä Lippu. The research aims to dissect a teacher's experience in the school unit into the general culture of environmental education and the application of it in Vihreä lippu. Vihreä lippu is examined as a service through factors contributing to it. The research also identifies the teachers' stress factors and needs in the programme, and how the community in Vihreä lippu is experienced. Focus of the research is in the teacher's user experience. Second objective is to utilise the findings in order to create proposals for developing the programme further with the focus on user experience. Hypothesis is that qualitative user research reveals some blind spots in the existing service and that those can be developed further with a user-centered focus. Presumably an increase in user understanding will allow the service provider to develop the programme further to better meet the needs of the teachers. Examination of brand and brand experience are intentionally left outside of this research.

Based on gap in existing knowledge and my personal motivation
I aim to answer the following research question:

How do teachers experience an eco-school programme?

In order to answer the above research question different qualitative
research methods will be applied. Additionally, to specify the
research I aim to answer the following sub-questions:

**How is an eco-school programme experienced
in the case study of Vihreä lippu?**

**How to improve an eco-school programme as a service
in order to enhance the teacher's experience?**

Based on my findings of the research questions, I will formulate design
proposals as a solution for enhancing the teacher's experience.

1.5 Thesis structure

This thesis consists of nine chapters. In Chapter 1 the topic is presented by examining the background and motivations, and pointing out the research gap, and continuing to frame the objectives and research questions. Chapter 2 contains the literature review, which explains the theoretical frameworks of this thesis. Those are namely environmental education, human-centered design, user experience, service design and studies of the teacher's world, work and experience and finally all of the above visualised in a single framework. Chapter 3 introduces the context of the research by explaining the case organisation.

In Chapter 4 the research methodology is introduced by first explaining qualitative research with multiple methods in general and the process of this research. Chosen methods of service design are examined closer, namely ATLAS game, value proposition design, persona creation and user experience mapping, semi-structured interviews, service blueprinting as well as evaluation and validation. In Chapter 5 both data collection and data analysis, for which qualitative content analysis was chosen, are explained. The chapter finishes in ethical considerations of the research. In Chapter 6 the findings of the research are introduced and explained.

In Chapter 7 based on the data of the research design proposals for service improvement are presented in two ways. First, directly as suggested by the users and second as interpreted by myself. In Chapter 8 the research results and proposals are discussed. Lastly, Chapter 9 concludes the thesis.

2

Literature review

In this chapter, the key concepts, chosen theoretical perspectives and approaches of this thesis are introduced. First, the key concepts in environmental education are defined in order to build the context. Second, human-centered design, user experience and user experience design are examined and service design overviewed briefly as an approach. Third, a teacher's world, work and experience are briefly explored in relation to existing studies. Lastly, the chapter ends in a framework suggestion for this thesis.

2.1 Environmental education

Environmental education (EE) is a central concept in this study. By definition environmental education deals with education, teaching and learning in relation to the surrounding environment, both physical, social and cultural. Despite the strong connotations to nature, there is more to the multifaceted concept of EE. Also, its nuances have changed over time as well as how it is defined by scholars.

Environmental education as a concept dates back to the 1960s when environmental discussion was starting. At that time, environmental problems gained more public attention while giving more motive power for the environmental movement. One of the central works of that movement was Rachel Carson's book Silent spring (1962), where she focused on documenting the adverse environmental effects of the use of pesticides. The increase in public awareness also confirmed the need for environmental education (Saloranta, 2017, p. 28). This need became apparent at the latest by 1969, when the academic Journal of Environmental Education was established.

Education for sustainable development (ESD) is currently often seen as a synonym for environmental education. Other synonyms or related concepts are eco-social sophistication, climate education, and global education, to mention some. In this thesis work, I will simply focus on using the term EE but I will shortly tap on ESD in more detail as it is the most common synonym used. ESD is a concept introduced in 1992 in the United Nations' Rio declaration on environment and development. In Review of contexts and structures for education for sustainable development (2009) Arjen Wals juxtaposes ESD and EE in three manners. In brief, those are: 1) EE and ESD have the same meaning, 2) EE is part of ESD 3) EE and ESD are independent but have similarities. These terms are often understood differently depending on countries' traditions and interpretation. Thus, there is no consensus among researchers and governments on how the relationship between environmental education and education for sustainable development should be seen (Saloranta, 2017, p. 33). Researchers nonetheless agree on the goals of environmental education (Wals, 2009, p. 7), which from the viewpoint of this thesis is what matters the most. Those goals will be examined in detail later in this chapter.

Similar to environmental education, sustainability has no single definition either. Sustainability can be understood as a concept that evolves and reflects the values of its time, and ultimately depends on the viewpoint. The concept of sustainable development (SD) was first introduced by the World Commission on Environment and Development in 1987 in Our Common Future. This report, also known as the Brundtland report, highlighted the necessity of embracing principles of sustainable development in order to sustain life on Earth. Generally, sustainability is today seen as a way of

meeting the needs of today without compromising the ability of the future generations to do the same through evaluating the economic, environmental and social aspects.

In the Finnish school context the changes in the definition of environmental education (transl. ympäristökasvatus) are also present. Before the environmental movement, traditional nature education transformed towards education of nature protection (transl. luonnonsuojeluopetus) and environmental protection (transl. ympäristönsuojeluopetus) but eventually lead to environmental education as a result of the international influx of the 1970s environmental awakening (Lahti 2000; Venäläinen 1992; cited in Saloranta, 2017, p. 37). In the literature, since the 1970s the aforementioned approaches are referred to as educating 1) about the environment, 2) in the environment and 3) for the environment (Aarnio-Linnanvuori, 2010, p. 12). In other words, the human's level of activity, role with nature and understanding of it change depending on the viewpoint and is also reflected in the terminology used, as exemplified earlier. In terms of the Finnish national school curriculum, EE was first introduced there in 1985 (Aarnio-Linnanvuori, 2018, p. 13) but later, in 2018, sustainable development was mentioned already 40 times (Mykrä, 2018). Thus, multidimensionality and evolution of the topic are well exemplified in the definition itself.

Environmental education can be seen from two perspectives: as a form of sustainable development at grassroot level and through human experience. Theoretically, there exists numerous goals of EE, but Stapp (1969, cited in Saloranta, p. 28) clearly articulates one goal as follows:

> *a citizen who a) understands her role as a member in the system of human, culture and nature and has the ability to change it, b) is aware of the biophysical environment and the problems related to it, c) knows how to solve such problems, and d) is motivated to solve such problems.*

The goal set above is demanding and requires a holistic approach to succeed. As Aarnio-Linnanvuori (2018, p. 12) describes EE needs to aim for examining everything holistically and utilising the learnings for real-life problems. In other words, learning simply about species or ecology in school is not enough for enhancing the understanding required for true sustainability that entails actions. As David Orr (1992, cited in Aarnio-Linnanvuori, 2018, p. 13) states, all education could in fact be defined as environmental education. In addition, one major critique for the topic is the ambiguousness of the concept of EE, which allows actors to interpret it to their own benefit. This again leads to programmes devoted to sustainable development in failing to solve real problems, as Aarnio-Linnanvuori (2018, p. 18) explains. In this research, the focus is on the grassroot level of action that aims to solve real problems. The case study of this research is presented in more detail in Chapter 3.

Although environmental education is a thoroughly researched topic in many fields, both pupil's and teacher's personal experience of EE could be explored further, especially with a design-oriented focus. One of the problems in education for sustainable development is that researchers still do not know why the increase in the level of environmental awareness does not automatically lead to pro environmental behaviour, despite the hundreds of studies on the topic (Kollmus & Agyeman, 2002; Saloranta, 2017, p. 22). This could be interpreted as a system failure or simply unsuccessful education, if the activities one does in the spare time outside of the school system do not reflect the learnings gained. This contradiction acted as the starting point for education theorist Seppo Saloranta's (2017, Abstract, para. 1) research where he aimed to "clarify the impact of school culture on the implementation of education for sustainable development in basic education grades 1–6 school". Saloranta (2017) concluded his research findings as follows:

> *A student's socio-cultural school experience affects both the student's environmentally responsible behaviour and their pro-social behaviour through their attitudes, personal norms and self-efficacy. Based on these results, teachers should provide pupils with more experiential school experiences in relation to sustainable development and develop opportunities for their students to experience communal and cooperative styles of learning. (Abstract, para. 6)*

The fact that school culture plays an important role in creating one's personal experience and affects one's behaviour, suggests that the birth of that experience could be further explored. Furthermore, to conduct such research with a design viewpoint adds another new dimension. To sum up, these aforementioned factors act as the starting point for this research.

2.2 Human-centered design

As the world has changed, so have the applications of design and the tasks of a designer. Design as a term has not settled on a single definition, which has allowed it to mold for multiple uses. Similarly, the designer's role has over the past hundred years evolved from purely materialistic and concrete designs to cover more immaterial and abstract dimensions. This change is aptly presented as four orders of design by Dr. Richard Buchanan (2001; see Figure 1) showing how design first appeared as graphic design for communication and later as industrial design for the creation of objects and artefacts. Later design extended to interactions, such as services and it has reached to be relevant in systems and environments, such as education as a system, business model design or even work design. These dimensions of design can similarly be examined through the Design Ladder model (Dansk Design Center, 2020, see Figure 2), that suggests the different levels of how an organisation can use design. Design no longer covers only visuals and materials but also the dimension of experiencing. These shifts have not only influenced on what is being designed but also how it is being designed.

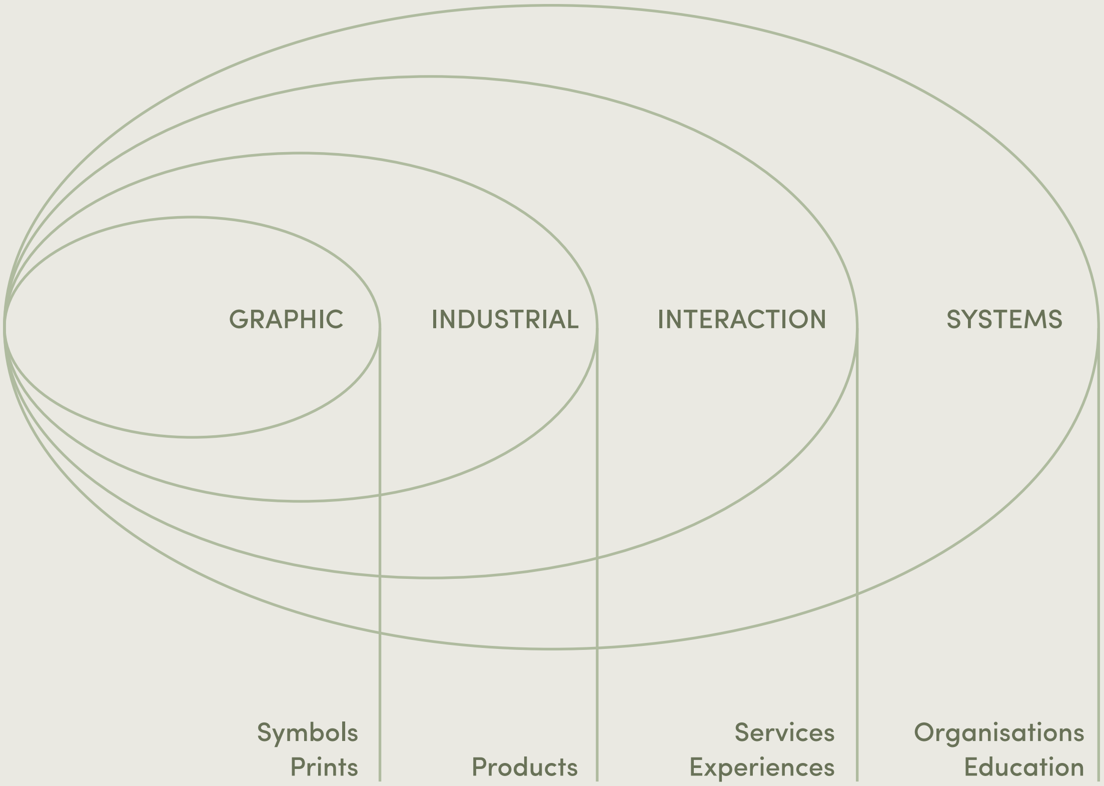


FIGURE 1. Four orders of design (adapted from Buchanan, 2001).

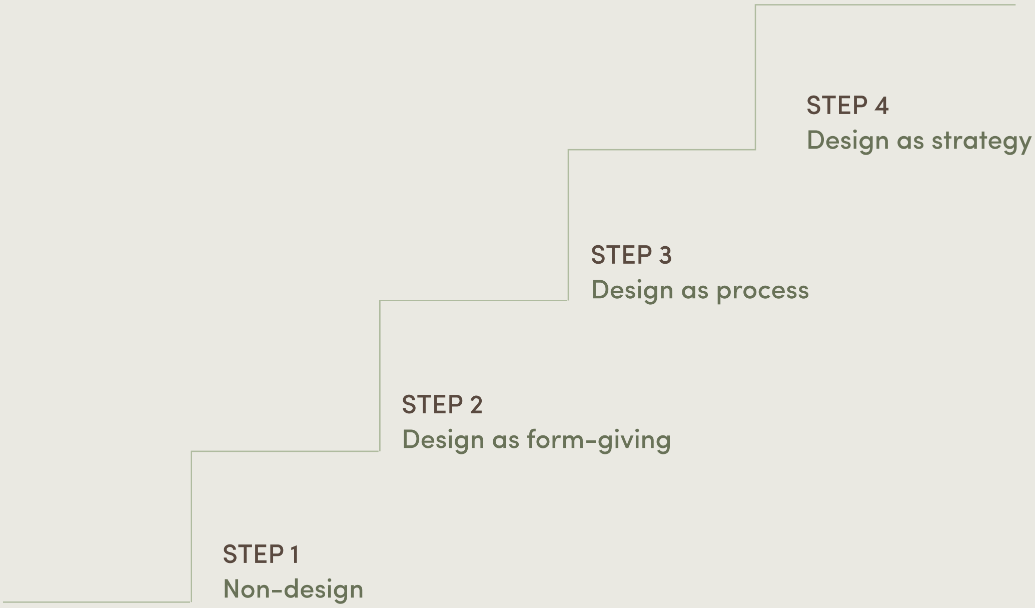


FIGURE 2. Design Ladder Model for company's use of design (adapted from Dansk Design Center, 2020)

Traditionally design has been designer-centered. This approach is top-down, suggesting that it is based on the designer's creativity, knowledge, imagination and ability to create a relevant solution for a given problem. This role could be described as being a legislator, as suggested by Koskinen and Battarbee (2003, p. 46). They describe how the users' understanding is treated with suspicion because designers themselves know better. Choosing this pathway involves more risks as the design has been based on "imagined users in imagined situations" (Ibid., p. 46). Nowadays, there are other pathways as well.

For the past couple decades, a central aspect in design has been the phenomenon of human-centered design (HCD). That is the opposite of a designer-centered approach. Human-centered design is not inspired by the designer's own ideas but by the real experiences of the users. This approach is bottom-up, putting the focus on the users and therefore HCD is also known as user-centered design. If a designer is traditionally seen as a legislator, with the human-centered approach designer can be seen as an interpreter (Koskinen, Battarbee and Mattelmäki, 2003, p. 47). In order to interpret the needs of the user, the designer must therefore first know the user. This approach brings clarity to the fuzzy front-end of a project and helps in creating the greatest value for the user.

Principles of human-centered design are universal. These have also been standardised by the International Organization for Standardization (ISO) in standard ISO 9241, titled as "Ergonomics of human-system interaction — Part 210: Human-centred design for interactive systems" (ISO, 2019). The principles by ISO (2019) are as follows:

1. *The design is based upon an explicit understanding of users, tasks and environments*
2. *Users are involved throughout design and development*
3. *The design is driven and refined by user-centred evaluation*
4. *The process is iterative*
5. *The design addresses the whole user experience*
6. *The design team includes multidisciplinary skills and perspectives*

Although the document for the standard is about requirements and recommendations for designing computer-based interactive systems, the principles are applicable to designing in other systems as well.

In practise human-centered design sounds simple. Simplified, a designer interprets the user's needs and wishes into a design outcome and uses a set of design tools throughout the creation process. However, design comprises different dimensions from printed products to architecture as stated earlier and the tools and methods available are endless varying from drawing to mapping processes. This challenge is amplified with the requirement of understanding the user. Compiling and collecting relevant data about the users and using it accordingly is where the designer needs to balance with the design education one has. Understanding human-centered design as a holistic approach and as balancing between the designer's and user's perspective is important as it underlines the challenge that human-centered approach in itself implies.

Designing with human-centered focus has multiple significant benefits. When a design meets the needs and requirements of the users, the design has succeeded and thus enhances the user satisfaction. By first knowing the users and then applying human factors and ergonomics in designing for the users is possible to create more usable and useful solutions, which contribute to better accessibility. Similarly, this approach can improve effectiveness, efficiency and sustainability if the measures taken for the design are justifiable and based on the knowledge from the users rather than speculation. Thus, resources are used more efficiently and for with reasoning. Overall, a human-centered approach is superior in contributing to human well-being as it fundamentally rests on humans themselves more than anything else.

Empathy in design

Human-centered design can be pursued through empathy. By definition, empathy is an "ability to share someone else's feelings or experiences by imagining what it would be like to be in that person's situation" (Cambridge Dictionary, 2019). This definition highlights how imagination is used to project the experience of the other. However, when empathy is applied in design, it should go beyond imagination and project the reality of the users. One approach to this is to create user understanding by being empathic.

Wispé (1986, cited in Kouprie and Visser, 2009) wisely wrote about sympathy being a "way of relating" and empathy being a "way of knowing". That idea scrutinises the essence of empathy creating deep knowledge instead of merely relating from a distance. As a designer it is important to find the balance between subjective empathy and objective observation. If these are not in balance, empathy can also be a problem in itself.

For a designer understanding about the user is often built through qualitative research. Jane Fulton Suri in book Empathic design describes how many traditional research methods in human and social sciences have been adopted and adapted to human-centered design, such as ethnographic methods from anthropology and testing techniques from experimental psychology. These are relevant for learning about people's abilities, habits and choices but these observations are not enough for building deep user understanding. She continues that for deep user understanding we need to know about how the user sees, feels or experiences. People's motivations, emotions, mental models, values and priorities cannot be observed. Designer needs those subjective phenomena to understand the user and this is where empathy. One needs to intuitively decode someone else's expressions and try to identify the other person's mental state. Making sense of other people's inner worlds is empathic imagination at work. (Ilpo Koskinen, Katja Battarbee and Tuuli Mattelmäki, 2003, p. 53)

User research sheds light on how an object, environment or service could be developed further to meet the user needs. Above empathy is also defined as an ability, which suggests that it is a skill that differs depending on people and can therefore also be practised. Individual person's empathic ability has been defined as an 'empathic horizon' by McDonagh-Philp and Denton (1999, cited in Kouprie and Visser, 2009). The limits of the horizon are dependent on one's personal characteristics, such as nationality, background, gender, age, culture, experience or education. Although some characteristics are static, experience and education can be influenced on and can therefore widen one's horizon, i.e. the ability to empathise. Similarly, different techniques, tools and frameworks can develop and enhance empathy throughout a design process and help to build empathy consistently. In the following chapter one framework for empathy is introduced.

Human-centered design framework

One approach to being empathic is being systematic in following a framework. One process for empathy in design practise is suggested by Kouprie and Visser (2009). Another is the Double Diamond Diagram introduced later.

The framework for empathy by Kouprie and Visser (2009) is about the relationship between the designer and the user. Main principle is that the relationship changes at different stages of the design process. Two central components in the changing relationship of the user and the designer are affective and cognitive components, terms that are borrowed from psychology. Affective component refers to the designer's emotional responses, feelings and being able to identify with the user. Cognitive components, on the other hand, refer to understanding, taking perspective and imagining the user. These two components are interlinked throughout the design process and contribute to empathy being born.

Empathy in a design process can be improved in four steps. Those phases are named (1) discovery, (2) immersion, (3) connection and (4) detachment. In practise, the designer first approaches the user and enters the user's world. In the following two phases the designer immerses in the user's reality in order to connect, resonate with the user and find meaning, in other words, connect. Lastly, the designer detaches and leaves the user's world with insights and knowledge that help in designing with user-perspective. Using different tools and techniques at these four stages contributes to building knowledge about the user from different angles. Through these methods it is possible to go beyond facts gathered simply through observation and create user understanding including feelings, and values.

According to Kouprie and Visser (2009), success in applying empathic design framework leans on three elements. First, designers need to have the motivation for the process and be willing to build on that user knowledge. Second, a designer needs to be flexible in the relationship towards the user and alternate between experiencing and reflecting accordingly. Lastly, the process requires time and not having it is an obstacle for an empathic design process. Although the design process in reality differs from the theory, the framework above is a relevant starting point for any project aiming for user-centeredness.

Another popular framework for innovation is the design process described in the Double Diamond Diagram by the British Design Council (2004, see Figure 3.). The diagram consists of four phases of a process: 1) discover, 2) define, 3) develop and 4) deliver. That exploration of an issue is thus first wide or deep (divergent thinking) and then takes focused action (convergent thinking) as described by Design Council (2020). The idea of iterative process is conceptualised in other frameworks with similar steps (Best, 2006; Mager, 2009; Miettinen & Koivisto 2009; cited in Stickdorn and Schneider, 2016, p. 126). These frameworks visualise the design process as being linear but it is important to understand them being non-linear in reality and that the approach of the suggested structure is iterative (Ibid., p. 124). The idea is to learn from the mistakes of the previous iteration (Ibid., p. 126). Applied design framework for this thesis is presented in Figure 8.

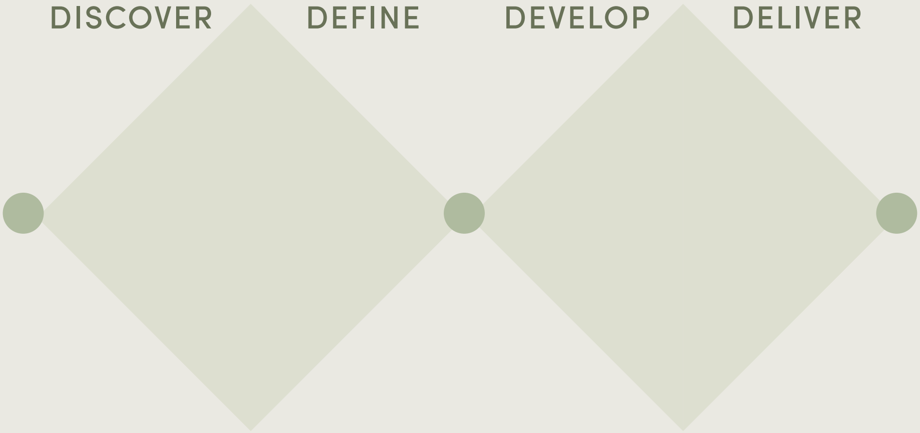


FIGURE 3. Double Diamond Diagram (adapted from the British Design Council, 2004).

2.3 User experience

User experience (UX) is a key concept in human-centered design. In the following are presented definitions and theories of experiencing discussed through the laws of user experience as well as designing for experiences. Lastly, studies relating to teacher's experience are examined in detail to set the context for researching the case study chosen.

User experience briefly

Experience is a concept that everyone of us has a definition for. Consciously or subconsciously experiencing is intrinsic for humans as a species and that has been of interest for philosophers since the period of Ancient Greece. Although user experience (UX) as a term was introduced as late as in the 1990s the idea had existed for long. Some argue that already in 4000 BC Feng Shui manifested the values of user experience in being an ideology for arranging objects in relation to the flow of energy in spaces (Stevens, 2019). Similarly, ergonomics are an area of study on how humans interact with other elements of a system and applying ergonomic principles helps to design and optimise human wellbeing (Ibid., 2019). In practise, there is a user experience aspect in all that we do, when we do it in relation to other things.

Discussions on experience in philosophy have also evolved since Ancient times. More recently in the 20th century philosopher John Dewey wrote extensively on experience and experiencing in the modern world and he aimed at creating a new understanding of humane experience as a basis of his pragmatic philosophy. According to Alhanen (2013, p. 8), Dewey saw the contemporary setting of experiencing as a problem. Generally, Dewey describes how experiencing is perceived as an individual's separate psychological and subjective process, where the structure and content are separate from the nature and surrounding socio-cultural environment, and how experience and action have been isolated from one another (Ibid., p. 8). Subsequently we cannot understand what behaviour fragments our experience and what on the other hand creates meaning and wholeness into it. (Ibid., p. 8). In Dewey's thinking central was the idea of inseparable interaction of nature and individual. Dewey interprets that failure in understanding experience as a concept thoroughly and wholly has manyfold consequences not only in philosophy but other areas of life such as education, moral, business life, politics, arts and science (Ibid., p. 8). This criticism of experience is still relevant today and acts as an interesting starting point for researching user experience as a phenomenon today.

In the context of design, simply said, a user experience (UX) is born when one interacts with an object, service or system in a certain context. In practise this can refer to one's experience in browsing the internet, drinking coffee from a certain cup or signing up for a doctor's appointment at the clinic. However, the concepts of user, experience and user experience can have slightly different meanings depending on the context as the same terms are used in psychology, philosophy, business, technology as well as design. Although no single overarching definitions can be provided, some clarity has been brought by various specialists in the User Experience White Paper (Roto et al., 2011), which is examined closer next.

Phenomenon of user experience refers to the experience created as a result of interacting with a system. In practise any experience can be a user experience as all human behaviour happens in relation to the surrounding environment, not in vacuum. However, for the sake of clarity and how the topic is discussed generally in literature, UX will be the term used here too. Characteristics of UX are that it is unique to an individual, it includes encountering a system actively or passively, is impacted by earlier experiences and expectations derived from those and lastly, it is related in a social and cultural context. (Ibid,. p. 5)

The terminology around user experience is interesting and sensitive to context. The verb “experiencing” is active and dynamic, and contains the individual’s perceptions, interpretations of those and emotions linked to that situation of interacting with the environment at that moment. The noun “experience” or “user experience” is examined more objectively, as a static thing that has both started and finished. Here the focus is more on the result of experiencing that could also be described as a memory and the terms do not explicitly define whether it is created individually or collectively. “Co-experience” or “shared experience” on the other hand define the outcome as being socially constructed, meaning that the interaction has taken place not only between individuals and systems but also between the individuals. (Ibid,. p. 7)

One crucial characteristic in user experience is the temporal dimension. This dimension can be exemplified with a hotel stay as a user experience, where the concrete interaction takes place in situ during that stay in the hotel. However, from the perspective of holistic user experience there is interaction also before the stay and after the stay. According to Roto et al. (2011, p. 8), these indirect interactions with the system can be referred to as anticipated UX (before encounter), momentary UX (during encounter), episodic UX (after encounter) or cumulative UX (overall). Also the internal process of the user differs accordingly. Before the encounter, UX is based on imagining the experience and similarly afterwards reflecting on an experience. To formulate a view of the system as a whole the internal process is about recollecting multiple periods of use, which in the case of hotel stay would be several hotel stays. Temporal dimension is important to consider when designing for an experience as the demands for design are dependent on the time span.

Although user experience is born as a sum of number of variables, three factors are always contributing to it. Those are context, user and system as defined by Roto et al. (2011, p. 10). Context refers to the social or physical context where the system is used, including technical and information context. Individual user's mental state can also alter the UX although other variables would remain constant. Finally, the system itself with all its details and characteristics is the third factor. These properties are for example functionality, aesthetics, responsiveness, interactions and brand image. Overall user experience consists of these factors and their relationships over a period of time. Although the factors are known, it is often not possible to influence all of them when designing for an experience and that is part of the UX challenge. This is discussed more in detail in the following chapter.

User experience discussed through the laws of UX

Designers operate in the intersection of multiple fields and one of them is psychology. Therefore, also user experience can be viewed and discussed from the perspective of psychology and other sciences. Particularly in designing for the optimal UX, complex laws known in other sciences are often applicable in the practical design work, just as there are other general principles to good design. Understanding the made decisions in the context of established knowledge or laws enhances argumentation and justification for those decisions, even though designers might intuitively solve problems. However, acknowledging these laws increases understanding for why we humans behave the way we do and might help in improving the UX.

Experienced design practitioner Jon Yablonski (2020) has written on Laws of UX to make psychology more accessible and available for designers to use in their work. He presents UX laws in a book called "Laws of UX: Using Psychology to Design Better Products & Services" (2020) as well as a website "Laws of UX" (Yablonski, 2020). He suggests that there are twenty laws from other sciences, and psychology in specific, that benefit designers in understanding users and making decisions. In the following are eight laws, principles and effects examined closer in order to show those can also be applied to the dimensions of design.

Hick's law (or the Hick-Hyman Law)

Hick's law (or the Hick-Hyman Law) is named after the psychologists William Edmund Hick and Ray Hyman in 1952. This team examined "the relationship between the number of stimuli present and an individual's reaction time to any given stimulus" (Yablonski, 2020). Expectedly, the more stimuli there is, the longer the reaction time of the individual. This directly links to user experience in for example browsing the web and perceiving the content of a site. The more users are bombarded with choices and information, the longer it takes to make decisions on which to interact. To keep the reaction time low, the amount of stimuli present should be low. Yablonski instructs to "simplify choices for the user by breaking down complex tasks into smaller steps" (Ibid., 2020).

Jakob's law
Jakob's law is coined by Dr. Jakob Nielsen, an engineer in human–computer interaction (HCI) and is applied to particularly web design. According to Jakob's law:

> *"Users spend most of their time on other sites. This means that users prefer your site to work the same way as all the other sites they already know. Design for patterns for which users are accustomed."* (Nielsen Norman Group, 2019)

The law explains itself exhaustively. To create a positive user experience, a website should not offer a new model for the user but rather be designed around existing patterns. This enables the user to focus energy on the task itself and in building an ever better user experience.

Law of Prägnanz
In 1910 psychologist Max Wertheimer formulated the Law of Prägnanz as a result of his observations on how we visually perceive objects. The main principle is that "People will perceive and interpret ambiguous or complex images as the simplest form(s) possible", (Bradley, 2014) suggesting that we perceive organised patterns and objects by nature. This interpretation requires the least cognitive effort of us as we simplify things and make them clear and ordered, leaving less room for surprises. This is also known as the Law of Simplicity. In user experience this means that keeping things look simple helps us to perceive and interpret information, and avoid getting overwhelmed.

Miller's Law
In 1956 George Miller created the Miller's Law as a result of his studies on the capacity of working memory. The main principle is that the working memory of an average person can keep 7 plus/minus 2 pieces of information at a time. If the working memory is overloaded, the result is confusion. From the user experience perspective, the law suggests that groups of content should be chunked or clustered in groups of 5–9 pieces of information at a time to avoid getting confused.

Pareto Principle
Pareto Principle was developed by an economist Joseph Juran, who was also a pioneer in quality control. The principle simply states that "for many events, roughly 80% of the effects come from 20% of the causes" (Yablonski, 2020) and is thus also known as 80-20 rule. The name of the principle refers to an Italian economist and sociologist Vilfredo Pareto, who was the first to note and report on how "80 percent of wealth was concentrated in about 20 percent of a population" (Sanders, 1987). The law and principle is used in economics and mathematics, but despite its vagueness, it is relevant in the creation of a good user experience at least strategically. Yablonski suggests that the majority of the effort should be spent on areas that will bring the greatest benefits to the most users.

Parkinson's Law

A naval historian Cyril Parkinson wrote in a satirical article in the Economist in 1955 about the ineffectiveness of bureaucracies. The punchline of Parkinson's text was "Work expands to fill the time available for its completion"(cited in Chew, 2017). Yablonski puts it in other words: "Any task will inflate until all of the available time is spent". Although the idea was articulated as a critique for bureaucrats, it can be applied to other things, particularly relating to time management. Reflecting on user experience, based on Parkinson's Law it is good to set restrictions and limitations to avoid uncontrolled use of time and support in managing time well and efficiently.

Peak-End Rule

Peak-End Rule is a psychological strategy that has its theoretical background in a study called "When More Pain Is Preferred to Less: Adding a Better End", by Kahneman, Fredrickson, Schreiber and Redelmeier in 1993. Summed by Yablonski (2020) "people judge an experience largely based on how they felt at its peak and at its end, rather than the total sum or average of every moment of the experience". He suggests that because of the peak-end rule, close attention should be paid at the most intense as well as final moments of the user's journey. In other words, a cognitive bias can change how we memorise past events.

Zeigarnik Effect

A Lithuanian psychologist Bluma Zeigarnik researched memory in 1927. In her studies, she unexpectedly showed that people are more likely to remember incomplete tasks than ones that have been completed. This has been given the name Zeigarnik Effect. (Waude, 2016)

In user experience the Yablonski (2020) suggests "to use progress bars for complex tasks to visually indicate when a task is incomplete, and thus increase the likelihood it will be completed". At the level of the experience in the everyday one solution to stay organised can be to-do lists, as suggested by Psychologist and author David Cohen (Chunn, 2017). These are both tools to support our brain in doing what it does automatically.

User experience design

Designing for user experiences is different from other forms of designing. Traditionally design is about working with physical materials, either visible or tactile, but in user experience design the outcome of an experience is abstract and invisible. However, concrete objects and artefacts are not the opposite of experience but are part in creating and shaping them (Hassenzahl, 2011). Paradoxically, in our materialistic world what is valued high today are immaterial experiences and there lies the challenge in designing for the user experience. Buxton (2007, p. 127, cited in Hassenzahl) sees that we are ultimately designing experiences, not material. Even in the case of objects what matters is the moment by moment experience of using it, rather than the product itself. Hassenzahl et al. (2010, cited in Hassenzahl) sum that “the product is only of interest as it is identified as being crucial in creating the experience”. Thus, it can be claimed that in the post-material era impressive industrial design and fancy looks are meaningless alone unless coupled for a meaningful experience. Actually, Hassenzahl (2011) argues that the experience should be designed before the product itself.

Fulfilling needs is central in experience design. Simply said, emotionally satisfying user experience is born by the speed a product is able to meet the user’s needs or even predict them before they emerge (Schwartz, 2017, p. 13). Similarly, Hassenzahl (2011) claims that “need-fulfilment is what makes an experience pleasurable”. Thus, understanding the relationship between person and product over time is at the core and goal of experience design. However, before being able to meet the needs of the users, those needs must be known but mining that information is not straightforward. The challenge in getting to know needs is that there can be various: psychological, emotional, physical, physiological and biological to mention some. Additionally, not all needs can be expressed explicitly but can potentially be observed or interpreted from behaviour. These combined increase the challenge of the designer as knowing the context of where to design is highlighted. In summary, the complexity of human needs influences how to design not only a product but an experience in using the product.

Designer’s role in the process of experience design can differ. Eric L. Reiss in his commentary to Hassenzahl’s text about user experience and experience design (Hassenzahl, 2011) states that the designer’s role in the design process should always be considered as it is different to create an experience than to facilitate one. Similarly, it is important to consider the role of products and touchpoints in the process, whether those are there to create or facilitate an experience. Norman uses the example of a telephone. Telephone is not there to create an experience of calling in itself but to facilitate the need of staying in touch. Therefore, the role of the product should be carefully considered before defining the designer’s role.

Designing for experiences is closely linked with value. If the needs are met, the experience is positive and that is a value perceived by the user. Traditionally value refers to the financial value or price of something but today the definition can be understood in a larger non-financial sense. According to Peter Doyle (2000, cited in Interaction Design Foundation, 2020), value can be defined in four different concepts: functional, financial, social and psychological value. Functional refers to how the product functionally solves a problem. Financial refers to the monetary price of a product in the traditional sense. Social value refers to what the product enables socially, i.e. how it impacts the user connecting with other people. Lastly, psychological value refers to the impact that the product has on the user on a personal level. Measuring value is done through both quantitatively and qualitatively although for example social value is impossible to measure in an unambiguous manner. A user might not be able to measure value per se and therefore central in experience design is the user's perception of value.

Value might be a business-oriented approach but the same can be discussed from another angle. Meaning has been used in, for example, researching teacher's experience, in psychology and social sciences. Meaning (Merriam-Webster, 2017) by definition is a "significant quality, especially implication of a hidden or special significance". This suggests that meaning is of importance and its implication might be imperceptible. In other words, in order to understand the meaning of something for a user, meaning has to be rather asked about than observed as it is not self-evident or even logically deduced. Similar to value explained previously, meaning is difficult to measure as well, which makes designing for a positive user experience challenging. When the aim is to create a meaningful experience for the user, the meanings and values of the user must first be known.

Designing for user experience can be discussed through a model. One approach is suggested by Marc Hassenzahl (2011) and it is visualised in Figure 4. Hassenzahl suggests that there are three levels to consider when designing for technology-mediated experiences: why, what and how. Those all pose questions to the functions and purpose of the product or service. The process starts with why. 'Why' addresses the user's motivation for using the product: needs, emotions and meaning. Only after responding to users needs the next levels of what and how are looked at. 'What' addresses the things that are possible to do with the product and what the functions of the product are.' How' on the other hand considers accessibility and aesthetics. Traditionally, levels of 'what' and 'how' are considered as the product but in experience design 'why' is the core, the main reason, of it. Through paying attention to these different layers it is possible to design for a satisfying and humane user experience. After all, "products, services and systems should improve the quality of people's lives, reduce stress, and create efficiencies that didn't previously exist", as summed by Whitney Hess in her commentary to Hassenzahl's article (Hassenzahl, 2011).

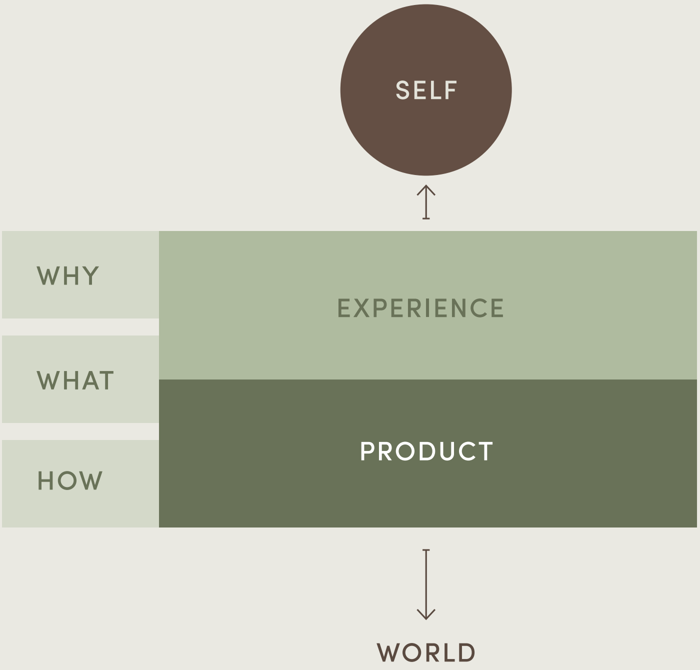


FIGURE 4. From the Why to the What and How: Three levels to consider when designing technology-mediated experiences. (Adapted from Hassenzahl, 2011).

2.4 Service design

In the context of this thesis, service design is a methodological framework. In practise this means that a set of tools from service design are utilised to answer the research questions. However, it is important to examine service design beyond its methods and understand its meaning in the design field, particularly as the research draws from various fields, design being only one of them. Thus, next service design is touched upon as a field of study and its relevant methods are introduced later in chapter four.

Service design is a design method applied for developing services that are aligned with the user's needs and wishes. It is a practical tool for human-centered design. It is not a stand-alone academic discipline but rather a new way of thinking, as suggested by Marc Stickdorn (Stickdorn and Schneider, 2016, p. 29). Service design is an emerging field with an interdisciplinary approach that has gained popularity in recent years. It has even entered public discussion as being an optional career for people with different backgrounds due to its nature of interdisciplinarity (Hongisto, 2017). Despite its popularity, it is not a magical wand that works on everything. Service design requires other design activities or other operations to be carried out in order to succeed.

Similar to human-centered design, service design builds on principles. As there is no common definition of what service design is, the principles can also vary. One list of service design principles is suggested by Marc Stickdorn in his book 'This is service design thinking' (Stickdorn and Schneider, 2016, p. 34) as follows:

1. *User-centered*
2. *Co-creative*
3. *Sequencing*
4. *Evidencing*
5. *Holistic*

These key adjectives are elaborated next to illustrate the characteristics of service design as a method for human-centered design.

At the heart of service design is the user. Not only in terms of designing for the user but aiming to engage the user and design together with the user. In order to develop the service for all of its users co-creation, creating together, should be included. By allowing different users and stakeholders to collaborate and ideate together new interaction and communication is born, only as a result of co-operating. All in all, the designer is not the one who knows but instead builds knowledge from first immersing in the users' world.

Significant aspect in service design is its visuality. Visualising abstract things, such as a service, makes complex issues approachable and the visuals help in creating a mutual language around the topic. By sequencing a service each part of the service is uncoupled and made visual, evident. This applies to both concrete and abstract parts of the service, tangible and intangible, and each should be equally brought on sight. Overall, the tools of service design can enable and facilitate dialogue between different people and this helps in making co-creation more efficient.

Considering a service holistically when designing is essential. A service is a complex system that is influenced and impacted by numerous factors and in developing it this entire environment needs to be considered. As the nature of any service is multi-faceted, so should be the process in creating it. This is reflected in service design as a methodology as it is qualitative and iterative by nature. Services are complex systems and changing one factor in it can lead to changes elsewhere. Therefore, service design is also iterative in nature as the service system naturally evolves with time and the need for new iterations emerges automatically.

Service design is not only done by educated designers. Traditionally educated designers are working with interior, industrial or graphic design but in service design such education is not prerequisite. Important is to be able to think like a designer, which today is often referred to as design thinking. In practise, service design combines different fields of activities ranging from aforementioned traditional design practises as well as engineers, economists, psychologists, business specialists and researchers (Stickdorn and Schneider, 2016, p. 54–55). Interdisciplinary and practical nature of service design makes it an accessible approach for many.

Service design can be applied extensively. Its applications vary from designing entirely new services, enhancing customer flows in existing services, aligning services processes with the needs of the users or optimising user experiences (Thoelen et al., 201, p. 20). The contexts in which it can be applied are similarly multiple. Practical approach of service design is not limited to certain fields or industries, suggesting that it can be used in health care, automotive industry as well as in the business of retailing groceries. As long as there is interaction between a human and a system, there is potential for service design.

Methods in service design are almost endless as different problems need different tools. Although the tools in the service designer's toolbox are many they all contribute to the same principles mentioned earlier and are the key resource in designing with the human-centered approach. With relevant use of the tools services can be made more useful, usable, desirable for clients and efficient as well as effective for organisations, as summed by Stefan Moritz (Stickdorn & Schneider, 2016, p. 30). For the purpose of this study five different service design methods were utilised and those are namely (1) value proposition canvas, (2) personas, (3) user experience mapping, (4) interviews and (5) service blueprint. All of these methods are described in detail in Chapter 4.

2.5 Teacher's world, work and experience

Teaching is an old profession, which has changed dramatically in the past decades. At the core of teaching is still education, which ultimately is about a living organism interacting with the surrounding environment. However, the tasks of a teacher have expanded beyond this competency. Sociologist Tommi Hoikkala (2003, cited in Salminen, 2012 p. 8) has aptly described a modern teacher to be a hybrid of promotor, roadie and an artist. With this he refers to the teacher being comparative to a decathlete: one that has to be both a communicational acrobat, creator of justifications, spirit and prerequisites for learning and be able to hold emotive responsibility while being an intellectual specialist and a negotiating public servant. Overall, it requires skills and attitude to be able to manoeuvre accordingly in the jungle of tasks and different roles.

One approach to understanding a modern teacher's position is to examine it at system level with system mapping. System map is a simplified visualisation of seeing how different things are related to another and it can be used as a tool for communicating. Donella H. Meadows, the author of Thinking in Systems (2008, p. 188) defines a system as:

> *"a set of elements or parts that is coherently organised and interconnected in a pattern or structure that produces a characteristic set of behaviours, often classified as its 'function' or 'purpose'."*

In the context of the teacher's world, the function or purpose is education. One interpretation to that system is provided in Figure 5, where the teacher–student relationship is in the centre in the micro level of the system, which self-evidently is at the centre of a teacher's world. Other significant parties, such as the government, municipalities and publishers of teaching materials, at the macro level of the system, are illustrated outside of the school. All of the different stakeholders can have an impact on how the teacher can operate in the system and as seen, the teacher's world is not only about teaching to the student. According to researchers the structure of school is defined as the chaotic result of cooperative action of economical, ideological and societal factors (Kliebard 1992; Lundgren 1981; Goodson 1998; Kansanen 2003; cited in Salminen, 2012, p. 68). As school reflects the rest of the society, there is pressure to develop it continuously to remain aligned. For this purpose different development schemes are arranged to change how the school and teachers operate. However, some argue that teachers change the development schemes more than the schemes change how the teachers operate (Tyack & Cuban 1995; cited in Salminen, 2012, p. 90). Overall, the system map of the teacher's world illustrates the complexity of it.

Educational systems have rather recently got characteristics of even more complex systems. Increase in different evaluations done both at macro and micro levels are one firm characteristic of systematics, argues Jari Salminen (2012, pp. 213–214). He describes that different techniques of measurement, and licences and competencies built around those, have grown to become an industry in itself over the past two decades. This fragments and differentiates the work schools do. He continues, that all this additional labour required by these systems is directly taken away from managing spontaneous educational moments. Salminen states that the consequences of this are difficult to measure yet as the phenomenon is relatively new. However, he speculates that these evaluation systems can prove harmful as it is outside of the main purpose of education and away from supporting the student directly. The time is then spent more on adopting and maintaining the system as well as managing techniques required by it. Simultaneously the scarce resources of the school are consumed.

Teacherhood is an extensively researched topic. However, only in the past two decades research has been done on how teachers themselves experience and understand their work (Säntti, 2008, p. 8). Also teachers' well-being has been an area of interest. Paradoxically, based on the research, teachers are doing both well and feeling ill in the current status (Koli, 2014, p. 2). On one hand, studies show that particularly changes in the teaching have significantly impacted how teachers cope in their jobs (Syrjäläinen 2002, Luukkainen 2004, van Veen & Sleegers 2009, cited in Koli, 2014, p. 1) and other negative phenomena related to well-being at work, such as being tired of development, losing control of work, identity or even sense (Cheng & Walker 2008; Lindén 2010; Vähäsantanen 2013, cited in Koli, 2014, p. 1). Teachers experience students as being more challenging than in the past while teachers are a subject to multiple reforms (Koli, 2014, p. 1). On the other hand, teachers are on average content and committed to their work and have appreciation for what they are doing. Important resources in working as a teacher are high control of work, support of superiors and social relations as noted by Hakanen, Bakker & Schaufeli (2006, cited in Koli, p. 2). According to Hakanen (2006, p. 29–33, cited in Kajaste, 2018, p. 24), more teachers are experiencing flow at their work than are suffering from stress or burnout. Overall, teaching is changing and that reflects to teachers in both positive and negative.

Research on novice teacher's skills for task management sheds light on how young teachers experience their work. In their thesis work Vuokko Jurvakainen and Veera Valander (2017) researched how young teachers experience the challenges of their work and what are their visions for improving task management. Almost all of the novice teachers saw that their work contains various challenges of which the most typical were sense of inadequacy, challenges in planning for classes, limiting working time and detaching from work. In the survey teachers pointed out ways in which they would like to have support in mastering their work. Most common answers were peer support, support

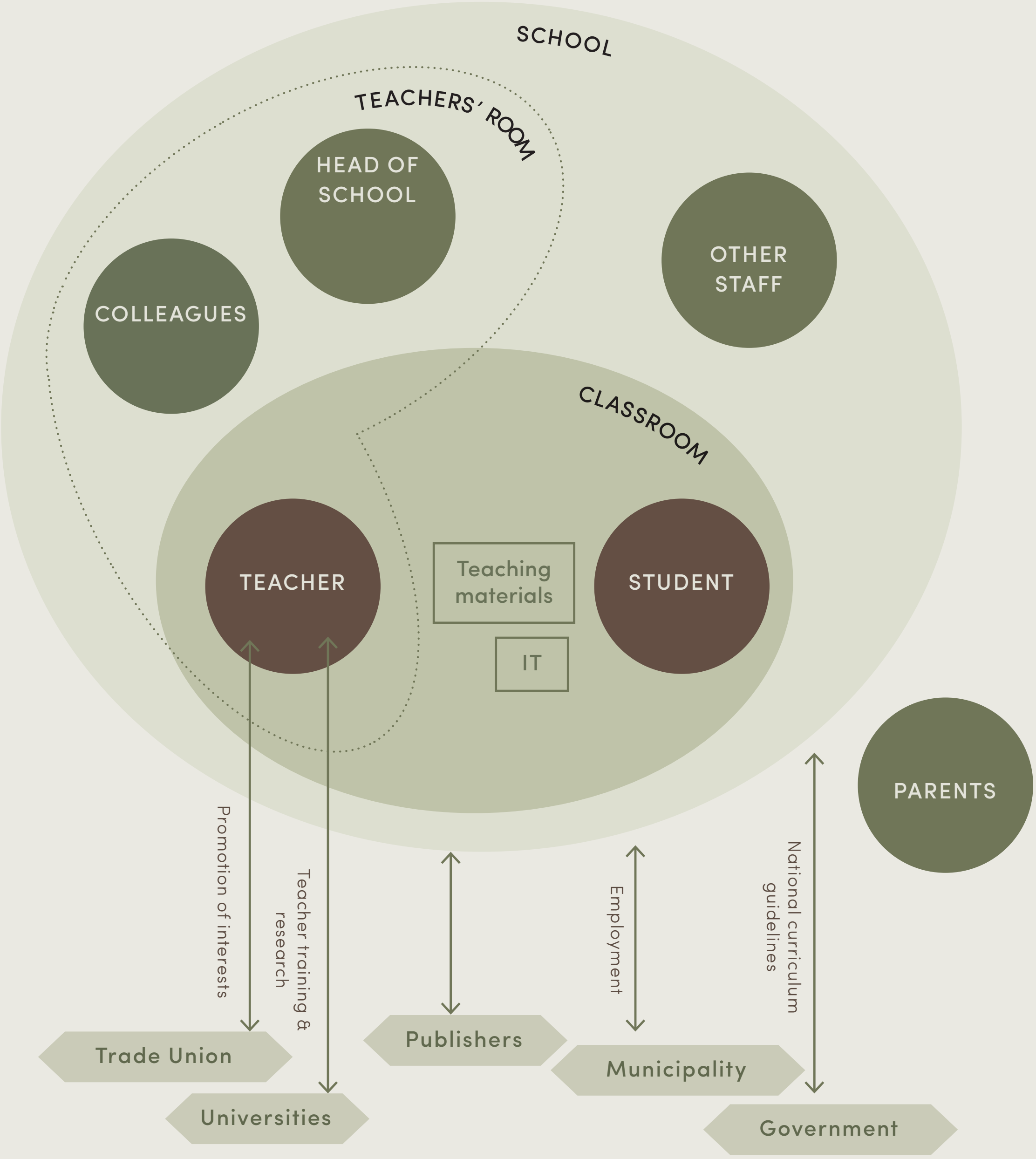

SCHOOL
TEACHERS' ROOM
HEAD OF SCHOOL
COLLEAGUES
OTHER STAFF
CLASSROOM
TEACHER
Teaching materials
IT
STUDENT
PARENTS
Promotion of interests
Teacher training & research
Employment
National curriculum guidelines
Trade Union
Universities
Publishers
Municipality
Government

FIGURE 5. System map of a teacher (Adapted and modified from Ikonen et al., 2020).

for time management and common rules (Ibid., p. 70). Although many of the skills naturally improve along with experience, the need for more support is strongly present.

Meaning as a component of a teacher's experience has not been researched much. Master of Education Enni Kajaste in her thesis (2018) states the same and wonders if meaning in a teacher's job is considered so self-evident that there is no need for researching it. Her study shows that teachers experience their work as meaningful but different factors in the everyday occasionally make the feeling of meaningfulness disappear. Meaning is born above all as a result of the educational relationship with pupils and from the ability to influence children and society through work. To maintain this feeling support is needed from the community as well as experience of flow in the everyday and joy and experiences that support one's own development and wellbeing. Particularly rush and feeling of inadequacy put a strain on teachers and make them question the meaning of their own work. The ability to focus on small moments and what one values self helps in remembering the feeling of meaningfulness. Kajaste sums that the experience of meaningfulness is important from maintaining motivation and coping at work from the teacher's viewpoint. She continues that when making decisions about school the teacher's experience of the meaningfulness of their work should be respected. She also states the ability for teachers to sustain meaningfulness in their work should be guaranteed at the practical level. By giving teachers the opportunity and time to focus on encountering pupils, to plan teaching and to reflect upon work. She sums that by taking care of the needs of the teachers these simultaneously influence the quality of teaching and well-being of pupils.

Teaching can be categorised as emotional labour. The concept of emotional labour is about managing feelings to create "a publicly observable facial and bodily display" as defined by Arlie Russell Hochschild (2003, p. 7). Traditionally labour is done physically and mentally but with emotional labour the worker has to consider beyond these two, in other dimensions. Emotional labour reflects the worker's personality and individuality as one has to not only manage to do something but also meet other people's expectations while doing it. The worker has to be able to remain professional and carry the role with dignity, which is referred to as deep acting. Typical examples of emotional labour is work done by nurses (de Jonge et al., 2008), flight attendants alike teachers (Hochschild, 2003). In practise, a teacher does not teach monotonously but is constantly alert and present for students while facilitating interaction and communication in the classroom actively and continuously. In particular, teachers in environmental education have been the subject of concern for researcher and environmental education theorist John Fraser (cited in Pihkala, 2018). According to Fraser and his empirical research, there is burnout potential in teachers of environmental education because of the burden caused by emotional labour. The burden is a sum of multiple factors: teachers are not educated for emotional labour, there is little respect for it in work communities and there are no treatment procedures for being emotionally burdened (Pihkala, 2018). According to Pihkala (Ibid.), there is a need for open discussion on how the respect for emotional labour in environmental education can be advanced and supported. It can be summed that there is a need for supporting teachers in managing their emotional labour, also in environmental education.

2.6 Theoretical framework of user experience in environmental education for this thesis

The aforementioned theories are combined into a multidisciplinary theoretical framework (see Figure 6) to assist in understanding the research scope of this thesis. Design research is often done at the intersection of multiple fields and so is the case here. Environmental education alone is a widely researched theme under educational sciences and user experience as a field of study is more multidisciplinary by nature. Through the methods of service design these two disciplines can be examined in a novel manner in order to shed light on the experience of teachers involved in teaching environmental education. In the next chapter, the case organisation and project of the research is explained.

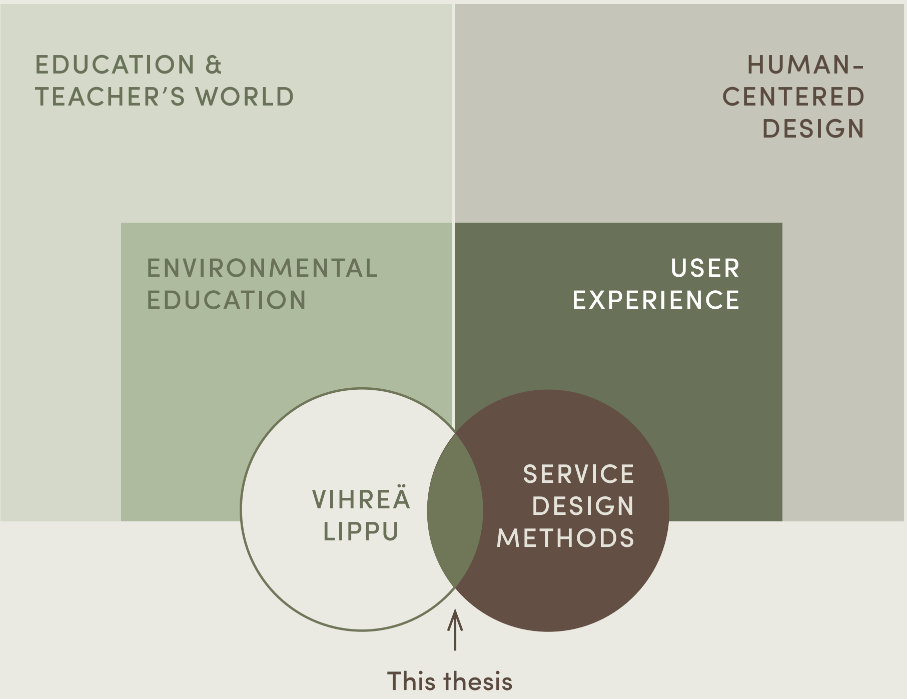

EDUCATION & TEACHER'S WORLD
HUMAN-CENTERED DESIGN
ENVIRONMENTAL EDUCATION
USER EXPERIENCE
VIHREÄ LIPPU
SERVICE DESIGN METHODS
This thesis

FIGURE 6. Theoretical framework of user experience in environmental education in this thesis.

3

Case organisation

In this chapter, the case organisation for the research project is introduced and described in detail.

Case study by definition is about researching a phenomenon in a real-life context. It is a research method often used in social sciences but to be precise, it is a research strategy or a research convention (Laine, Bamberg & Jokinen 2007, cited in Wikipedia). In a case study the subject is researched holistically with one or multiple methods in order to analyse the focus of the study in depth.

In this research, teacher's experience and opportunities for developing it in environmental education are researched in the context of the global sustainable school programme, which in the Finnish context is called Vihreä Lippu (transl. green flag). Globally the programme is called Eco-Schools but for the sake of clarity, in this thesis work the proper noun Vihreä lippu is used, despite being in Finnish. In Finland the programme is managed and coordinated by the Foundation for Environmental Education Finland (FEE Suomi), which is part of the world's largest network for environmental education. At the same time it is the only organisation in Finland solely focusing on promoting, developing and supporting environmental education. Although goals of environmental education are mentioned in the Finnish national curriculum, the ways it actualises in schools are many. One framework for carrying it out is provided by Vihreä lippu but there are others and some institutions use none. Despite the description of eco-schools, Vihreä lippu can also be obtained by daycare centres and operators of different hobbies. In the context of this study, the focus is simply in comprehensive schools. Today there are over 300 units, including schools, daycare centres and other operators, around Finland committing to the Vihreä lippu programme.

Vihreä lippu programme is pragmatic and systematic. In practise, this is realised through each unit committing to carry out the 7-step procedure over a period of 1–2 years in order to apply for the eco-certificate (see Figure 7). In these seven steps, the unit focuses on one theme relating to sustainability and executes a number of tasks and events, which are self-evaluated and in the end audited by FEE Suomi organisation. Once a project is successfully finished and accepted, the unit gets to flag their green flag and choose another new project to continue. After three successful projects the unit can move on to a sustainable level, which means lower costs for participation. The idea of the programme is that it is continuous and persistent. The aim of the Vihreä lippu programme is to engage the youth of today to protect the planet of tomorrow.

The programme has a history of 20 years in Finland and over the years it has been developed incrementally. Upon hiring a new programme manager in 2020 FEE Suomi initiated a development scheme aiming to improve the programme and certificate further. This fresh setting simultaneously created an opportunity for a trained designer to be involved in the process, which in practice turned out to be the research for this master's thesis.

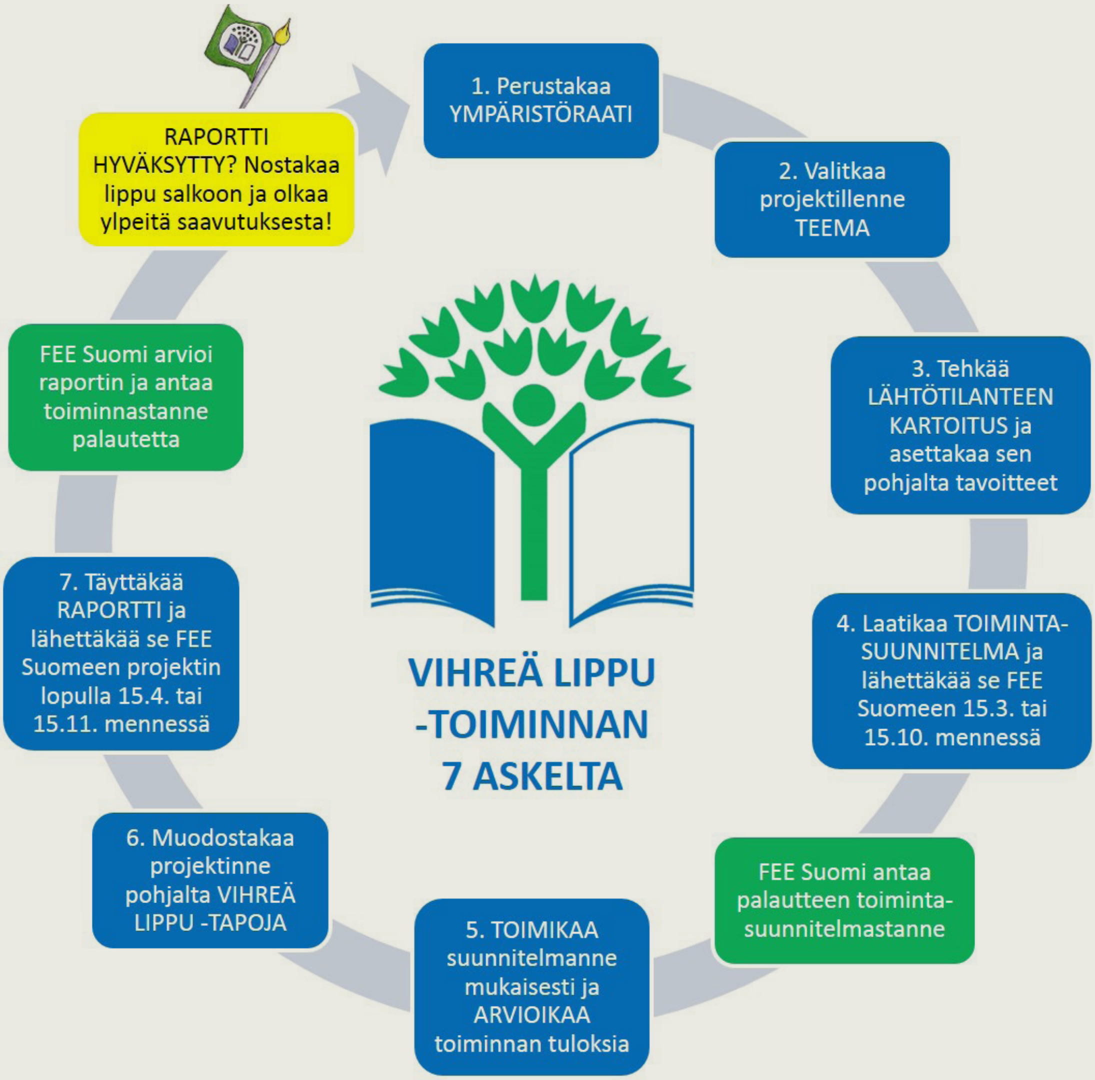

VIHREÄ LIPPU -TOIMINNAN 7 ASKELTA
1. Perustakaa YMPÄRISTÖRAATI
2. Valitkaa projektillenne TEEMA
3. Tehkää LÄHTÖTILANTEEN KARTOITUS ja asettakaa sen pohjalta tavoitteet
4. Laatikaa TOIMINTA-SUUNNITELMA ja lähettäkää se FEE Suomeen 15.3. tai 15.10. mennessä
FEE Suomi antaa palautteen toiminta-suunnitelmastanne
5. TOIMIKAA suunnitelmanne mukaisesti ja ARVIOIKAA toiminnan tuloksia
6. Muodostakaa projektinne pohjalta VIHREÄ LIPPU -TAPOJA
7. Täyttäkää RAPORTTI ja lähettäkää se FEE Suomeen projektin lopulla 15.4. tai 15.11. mennessä
FEE Suomi arvioi raportin ja antaa toiminnastanne palautetta
RAPORTTI HYVÄKSYTTY? Nostakaa lippu salkoon ja olkaa ylpeitä saavutuksesta!

FIGURE 7. Current 7-step procedure of Vihreä lippu eco-school programme (Vihreä lippu).

Starting point for the case study was in the project brief in February 2020. According to the executive manager, there are signals from the users that should be reacted to. These signals are the programme being described as heavy or bureaucratic, participants experiencing lack of support or not having their needs met well. Another open-ended question was about how to start with new participants. All of these problems should be researched into and all solutions should be reflecting the programme's strategy 2020–2024. Previous user surveys conducted in 2018 can be used as background information. The programme, materials and services should be developed to meet the needs of participants influenced by the changing world in the contemporary learning environments.

The core idea of the collaboration in the context of this case study is to employ mindsets of designers: being human-centered, collaborative, optimistic and experimental in order to enhance the experience of Vihreä lippu user's experience in the programme. As a result, FEE Suomi not only has the deliverables of this research project but also the experience in utilising a designerly approach early in a process and experiencing the added value of that. In practise, the designer's role is to frame the service and the experience as it is seen by the service-provider and how it differs from the users' perception. In other words, here the designer acts as an interpreter between the service-provider and the user and aims to narrow the gap between the two by creating relevant interaction to support mutual understanding.

In the past FEE Suomi has used design mainly for styling purposes, such as creating the website and marketing materials done by outsourced professionals for Vihreä lippu. When examining status quo the use of design with Design Ladder framework (see Figure 2), the organisation is currently at step 2. Through this collaboration FEE Suomi taps on the potential of utilising design as a process and creating an understanding of their users from the designer's viewpoint, meaning step 3 in the ladder.

In summary, the case study of Vihreä lippu development scheme of FEE Suomi is a qualitative research for the topic of teacher's experience of environmental education. The focus is on formulating empathic understanding of the current status and then making proposals for the development scheme. In practise this means applying design thinking and design methods especially at the first phases of innovating as explained in the following chapter.

4

Methods

In this chapter the focus is on describing the methods of the research. First, the qualitative research with multiple methods and the research process are generally overviewed. Last, chosen service design methods are explained in detail.

4.1 Qualitative research with multiple methods

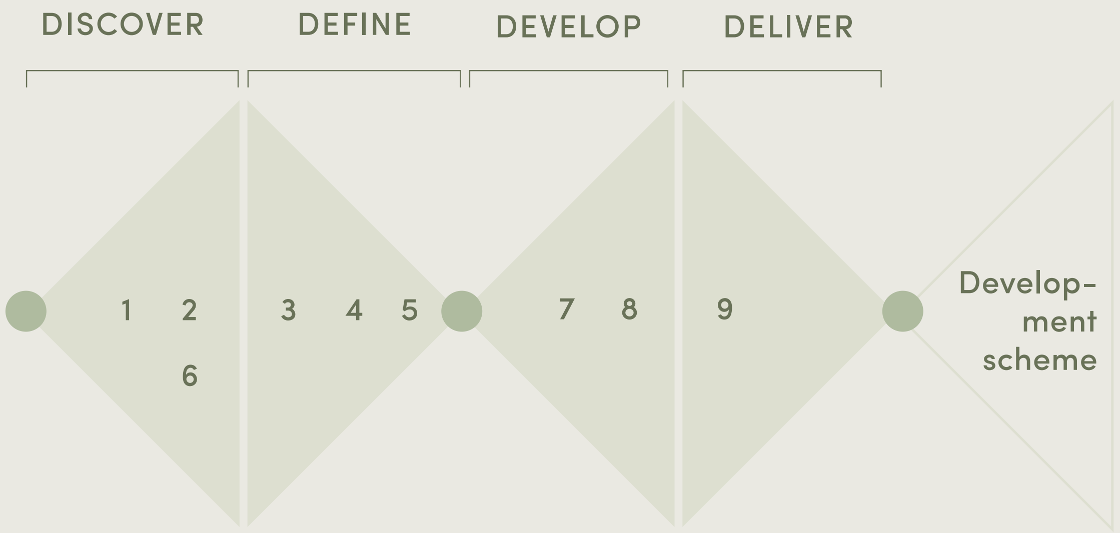
Design research is often done using qualitative methods. In general, qualitative research is seen as a method of creating a deeper understanding of less people, whereas quantitative research focuses on collecting greater amounts of measurable and comparable data of more people, which can be generalised. Moving from empirical data to generalisations is also known as an inductive view. However, the goal in qualitative research is not to have statistical generalisations, but rather aim to have a description to a phenomenon or event, certain actions or simply give a sensible interpretation to a single phenomenon (Tuomi & Sarajärvi, 2018, p. 98). Thus, the philosophical approach of this thesis represents interpretivism, which does not seek an objective truth but rather unravels patterns of subjective understanding. Further, according to the interpretivist approach, the truth is shaped by the viewers' perceptions and understanding of their world (Roth and Mehta, 2002). Overall, in doing qualitative research it is important to collect data from those who are experienced or otherwise know much about the phenomenon (Tuomi & Sarajärvi, 2018, p. 98).

Instead of conducting research with a single method it is possible to choose multiple methods. This means employing more than one parallel method, for example three different qualitative methods. This should not be confused with mixed method research (MMR), which refers to combining two methods with different approaches, namely qualitative and quantitative. This research is done with multiple methods that build on one another. As an allegory, to get a comprehensive understanding of an elephant it should not be only photographed from one angle only but researched from multiple viewpoints with different methods, such as measuring and observing.

4.2 Multiple method research process

The qualitative research process with service design approach can be described as iterative. In other words, the research plan is evaluated and changed according to findings several times in the process. In practise iterative process means that primary stages of research act as background research and are a prerequisite for the latter stages of the research. Thus, the whole research process cannot be fully planned before and needs to be adjusted accordingly.

The research and design process in the case study of Vihreä lippu is illustrated in a modified Double Diamond Diagram by in Figure 8 combining both the overall research process and individual steps taken in the process. Overall, the approach in the study is based on human-centered framework and utilising service design methods.


DISCOVER
DEFINE
DEVELOP
DELIVER
1
2
6
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4
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8
9
Develop-
ment
scheme

1. Project brief*
2. Desk research
3. Value propositions*
4. Creating personas*
5. Mapping user experience*
6. User research (interviews)
7. Service blueprint*
8. Evaluation & validation*
9. Design proposals

* executed as a workshop

FIGURE 8. Phases of the thesis research illustrated on a Double Diamond Diagram (adapted and modified from Design Council).

4.3 Desk research

As stated by the name desk research is about doing research on one's desktop and browsing through existing sources such as the internet and books (Management Study Guide, 2015). For a professional and busy designer this is the most cost-efficient and most evident way of starting background research for any project.

In this case study desk research was the primary method for studying about the phenomena related to the topic. This method was also employed for familiarising with Vihreä Lippu materials provided by the client and found online. Although the focus on desk research is in the beginning of the process, it continues until the end of the project.

4.4 Service design methods

In service design the users are the central source of information. Depending on the need of the user's knowledge, there are different tools that can be used. One effective way to ideate and co-create together is to arrange a workshop. Workshop is by definition a limited period of time where a selected group of people works on an issue together. In service design, workshops are central methods for enabling equal participation and collaboration of different stakeholders. The aim of workshops is to not only to converse and interact but also to ultimately create value together.

In the following five different workshop methods are explained in addition to more traditional, one-on-one semi-structured interviews.

ATLAS game

ATLAS is a board game that acts as a service design tool for facilitating collaboration in order to create a project plan for a service. The idea of the game is to let players, ideally from different disciplines, bring their own knowledge into the game, analyse the project together and adjust it accordingly with the right participants and do it all in a gamely, fun, visual manner. The focus of the game is in a single service.

In practise, hexagonal tiles are drawn from stacks and placed on the board and questions presented on the tiles are answered in collaboration. Answers are written on sticky notes on the tiles and placed on the board to the right slot. There are different categories for the tiles: project definitions, participants, methods and tools, and challenge. As the game progresses, participants are able to formulate a mutual understanding of the project for the service, as they have shared and combined their knowledge. The game continues 2–3 hours until the brief is finished. (Hannula, 2020)

Value proposition design

Value proposition could be defined as the promise a company has for the customers. It should be part of the company's marketing strategy and the promise for the customers is made regarding the value that is delivered upon consumption of that certain product or service (Twin, 2019). To continue, in a nutshell:

"The value proposition provides a declaration of intent or a statement that introduces a company's brand to consumers by telling them what the company stands for, how it operates, and why it deserves their business." (Ibid., 2019)

Business Model Canvas (BMC) is a 10-step visual tool, a canvas, for describing how an organisation can create, deliver and capture value. Value proposition is one of these steps. The method was originally developed by economists Osterwalder and Pigneur in 2010 and it has become popular in both business studies and practice. Similarly, Value Proposition Canvas (VPC) by the same developers is refined from the latter and is "like a plug-in to the former that allows you to zoom into the details of how you are creating value for customers" (Osterwalder et al., 2014, p. WVI).

Value Proposition Canvas juxtaposes value proposition and customer segments in two visualisations: value map and customer profile. Value map describes the features of a specific value proposition in a business and breaks value proposition into products and services, pain reliever and gain creators (Osterwalder et al., 2014, p. 8). Customer profile, on the other hand, describes a specific customer segment of a business model and breaks the customer down into jobs, pains and gains (Ibid., p. 9).

Persona creation

Personas are imaginary people who represent particular user groups. Each user group shares similar interests, roles or tasks and based on these they can be created into characters. Personas can be developed collaboratively based on research insights from different sources, such as stakeholder maps, shadowing and interviews (Stickdorn, M. and Schneider, J., 2016, p. 178). Important in creating personas is how descriptive and realistic the persona is, and that can be enhanced through anecdotes and images. In practise, personas are detailed, realistic descriptions of imaginary users of a service presented on visual sheets. This format allows design teams to perceive the users more as real people rather than abstract user groups. In summary, creating a persona is described to help in understanding the world holistically from the perspective of a user and to clarify what that world is made up of (Kimbell, 2014, p. 90).

User experience mapping

User's experience of interacting with a service can be visualised in a map. Mapping the user experience is about looking at different interactions and what the service experience is made of from the user's viewpoint in order to understand the value of the service, how the user experience is born and what the pain points are. There are different approaches to using this method and one is described in the Service Innovation handbook (Kimbell, 2014, p. 86).

According to Kimbell, user experience maps can be used both to focus on a single set of interaction or a whole customer lifecycle. Generally, the template for the map should be modified according to what is being mapped but the perspective is of one single user. The map can contain different touchpoints, actions, feelings or motivations of the user and opportunities of how things could be different. The map has a temporal aspect as well as different aspects of the service are noted over a period of time. Mapping can start from the first moment of finding out about the service, and continue through different interactions until ending to use the service. The purpose is to describe someone's experience step by step and it can be applied for both existing as well as future services.

In practice user mapping is effective when done collaboratively in a workshop. Different people contributing to creating a service can participate to share their ideas, thoughts and knowledge on different stages of the user's interactions. Everyone should share and tell their views and they should be reflected on in order to synthesise them in the user experience map. The process and outcome can help in building knowledge about users, their thoughts, wishes and feelings. However, no method in itself is exhaustive and needs support from other methods to make the research of the user experience as accurate and wide as possible.

Semi-structured interviews

Interviewing is a traditional and popular method for academic research. It is an efficient way to find answers to questions if they are directed to the right people. Being able to repeat the question, rephrase it, to correct misunderstandings and to informally converse with the informant are all benefits of this method. Semi-structuring an interview means having a set of questions prepared for all interviewees but being able to go on sidetracks if needed. In terms of user research, interviews can be used, for example, for investigating whether the users and the community around have understood the values of the organisation in the same manner as they are being communicated, suggests researcher Markus Ahola (personal discussion, March 20, 2020).

In addition to being an academic method, interviews are also part of service design methods. One way of doing interviews in a service designerly manner would be in context where the service process of interest occurs (Stickdorn, M. and Schneider, J., 2016, p. 162). As this case study employs service design anyway, interviews were a justifiable core method despite them being done out of context.

As qualitative research cannot be used to make statistical generalisations, the right amount of informants is for the researcher to decide upon. According to an experienced advisor, a good number of informants for a thesis work is 6–8 (Eskola, cited in Tuomi & Sarajärvi, p. 99, 2018). I wished to have slightly more in order to have enough variety between two user groups: the beginners and experienced teachers. The interviews of 11 teachers are the central data of this research and the steps are described thoroughly in the following chapter.

Service blueprinting

Service blueprint is a detailed visualisation of a service. Simplified, a service's existence in time and space is brought to view through the interactions of the users and the functions of the organisation involved (Kimbell, 2014, p. 178), and other parties involved. In practise, the service is dissected into detailed steps and the service system around the steps is visualised in detail. For example, different touchpoints between the user and the service provider are represented in the line of interaction. Similarly, line of visibility separates the actions of frontstage and backstage, earlier being visible to the user and the latter not. Overall, service blueprint enables building a view of a service as a whole.

Producing a service blueprint is often done in a collaborative workshop, inviting different people from various departments or teams. Similar to creating a service, the knowledge of various teams helps in seeing the service from different viewpoints and broadly. Service blueprint is a "living document" (Ibid., p 204), and should be revised periodically. As there are changes in the environment and changes in the service itself, these should also be reflected in the blueprint.

Service has many uses. It can act as a starting point in creating a new service or it can be utilised in developing an existing one with new ideas. Blueprint can point out blind spots in the service as all of its elements are described and outlined accordingly. Lastly, a valuable aspect is its collaborative nature, which can enhance cooperation and team spirit.

5

Data collection & analysis

In this chapter the data collection and data analysis are described. First, multiple methods of the data collection are described in detail. Second, the data analysis used mainly for interviews is explained. The chapter is finished with ethical considerations.

5.1 Data collection

This thesis work consists of multiple methods. For the purpose of this study five different service design methods were utilised and those are namely (1) value proposition canvas, (2) personas, (3) user experience mapping, (4) interviews and (5) service blueprint (see Table 1). In order to conduct semi-structured interviews, it was necessary to organise a number of workshops to have enough background information to determine relevant scope and questions for the interviews. In other words, different workshop methods contribute to data collection and are a prerequisite for later methods. Predominant conditions influenced the practise of the research. Two of the workshops were organised out in the forest in nature reserve, one traditionally in a meeting room and two remotely via digital platform. In the following different phases of the data collection are described in detail.

TABLE 1. Research methods, dates, durations and deliverables

METHOD	DATE	DURATION	DELIVERABLE
Kick-off with ATLAS game	April 6, 2020	3 h	Project plan
Value propositions and users	May 5, 2020	3 h 30 min	Value propositions
User groups and their experiences	May 12, 2020	4 h	Personas UX map
Semi-structured interviews	June 2020	9h 19 min	Research findings
Service blueprint	Sep 14, 2020	3h	Service blueprint
Evaluation & validation	Oct 22, 2020	2 h	Design proposals

Kick-off workshop with ATLAS game

This research project and collaboration was initiated by playing an ATLAS board game. The workshop took place outdoors in the nature reserve and three people participated in it on a sunny afternoon (see Images 1 & 2). We played the game with curiosity as it was the first time for all participants to utilise such a tool. Different aspects of the future project were described in detail and together we were able to formulate a coherent project plan for this thesis work. The plan included mapping the opportunities and restrictions, predicting possible challenges, choosing methods and tools, and lastly deciding on participants and relevant stakeholders. The client expects the project to offer an eureka moment (“ah, you can do it this way as well!”)

IMAGE 1 & 2. Project kick-off with playing ATLAS board game in Kivinokka nature reserve. ↑ →

for themselves regarding how the programme is visioned and in practise to receive an interpretation of the status quo as a warm-up for their own development scheme.

One member of the project had recently started in the new position and generally the organisation was not familiar with the design perspective on service development. Considering that, it was important to have a visual and playful approach for starting the project. The boardgame enabled creating a relaxed and inspiring atmosphere, while mutual understanding about the project's opportunities were mapped. The outcome of the co-creative workshop was a project plan for this thesis and research.

Workshop on value proposition design and user groups

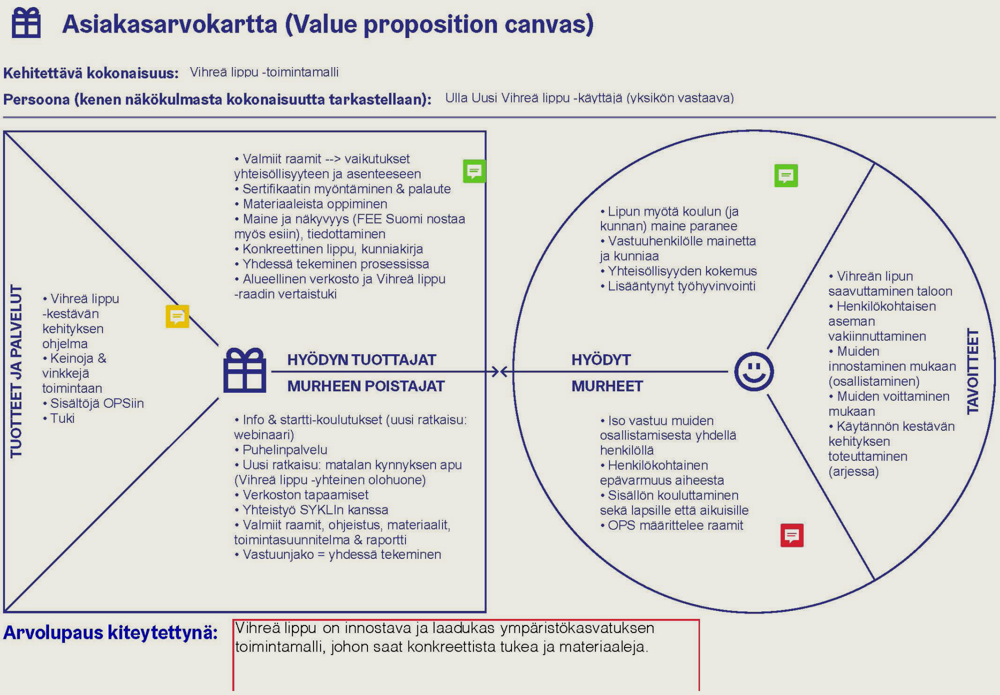
The second workshop focused on designing value propositions. This method was chosen in order to clarify existing customer understanding and to describe how value creation for customers is seen in the organisation. Also, through visualisation of the value proposition it becomes visible and tangible, and thus easier to discuss and manage (Osterwalder et al., 2014, p. XIV).

The workshop was carried out on a digital platform, enabling altogether six participants from different cities to participate. After a brief introduction of each participant we started by defining the user segments in focus. User segments can be found in both primary users of the service (teachers, principals…) as well as secondary users (students, pupils, city officials…). In unison the decision was made to focus on the core user segment: teachers themselves and comprehensive school teachers in specific. That user segment was further divided into two: beginners represented by "Ulla Uusi" (free transl. Bea the Beginner) and more experienced users represented by "Kalle Kokenut" (free transl. "Anthony the Advanced"). Pains and gains of both segments were examined and described in detail in order to produce the main deliverable of the workshop: written value propositions for each. Those were:

> *For the beginners:*
> *Vihreä lippu is an inspiring high-class operational model for environmental education, in which you are supported and given materials to.*
>
> *For the experienced:*
> *Vihreä lippu is an efficient, communal and continually developing operational model for environmental education, in which you are part of an international network.*

In the end of the workshop a decision was also made that the rest of the research should be limited solely on these users in order to find in-depth knowledge about the core users of the service.

Overall, the workshop was successful in two ways. First, it was the first time that value propositions were crystallised in the organisation in general. Second, the workshop emphasised the understanding that the existing service content had not been clearly refined to fit the needs of different user segments.



Asiakasarvokartta (Value proposition canvas)

Kehitettävä kokonaisuus: Vihreä lippu -toimintamalli

Persoona (kenen näkökulmasta kokonaisuutta tarkastellaan): Ulla Uusi Vihreä lippu -käyttäjä (yksikön vastaava)

TUOTTEET JA PALVELUT
- Vihreä lippu -kestävän kehityksen ohjelma
- Keinoja & vinkkejä toimintaan
- Sisältöjä OPSiin
- Tuki

HYÖDYN TUOTTAJAT
- Valmiit raamit --> vaikutukset yhteisöllisyyteen ja asenteeseen
- Sertifikaatin myöntäminen & palaute
- Materiaaleista oppiminen
- Maine ja näkyvyys (FEE Suomi nostaa myös esiin), tiedottaminen
- Konkreettinen lippu, kunniakirja
- Yhdessä tekeminen prosessissa
- Alueellinen verkosto ja Vihreä lippu -raadin vertaistuki

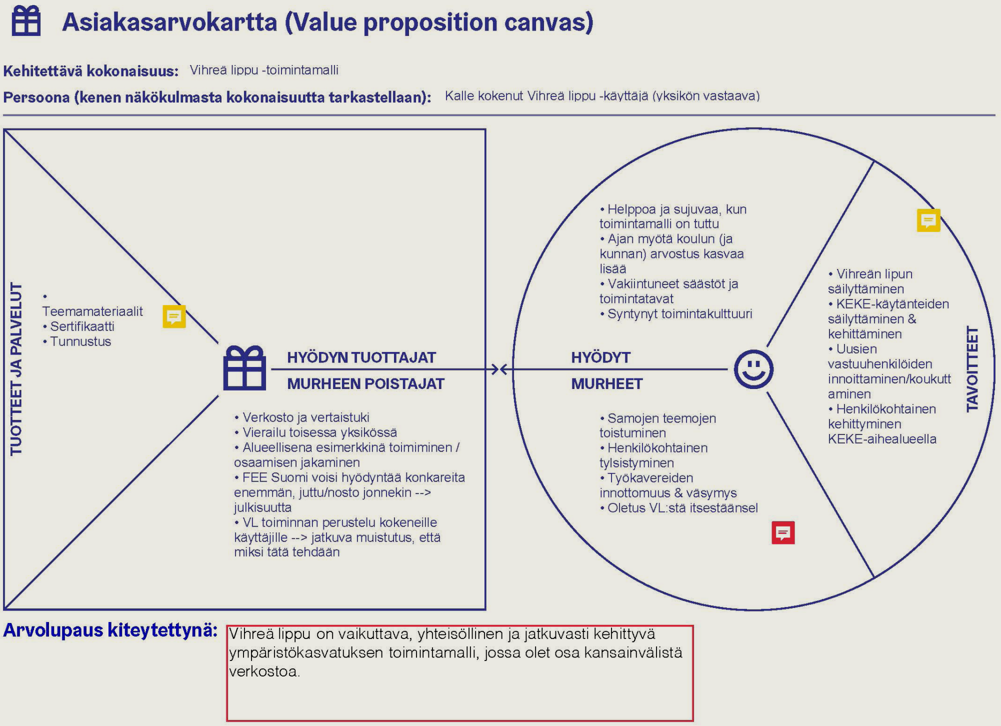
MURHEEN POISTAJAT
- Info & startti-koulutukset (uusi ratkaisu: webinaari)
- Puhelinpalvelu
- Uusi ratkaisu: matalan kynnyksen apu (Vihreä lippu -yhteinen olohuone)
- Verkoston tapaamiset
- Yhteistyö SYKLIn kanssa
- Valmiit raamit, ohjeistus, materiaalit, toimintasuunnitelma & raportti
- Vastuunjako = yhdessä tekeminen

HYÖDYT
- Lipun myötä koulun (ja kunnan) maine paranee
- Vastuuhenkilölle mainetta ja kunniaa
- Yhteisöllisyyden kokemus
- Lisääntynyt työhyvinvointi

MURHEET
- Iso vastuu muiden osallistamisesta yhdellä henkilöllä
- Henkilökohtainen epävarmuus aiheesta
- Sisällön kouluttaminen sekä lapsille että aikuisille
- OPS määrittelee raamit

TAVOITTEET
- Vihreän lipun saavuttaminen taloon
- Henkilökohtaisen aseman vakiinnuttaminen
- Muiden innostaminen mukaan (osallistaminen)
- Muiden voittaminen mukaan
- Käytännön kestävän kehityksen toteuttaminen (arjessa)

Arvolupaus kiteytettynä: Vihreä lippu on innostava ja laadukas ympäristökasvatuksen toimintamalli, johon saat konkreettista tukea ja materiaaleja.



Asiakasarvokartta (Value proposition canvas)

Kehitettävä kokonaisuus: Vihreä lippu -toimintamalli

Persoona (kenen näkökulmasta kokonaisuutta tarkastellaan): Kalle kokenut Vihreä lippu -käyttäjä (yksikön vastaava)

TUOTTEET JA PALVELUT
- Teemamateriaalit
- Sertifikaatti
- Tunnustus

HYÖDYN TUOTTAJAT

MURHEEN POISTAJAT
- Verkosto ja vertaistuki
- Vierailu toisessa yksikössä
- Alueellisena esimerkkinä toimiminen / osaamisen jakaminen
- FEE Suomi voisi hyödyntää konkareita enemmän, juttu/nosto jonnekin --> julkisuutta
- VL toiminnan perustelu kokeneille käyttäjille --> jatkuva muistutus, että miksi tätä tehdään

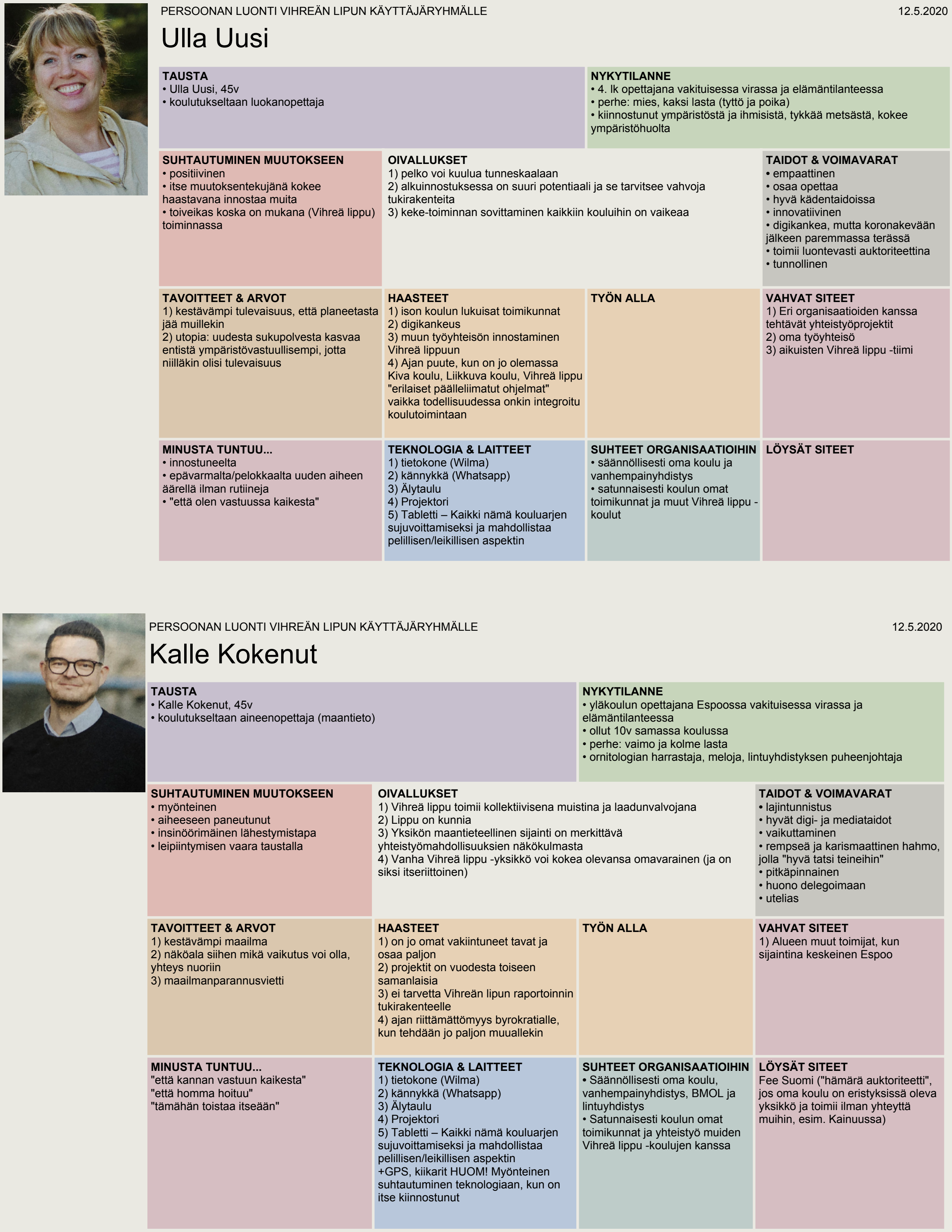
HYÖDYT
- Helppoa ja sujuvaa, kun toimintamalli on tuttu
- Ajan myötä koulun (ja kunnan) arvostus kasvaa lisää
- Vakiintuneet säästöt ja toimintatavat
- Syntynyt toimintakulttuuri

MURHEET
- Samojen teemojen toistuminen
- Henkilökohtainen tylsistyminen
- Työkavereiden innottomuus & väsymys
- Oletus VL:stä itsestäänsel

TAVOITTEET
- Vihreän lipun säilyttäminen
- KEKE-käytänteiden säilyttäminen & kehittäminen
- Uusien vastuuhenkilöiden innoittaminen/koukuttaminen
- Henkilökohtainen kehittyminen KEKE-aihealueella

Arvolupaus kiteytettynä: Vihreä lippu on vaikuttava, yhteisöllinen ja jatkuvasti kehittyvä ympäristökasvatuksen toimintamalli, jossa olet osa kansainvälistä verkostoa.

FIGURE 9. Value Proposition Canvas for beginners (top) and experienced (bottom) users.



PERSOONAN LUONTI VIHREÄN LIPUN KÄYTTÄJÄRYHMÄLLE

12.5.2020

Ulla Uusi

TAUSTA
- Ulla Uusi, 45v
- koulutukseltaan luokanopettaja

NYKYTILANNE
- 4. lk opettajana vakituisessa virassa ja elämäntilanteessa
- perhe: mies, kaksi lasta (tyttö ja poika)
- kiinnostunut ympäristöstä ja ihmisistä, tykkää metsästä, kokee ympäristöhuolta

SUHTAUTUMINEN MUUTOKSEEN
- positiivinen
- itse muutoksentekujänä kokee haastavana innostaa muita
- toiveikas koska on mukana (Vihreä lippu) toiminnassa

OIVALLUKSET
1) pelko voi kuulua tunneskaalaan
2) alkuinnostuksessa on suuri potentiaali ja se tarvitsee vahvoja tukirakenteita
3) keke-toiminnan sovittaminen kaikkiin kouluihin on vaikeaa

TAIDOT & VOIMAVARAT
- empaattinen
- osaa opettaa
- hyvä kädentaidoissa
- innovatiivinen
- digikankea, mutta koronakevään jälkeen paremmassa terässä
- toimii luontevasti auktoriteettina
- tunnollinen

TAVOITTEET & ARVOT
1) kestävämpi tulevaisuus, että planeetasta jää muillekin
2) utopia: uudesta sukupolvesta kasvaa entistä ympäristövastuullisempi, jotta niilläkin olisi tulevaisuus

HAASTEET
1) ison koulun lukuisat toimikunnat
2) digikankeus
3) muun työyhteisön innostaminen Vihreä lippuun
4) Ajan puute, kun on jo olemassa Kiva koulu, Liikkuva koulu, Vihreä lippu "erilaiset päälleliimatut ohjelmat" vaikka todellisuudessa onkin integroitu koulutoimintaan

TYÖN ALLA

VAHVAT SITEET
1) Eri organisaatioiden kanssa tehtävät yhteistyöprojektit
2) oma työyhteisö
3) aikuisten Vihreä lippu -tiimi

MINUSTA TUNTUU...
- innostuneelta
- epävarmalta/pelokkaalta uuden aiheen äärellä ilman rutiineja
- "että olen vastuussa kaikesta"

TEKNOLOGIA & LAITTEET
1) tietokone (Wilma)
2) kännykkä (Whatsapp)
3) Älytaulu
4) Projektori
5) Tabletti – Kaikki nämä kouluarjen sujuvoittamiseksi ja mahdollistaa pelillisen/leikillisen aspektin

SUHTEET ORGANISAATIOIHIN
- säännöllisesti oma koulu ja vanhempainyhdistys
- satunnaisesti koulun omat toimikunnat ja muut Vihreä lippu -koulut

LÖYSÄT SITEET

PERSOONAN LUONTI VIHREÄN LIPUN KÄYTTÄJÄRYHMÄLLE

12.5.2020

Kalle Kokenut

TAUSTA
- Kalle Kokenut, 45v
- koulutukseltaan aineenopettaja (maantieto)

NYKYTILANNE
- yläkoulun opettajana Espoossa vakituisessa virassa ja elämäntilanteessa
- ollut 10v samassa koulussa
- perhe: vaimo ja kolme lasta
- ornitologian harrastaja, meloja, lintuyhdistyksen puheenjohtaja

SUHTAUTUMINEN MUUTOKSEEN
- myönteinen
- aiheeseen paneutunut
- insinöörimäinen lähestymistapa
- leipiintymisen vaara taustalla

OIVALLUKSET
1) Vihreä lippu toimii kollektiivisena muistina ja laadunvalvojana
2) Lippu on kunnia
3) Yksikön maantieteellinen sijainti on merkittävä yhteistyömahdollisuuksien näkökulmasta
4) Vanha Vihreä lippu -yksikkö voi kokea olevansa omavarainen (ja on siksi itseriittoinen)

TAIDOT & VOIMAVARAT
- lajintunnistus
- hyvät digi- ja mediataidot
- vaikuttaminen
- rempseä ja karismaattinen hahmo, jolla "hyvä tatsi teineihin"
- pitkäpinnainen
- huono delegoimaan
- utelias

TAVOITTEET & ARVOT
1) kestävämpi maailma
2) näköala siihen mikä vaikutus voi olla, yhteys nuoriin
3) maailmanparannusvietti

HAASTEET
1) on jo omat vakiintuneet tavat ja osaa paljon
2) projektit on vuodesta toiseen samanlaisia
3) ei tarvetta Vihreän lipun raportoinnin tukirakenteelle
4) ajan riittämättömyys byrokratialle, kun tehdään jo paljon muuallekin

TYÖN ALLA

VAHVAT SITEET
1) Alueen muut toimijat, kun sijaintina keskeinen Espoo

MINUSTA TUNTUU...
"että kannan vastuun kaikesta"
"että homma hoituu"
"tämähän toistaa itseään"

TEKNOLOGIA & LAITTEET
1) tietokone (Wilma)
2) kännykkä (Whatsapp)
3) Älytaulu
4) Projektori
5) Tabletti – Kaikki nämä kouluarjen sujuvoittamiseksi ja mahdollistaa pelillisen/leikillisen aspektin
+GPS, kiikarit HUOM! Myönteinen suhtautuminen teknologiaan, kun on itse kiinnostunut

SUHTEET ORGANISAATIOIHIN
- Säännöllisesti oma koulu, vanhempainyhdistys, BMOL ja lintuyhdistys
- Satunnaisesti koulun omat toimikunnat ja yhteistyö muiden Vihreä lippu -koulujen kanssa

LÖYSÄT SITEET
Fee Suomi ("hämärä auktoriteetti", jos oma koulu on eristyksissä oleva yksikkö ja toimii ilman yhteyttä muihin, esim. Kainuussa)

FIGURE 10. Personas for chosen user groups: beginners (top) and experienced (bottom) (in Finnish).

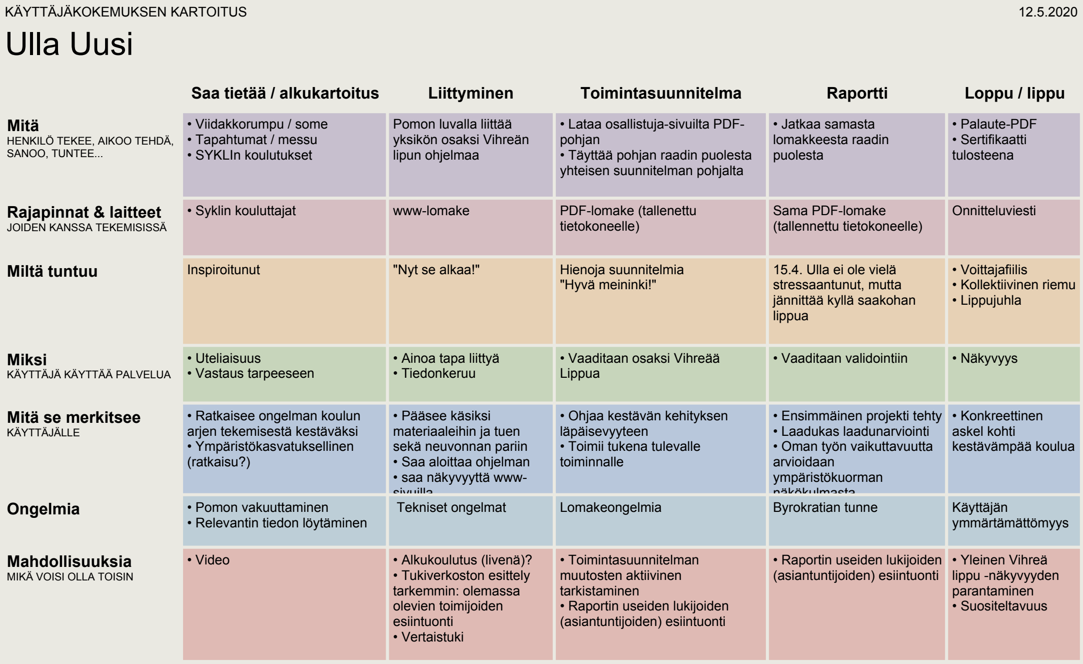
Workshop on persona creation and user experience mapping

The third workshop focused on user groups and their experiences. This workshop was to be done before interviewing the users themselves one-on-one, similar to the previous two. The following two methods for the workshop were chosen to deepen mutual understanding about the users and to pinpoint bald spots in that knowledge.

The workshop took place outdoors in the forest of Kivinokka nature reserve with four participants (see Image 3). First, the focus was on creating personas for the user groups. The users chosen were the ones defined in the previous workshop: beginners and experienced. Each group was taken into closer examination for one hour. During that time a prepared canvas was filled reflecting each participant's own knowledge and experiences (see Figure 10). Second, the focus changed to creating a map of the user experience (see Figure 11). Again, one hour was spent on each user group and a canvas about both user experiences was created.

Overall, the workshop was a necessary step for understanding how the organisation sees the user experience. It was successful as the necessary canvases were produced and also insights about how the service could be developed further were born.

IMAGE 3. Workshop on persona creation and user experience mapping in the Kivinokka nature reserve.

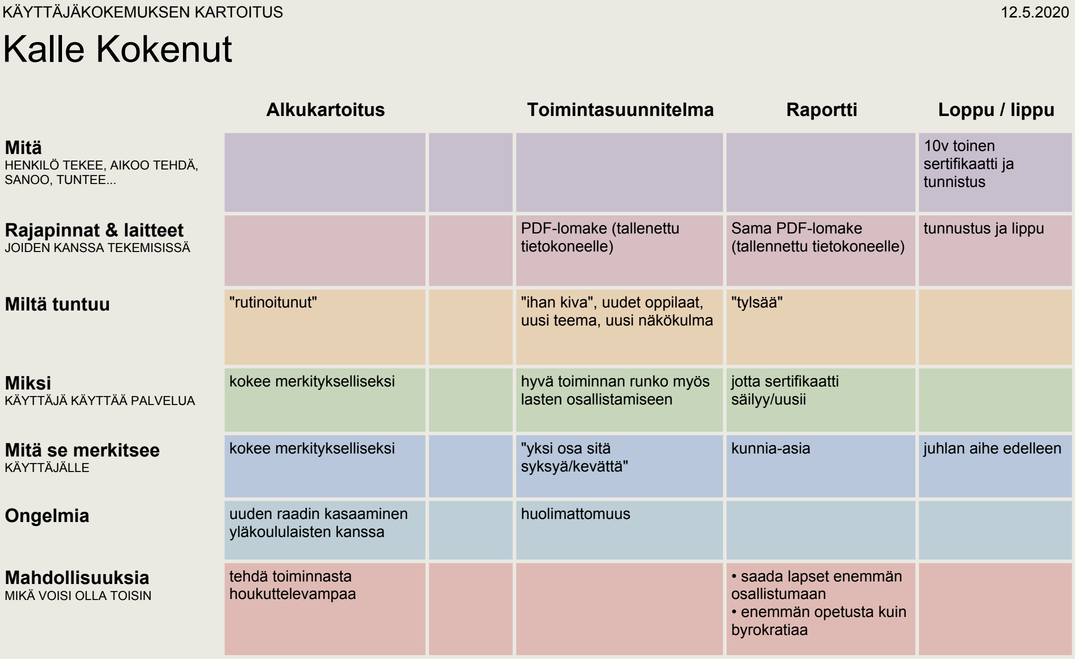


KÄYTTÄJÄKOKEMUKSEN KARTOITUS

12.5.2020

Ulla Uusi

	Saa tietää / alkukartoitus	Liittyminen	Toimintasuunnitelma	Raportti	Loppu / lippu
Mitä HENKILÖ TEKEE, AIKOO TEHDÄ, SANOO, TUNTEE...	• Viidakkorumpu / some • Tapahtumat / messu • SYKLIn koulutukset	Pomon luvalla liittää yksikön osaksi Vihreän lipun ohjelmaa	• Lataa osallistuja-sivuilta PDF-pohjan • Täyttää pohjan raadin puolesta yhteisen suunnitelman pohjalta	• Jatkaa samasta lomakkeesta raadin puolesta	• Palaute-PDF • Sertifikaatti tulosteena
Rajapinnat & laitteet JOIDEN KANSSA TEKEMISISSÄ	• Syklin kouluttajat	www-lomake	PDF-lomake (tallenettu tietokoneelle)	Sama PDF-lomake (tallennettu tietokoneelle)	Onnitteluviesti
Miltä tuntuu	Inspiroitunut	"Nyt se alkaa!"	Hienoja suunnitelmia "Hyvä meininki!"	15.4. Ulla ei ole vielä stressaantunut, mutta jännittää kyllä saakohan lippua	• Voittajafiilis • Kollektiivinen riemu • Lippujuhla
Miksi KÄYTTÄJÄ KÄYTTÄÄ PALVELUA	• Uteliaisuus • Vastaus tarpeeseen	• Ainoa tapa liittyä • Tiedonkeruu	• Vaaditaan osaksi Vihreää Lippua	• Vaaditaan validointiin	• Näkyvyys
Mitä se merkitsee KÄYTTÄJÄLLE	• Ratkaisee ongelman koulun arjen tekemisestä kestäväksi • Ympäristökasvatuksellinen (ratkaisu?)	• Pääsee käsiksi materiaaleihin ja tuen sekä neuvonnan pariin • Saa aloittaa ohjelman • saa näkyvyyttä www-sivuilla	• Ohjaa kestävän kehityksen läpäisevyyteen • Toimii tukena tulevalle toiminnalle	• Ensimmäinen projekti tehty • Laadukas laadunarviointi • Oman työn vaikuttavuutta arvioidaan ympäristökuorman näkökulmasta	• Konkreettinen askel kohti kestävämpää koulua
Ongelmia	• Pomon vakuuttaminen • Relevantin tiedon löytäminen	Tekniset ongelmat	Lomakeongelmia	Byrokratian tunne	Käyttäjän ymmärtämättömyys
Mahdollisuuksia MIKÄ VOISI OLLA TOISIN	• Video	• Alkukoulutus (livenä)? • Tukiverkoston esittely tarkemmin: olemassa olevien toimijoiden esiintuonti • Vertaistuki	• Toimintasuunnitelman muutosten aktiivinen tarkistaminen • Raportin useiden lukijoiden (asiantuntijoiden) esiintuonti	• Raportin useiden lukijoiden (asiantuntijoiden) esiintuonti	• Yleinen Vihreä lippu -näkyvyyden parantaminen • Suositeltavuus



KÄYTTÄJÄKOKEMUKSEN KARTOITUS

12.5.2020

Kalle Kokenut

	Alkukartoitus		Toimintasuunnitelma	Raportti	Loppu / lippu
Mitä HENKILÖ TEKEE, AIKOO TEHDÄ, SANOO, TUNTEE...					10v toinen sertifikaatti ja tunnistus
Rajapinnat & laitteet JOIDEN KANSSA TEKEMISISSÄ			PDF-lomake (tallenettu tietokoneelle)	Sama PDF-lomake (tallennettu tietokoneelle)	tunnustus ja lippu
Miltä tuntuu	"rutinoitunut"		"ihan kiva", uudet oppilaat, uusi teema, uusi näkökulma	"tylsää"	
Miksi KÄYTTÄJÄ KÄYTTÄÄ PALVELUA	kokee merkitykselliseksi		hyvä toiminnan runko myös lasten osallistamiseen	jotta sertifikaatti säilyy/uusii	
Mitä se merkitsee KÄYTTÄJÄLLE	kokee merkitykselliseksi		"yksi osa sitä syksyä/kevättä"	kunnia-asia	juhlan aihe edelleen
Ongelmia	uuden raadin kasaaminen yläkoululaisten kanssa		huolimattomuus		
Mahdollisuuksia MIKÄ VOISI OLLA TOISIN	tehdä toiminnasta houkuttelevampaa			• saada lapset enemmän osallistumaan • enemmän opetusta kuin byrokratiaa	

FIGURE 11. User Experience Maps of chosen user groups: beginners and experienced (in Finnish).

Semi-structured interviews

Central method for gaining a deep understanding of the users of Vihreä lippu was the semi-structured interviews. In this context, the users were teachers and the scope was in their everyday teacherhood in pursuing environmental education through Vihreä lippu programme over the period of one project, which means a year or two.

I wanted to make the data gathering as easy and comfortable for them as possible, considering the restrictions set by the surrounding pandemic and assumptions on the teachers being busy in May and spending their well deserved holidays in June 2020. Therefore I could not consider shadowing teachers, asking for them to fill in journals or documenting their everyday by using probes, which could all have been great and relevant additions in other conditions. With all these factors to consider I chose to collect data from the representatives of a rather traditional profession using a traditional and familiar method of semi-structured interviews, as introduced in Chapter 4.

In mid-May 2020 an invitation to participate in this research was sent out by FEE Suomi to a pre-selected audience of around 400 people, consisting of primary and secondary school teachers that are considered to be active themselves or who represent statistically active Vihreä lippu school. Time of sending the message was at the end of the school year, which traditionally is a busy season for teachers because of the exams and assessment. This year that time was particularly challenging due to the national shift to distance teaching as a result of COVID-19 pandemic, hence in terms of data collection the time could not have been more difficult. The response to the first invitation was poor, meaning only one volunteer, and did not raise hopes in succeeding in this user research.

After the first down we decided to send an open invite in late May 2020 to all Vihreä lippu users and compensate the chosen participants with a 15 euro gift card to a grocery store. In order to sign up, the teachers were expected to fill in brief details about themselves, including the years of experience in teaching as well as in Vihreä lippu programme and geographical location. Out of some 500 invitation recipients almost 20 people signed in just one or two days as volunteers and I was able to select as heterogeneous a group of participants as possible. By the end of May 2020, all participants were gathered and informed. The intention was to have a variety of teachers participating with different amounts of experience in both teaching and being involved in the Vihreä lippu programme. Both identified main user groups, beginners and experienced, were to be researched equally despite the presumption that there are significant differences in the user groups.

The selected ones were informed on the phone, which allowed for arranging both time and location for the interview to take place. After the phone call, each participant was sent an email including three main messages: 1) how to give permission for the research 2) what background information is needed before the interview and 3) what themes the future interview will touch upon. Due to the hygiene regulations and restrictions set by the pandemic, I chose not to have signatures for the permission and accept email confirmations and audio confirmations as being binding enough.

Semi-structured interviews were conducted in June 2020 and all interviews were done in Finnish. Depending on the interviewee's wish these interviews took place outdoors in a recreational park, backyard, national park, by the seashore, on the phone or via Teams platform.

All sessions were structured the same, starting with the same introduction and carried on to the same set of questions. In order to build trust I began with my introduction not only explaining who I am and what my personal motivations are for approaching a topic in behavioral science but also about my personal experience in being a student of an environmental education practitioner. I then continued in explaining about the goals of my research in more detail and to open up a designer's role in intervening. In order to fulfill the requirements of the university data handling was discussed in detail and permission for the research was given in audio. Then I gave brief instructions for the session in general, highlighting that there are no right or wrong answers, and that the whole interview is based on one's personal experiences and opinions. In the end I described how after the interview all questions were to be sent via email and that one could fill those in afterwards if necessary, and how the research outcome as a written PDF was to be sent out to all participants. Overall, I aimed at creating a relaxed and confidential atmosphere.

Interview structure (see Appendix 1) was prepared beforehand simply based on my expertise as a professional designer. In other words, before creating the set of questions I had not deeply familiarised myself in the user experience from the philosophical or psychological perspective but relied on my intuition instead. All interviewees were asked the same pre-written questions but they were not revealed before the session. I chose this method as I preferred to have intuitive, non-structured answers and I wished to see authentic emotional reactions rather than pre-considered and well-structured thoughts. I also considered spontaneous answers being more trustworthy and to reveal the primary experience.

The interview sessions took on average 51 minutes, the shortest being 30 minutes and the longest being 107 minutes. Each session was recorded with a dictaphone and backed up by my mobile phone, except the ones done on Teams. The latter were recorded using the application's recording setting.

After the interviews all audio recordings were transcribed in Finnish to the basic level and edited accordingly (Tietoarkisto, 2020) for readability and clarity. In practise this meant that phrases were written from word to word with colloquial expressions but filler expressions such as "uh" and "sort of" and unfinished sentences were left out. Additionally, for the sake of clarity, complex sentences were crystallised without changing the meaning, and speech clearly outside of the scope of the interview was ignored. Overall, I transcribed 559 minutes of interviews into 55 pages for analysis.

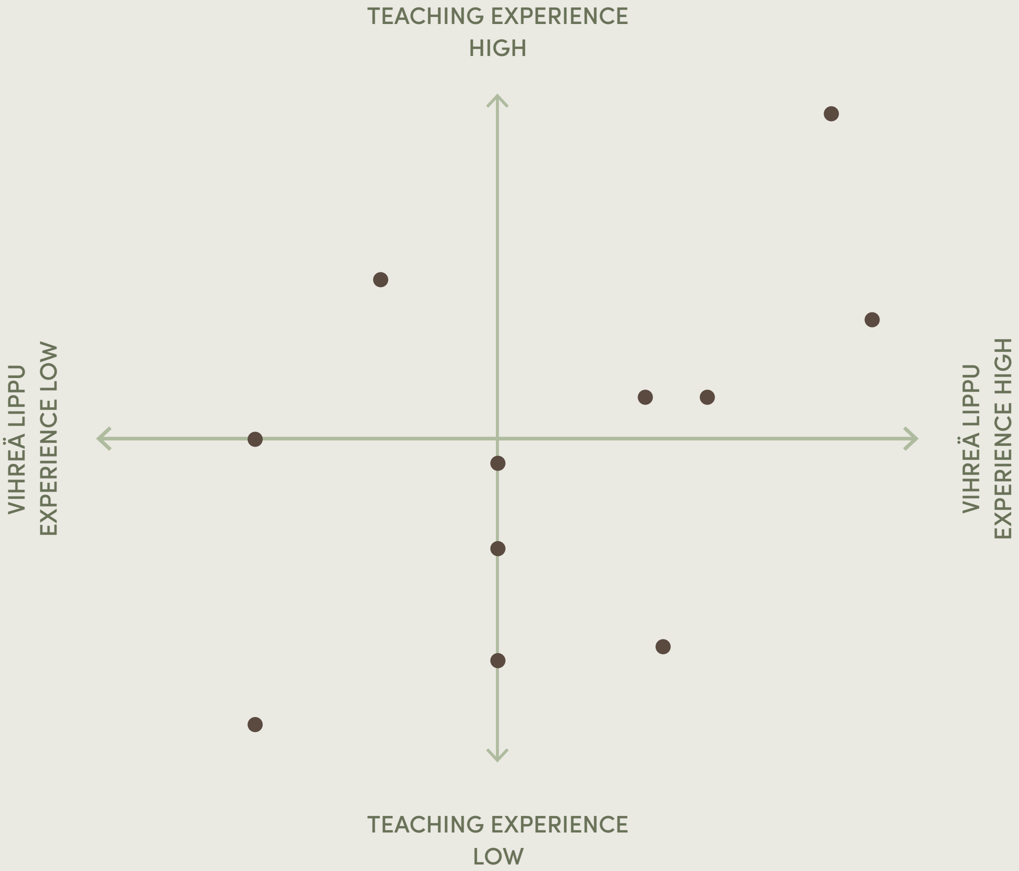
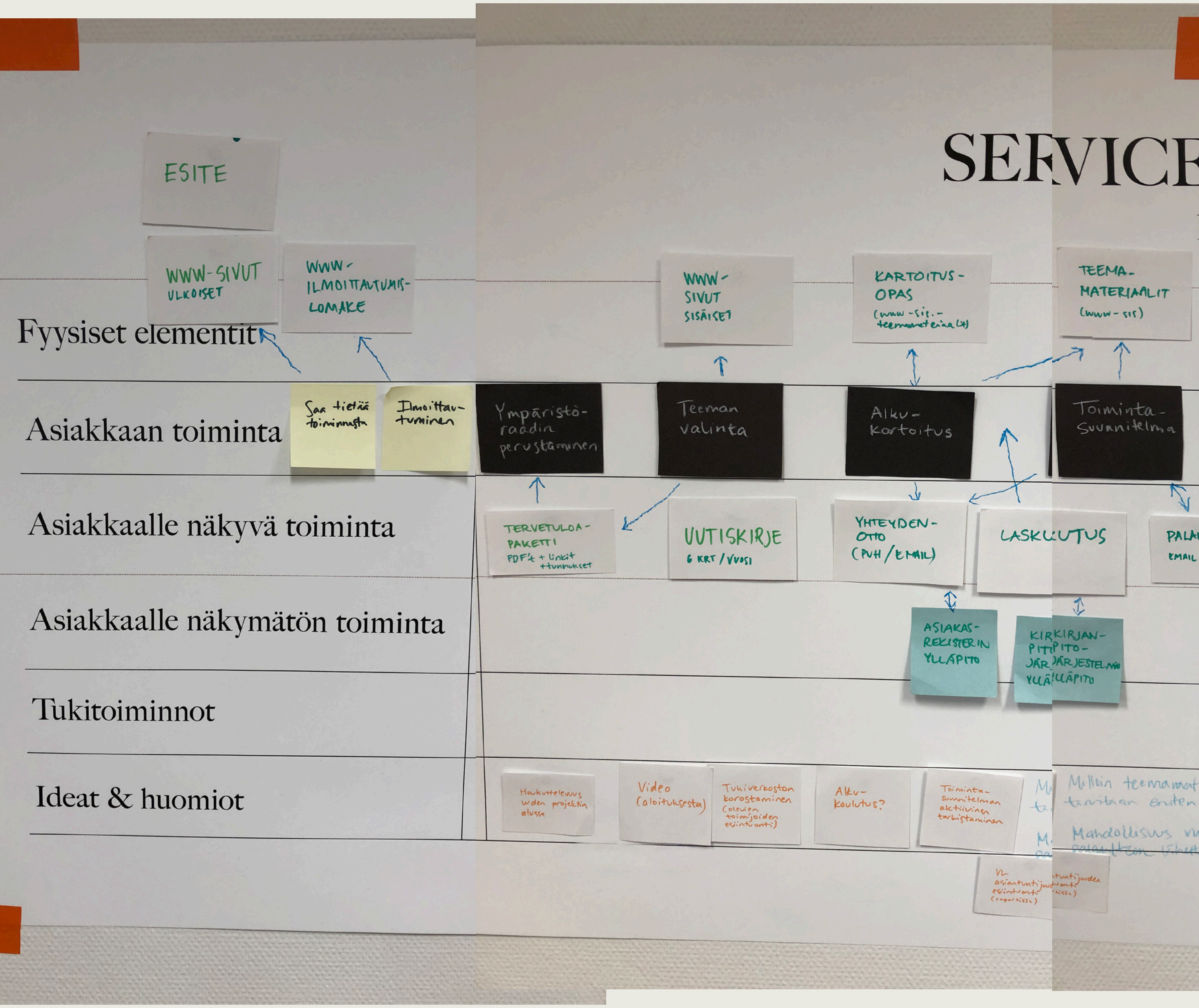


FIGURE 12. Teachers who participated in the semi-structured interviews positioned on a user typology matrix.


SERVICE
Fyysiset elementit
Asiakkaan toiminta
Asiakkaalle näkyvä toiminta
Asiakkaalle näkymätön toiminta
Tukitoiminnot
Ideat & huomiot
ESITE
WWW-SIVUT ULKOISET
WWW-ILMOITTAUTUMIS-LOMAKE
WWW-SIVUT SISÄISET
KARTOITUS-OPAS (www-sis.-teemamateriaalit)
TEEMA-MATERIAALIT (www-sis)
Saa tietää toiminnasta
Ilmoittautuminen
Ympäristöraadin perustaminen
Teeman valinta
Alku-kartoitus
Toiminta-suunnitelma
TERVETULOA-PAKETTI PDF:t + linkit + tunnukset
UUTISKIRJE 6 KRT / VUOSI
YHTEYDEN-OTTO (PUH / EMAIL)
LASKUTUS
PALA
EMAIL
ASIAKAS-REKISTERIN YLLÄPITO
KIRJANPITO-JÄRJESTELMÄN YLLÄPITO
Houkuttelevuuden projektin alussa
Video (aloituksesta)
Tukiverkoston korostaminen (olevien toimijoiden esiintuonti)
Alku-koulutus?
Toiminta-suunnitelman aktiivinen tarkistaminen
Milloin teemamat tarvitaan enten
Mahdollisuus palautteen lähett
VL asiantuntijuuden esiintuonti (raportissa)

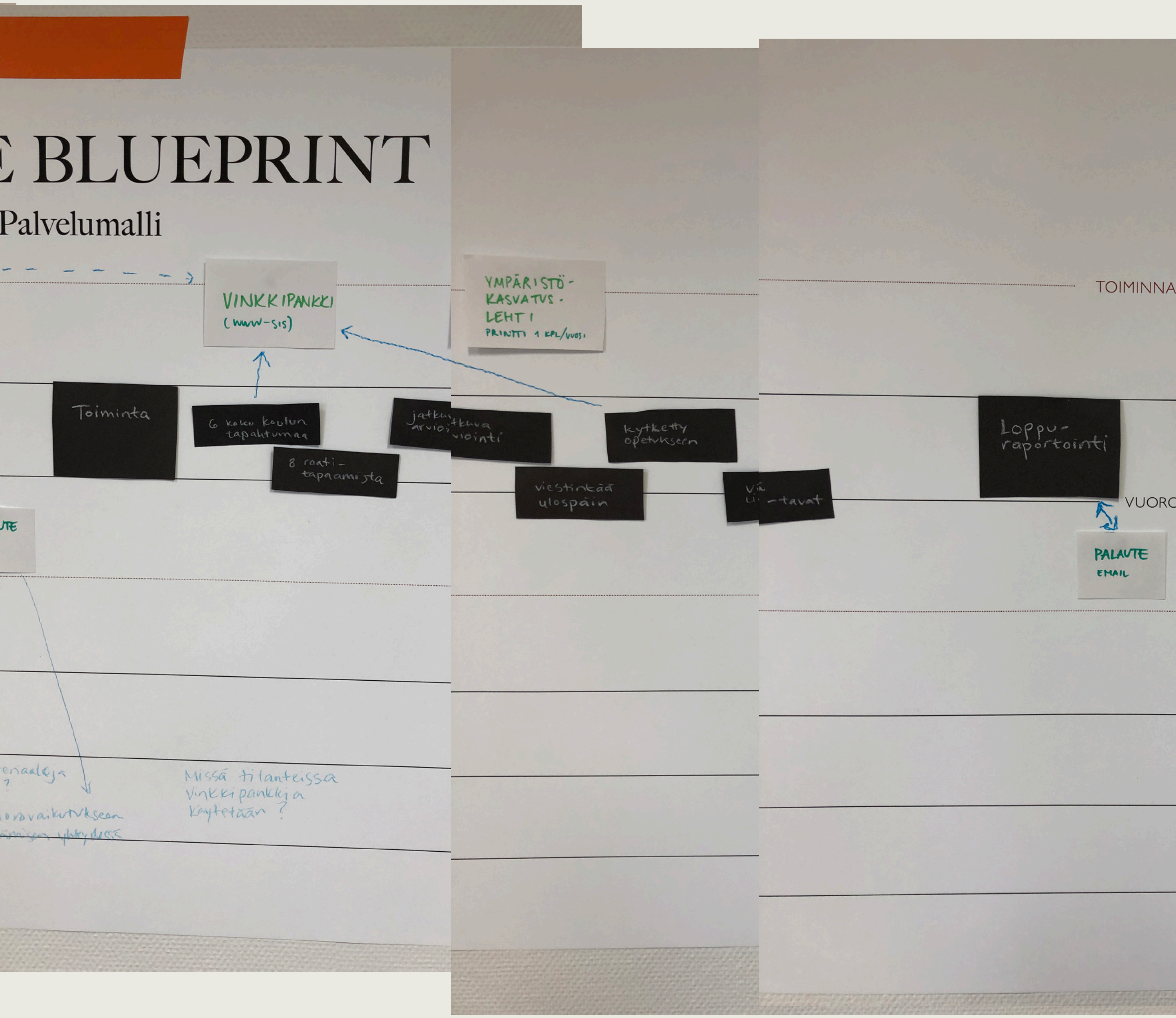

E BLUEPRINT
Palvelumalli
VINKKIPANKKI
(www-sis)
YMPÄRISTÖ-
KASVATUS-
LEHTI
PRINTTI 1 KPL/VUOSI
TOIMINNA
Toiminta
6 koko koulun tapahtumaa
8 raati-tapaamista
jatkuva arviointi
kytketty opetukseen
viestintää ulospäin
-tavat
Loppu-raportointi
VUORO
PALAUTE
EMAIL
Missä tilanteissa Vinkkipankkia käytetään?

IMAGE 4. Service blueprint (in Finnish) photographed after the workshop.

Interviewees

The selected interviewees (n=11) were all female teachers, of whom majority (8) was primary school class teachers (Master of Arts in Education), two secondary school subject teachers (Master of Philosophy or equivalent) and one preschool teacher (kindergarten teacher). A few of the participants were also educated in environmental education particularly but, as for participation in Vihreä lippu, also for this research this additional education was not necessary. The median age was 50 and on average 46 years. The youngest participant was a 28-year-old and the oldest a 58-year-old. On average, the interviewees' professional experience and experience in Vihreä lippu programme was 19 and 7, respectively. However, the median years of experience in Vihreä lippu was 3, meaning that six of the interviewees had experience of 3 years or less. In other words, one half of the participants represented experienced users and the other half more beginners. The sum of years in professional experience and experience in Vihreä lippu programme of all participants together was 207 and 73, respectively. (See Appendix 2) Respectively, the interviewees were geographically dispersed enough, meaning that five interviewees (45%) lived in the Capital Region and six (55%) were from other parts of Finland. Currently 31% of Vihreä lippu users are from the Uusimaa Region. Overall, the spectrum of the participants in terms of their experience is best seen in the typology matrix in Figure 12.

Workshop on service blueprint

The fourth workshop focused on blueprinting the service. The workshop took place after the semi-structured user interviews. Insights from the interviews affected both for choosing this method as well as the content of the workshop. Two members from the Vihreä lippu team joined in the 3-hour-session in a meeting room.

The workshop was focused around a 2,5-meter-long canvas of an empty service blueprint. We drew the user's journey of a single Vihreä lippu project that can take up to two years. In addition to teacher's action and physical evidence also visible and invisible actions of the Vihreä lippu program or FEE Suomi were registered. This is where points made by the users themselves were given attention and evaluated. This tool helped in building a general view of the teacher's experience when using Vihreä lippu and also assisted in recognising deficiencies and pain points for the teacher.

One important aspect of service blueprinting is its nature to change. It is not static and should not be considered so. Therefore, this service blueprint workshop acted as a starting point for the future development plans and ideally, the Vihreä lippu team will adapt the service blueprinting tool and continue using it in service development processes.

Evaluation & validation

After four workshops and user research through semi-structured reviews results and proposals were evaluated and validated in a final workshop. Altogether three members from the FEE Suomi organisation and one interviewed teacher participated in the workshop including myself as a researcher and designer. Due to meeting restrictions the workshop was held online via a digital platform.

In the beginning of the workshop, I explained the whole research process and results mainly from the interviews. As an interpretation of the results I presented three broad design proposals, which I explained in detail. Lastly, I introduced different themes of ideas by the interviewees. After my presentation the overall research and results were evaluated by all participants individually. This was followed by detailed discussion on the interviewees' ideas and which ones should be continued with. The overall evaluation and validation is reflected on in Chapter 8.

5.2 Data analysis

The reason for using qualitative content analysis is to find concise words to describe the researched phenomenon and ideally create new information. As the data represents that phenomenon, the outcomes of the analysis should aim to answer the set research questions about that same phenomenon. In this research, the aim is to build a deep understanding of teachers involved in environmental education in the case of Vihreä lippu programme.

Qualitative data can be analysed using qualitative content analysis, which is much used in design studies in general. It is also the chosen method in this thesis work. There are a few different routes for implementing content analysis but one widely-accepted approach according to Miles and Hubermann (1994, cited in Tuomi & Sarajärvi, p. 122, 2018), is described in the following three steps:

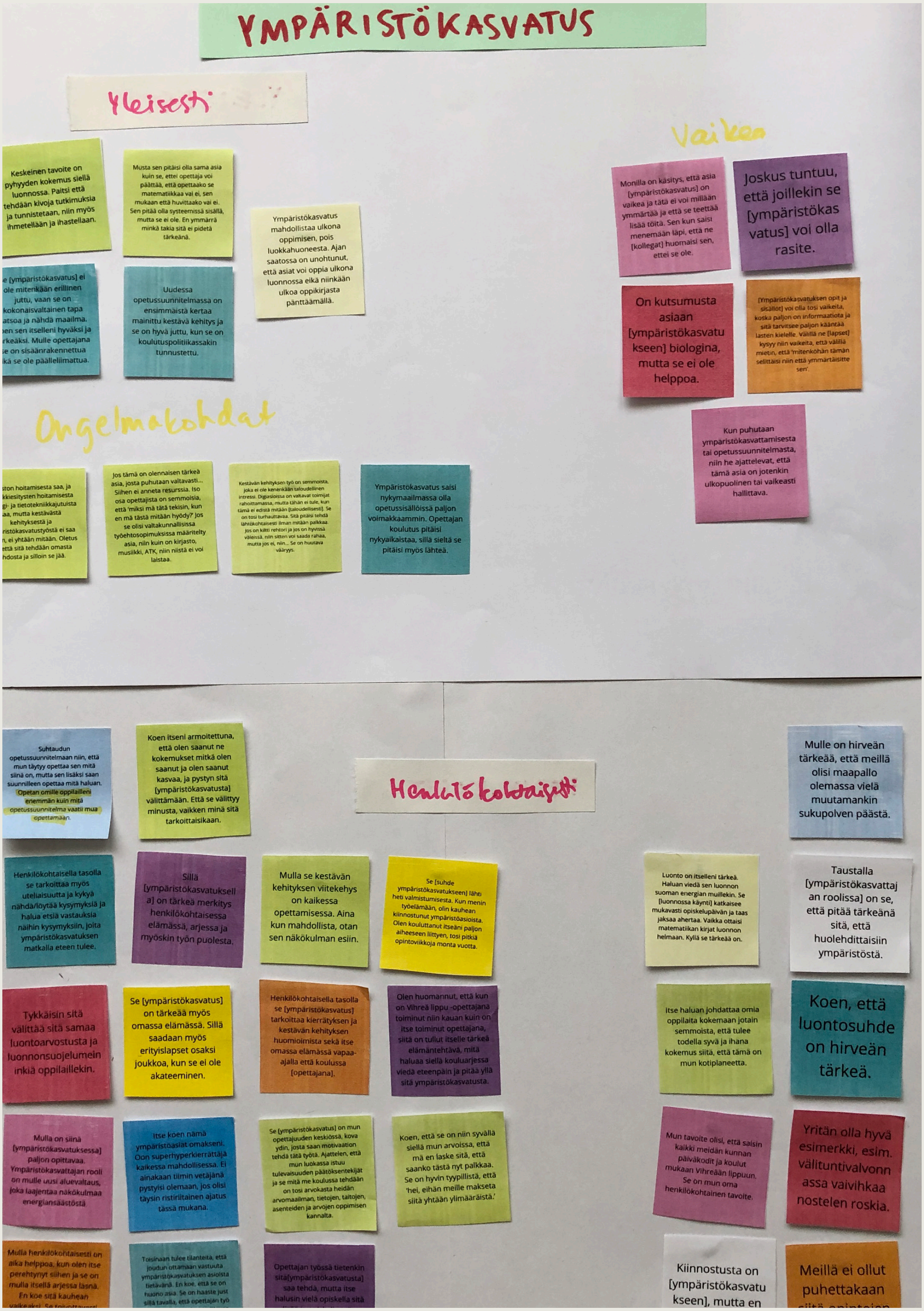
1. *reduction of the data, i.e. simplification*
2. *clustering of the data, i.e. grouping and*
3. *abstraction of the data, i.e. creating theoretical notions.*

Reduction of the data, subcategories, upper categories, main categories and uniting categories are all terms that refer to the American tradition of qualitative content analysis (Ibid., p. 114) and are also relevant in this research. This method of analysis is used for building a concise and general description of a certain phenomenon (Ibid., p. 117).

Generally, there is no scientific method that would guarantee success in finding the truth but using content analysis at least some conclusions can be drawn from the data (Tuomi & Sarajärvi, p. 113, 2018) and this has been my personal guideline in the process. According to Tuomi & Sarajärvi (Ibid., p. 113), content analysis is also about the logic of invention as the researcher herself has to create the wisdom in her analysis. In order to get that wisdom, factors affecting the outcome are not only the chosen methods but also the sensitivity of one's intellectual ability, sharpness of insights and also amount of luck (p. Ibid, p. 113).

Systematic data analysis started after the data collection was finished. All data was handled equally regardless of the interviewee being a beginner or an experienced user. The steps for analysing are based on the aforementioned process by Miles and Hubermann. First, after transcribing all interviews I continued by reading all transcriptions and digitally highlighting phrases that were relevant from the viewpoint of my research questions or otherwise raised my interest. Some phrases

IMAGE 5. Manual clustering of the findings in process. →



YMPÄRISTÖKASVATUS

Yleisesti

Keskeinen tavoite on pyhyyden kokemus siellä luonnossa. Paitsi että tehdään kivoja tutkimuksia ja tunnistetaan, niin myös ihmetellään ja ihastellaan.

Musta sen pitäisi olla sama asia kuin se, ettei opettaja voi päättää, että opettaako se matematiikkaa vai ei, sen mukaan että huvittaako vai ei. Sen pitää olla systeemissä sisällä, mutta se ei ole. En ymmärrä minkä takia sitä ei pidetä tärkeänä.

Ympäristökasvatus mahdollistaa ulkona oppimisen, pois luokkahuoneesta. Ajan saatossa on unohtunut, että asiat voi oppia ulkona luonnossa eikä niinkään ulkoa oppikirjasta pänttäämällä.

e [ympäristökasvatus] ei ole mitenkään erillinen juttu, vaan se on kokonaisvaltainen tapa atsoa ja nähdä maailma. oen sen itselleni hyväksi ja rkeäksi. Mulle opettajana se on sisäänrakennettua ikä se ole päälleliimattua.

Uudessa opetussuunnitelmassa on ensimmäistä kertaa mainittu kestävä kehitys ja se on hyvä juttu, kun se on koulutuspolitiikassakin tunnustettu.

Ongelmakohdat

ston hoitamisesta saa, ja kkiesitysten hoitamisesta gi- ja tietotekniikkajutuista aa, mutta kestävästä kehityksestä ja ristökasvatustyöstä ei saa n, ei yhtään mitään. Oletus että sitä tehdään omasta hdosta ja silloin se jää.

Jos tämä on olennaisen tärkeä asia, josta puhutaan valtavasti… Siihen ei anneta resurssia. Iso osa opettajista on semmoisia, että 'miksi mä tätä tekisin, kun en mä tästä mitään hyödy?' Jos se olisi valtakunnallisissa työehtosopimuksissa määritelty asia, niin kuin on kirjasto, musiikki, ATK, niin niistä ei voi laistaa.

Kestävän kehityksen työ on semmoista, joka ei ole kenenkään taloudellinen intressi. Digiasioissa on valtavat toimijat rahoittamassa, mutta tähän ei tule, kun tämä ei edistä mitään [taloudellisesti]. Se on tosi turhauttavaa. Sitä pitäisi tehdä lähtökohtaisesti ilman mitään palkkaa. Jos on kiltti rehtori ja jos on hyvissä väleissä, niin sitten voi saada rahaa, mutta jos ei, niin… Se on huutava vääryys.

Ympäristökasvatus saisi nykymaailmassa olla opetussisällöissä paljon voimakkaammin. Opettajan koulutus pitäisi nykyaikaistaa, sillä sieltä se pitäisi myös lähteä.

Vaikea

Monilla on käsitys, että asia [ympäristökasvatus] on vaikea ja tätä ei voi millään ymmärtää ja että se teettää lisää töitä. Sen kun saisi menemään läpi, että ne [kollegat] huomaisi sen, ettei se ole.

Joskus tuntuu, että joillekin se [ympäristökasvatus] voi olla rasite.

On kutsumusta asiaan [ympäristökasvatukseen] biologina, mutta se ei ole helppoa.

[Ympäristökasvatuksen opit ja sisällöt] voi olla tosi vaikeita, koska paljon on informaatiota ja sitä tarvitsee paljon kääntää lasten kielelle. Välillä ne [lapset] kysyy niin vaikeita, että välillä mietin, että 'mitenköhän tämän selittäisi niin että ymmärtäisitte sen'.

Kun puhutaan ympäristökasvattamisesta tai opetussuunnitelmasta, niin he ajattelevat, että tämä asia on jotenkin ulkopuolinen tai vaikeasti hallittava.

Henkilökohtaisesti

Suhtaudun opetussuunnitelmaan niin, että mun täytyy opettaa sen mitä siinä on, mutta sen lisäksi saan suunnilleen opettaa mitä haluan. Opetan omille oppilailleni enemmän kuin mitä opetussuunnitelma vaatii mua opettamaan.

Koen itseni armoitettuna, että olen saanut ne kokemukset mitkä olen saanut ja olen saanut kasvaa, ja pystyn sitä [ympäristökasvatusta] välittämään. Että se välittyy minusta, vaikken minä sitä tarkoittaisikaan.

Henkilökohtaisella tasolla se tarkoittaa myös uteliaisuutta ja kykyä nähdä/löytää kysymyksiä ja halua etsiä vastauksia näihin kysymyksiin, joita ympäristökasvatuksen matkalla eteen tulee.

Sillä [ympäristökasvatuksella] on tärkeä merkitys henkilökohtaisessa elämässä, arjessa ja myöskin työn puolesta.

Mulla se kestävän kehityksen viitekehys on kaikessa opettamisessa. Aina kun mahdollista, otan sen näkökulman esiin.

Se [suhde ympäristökasvatukseen] lähti heti valmistumisesta. Kun menin työelämään, olin kauhean kiinnostunut ympäristöasioista. Olen kouluttanut itseäni paljon aiheeseen liittyen, tosi pitkiä opintoviikkoja monta vuotta.

Tykkäisin sitä välittää sitä samaa luontoarvostusta ja luonnonsuojelumein inkiä oppilaillekin.

Se [ympäristökasvatus] on tärkeää myös omassa elämässä. Sillä saadaan myös erityislapset osaksi joukkoa, kun se ei ole akateeminen.

Henkilökohtaisella tasolla se [ympäristökasvatus] tarkoittaa kierrätyksen ja kestävän kehityksen huomioimista sekä itse omassa elämässä vapaa-ajalla että koulussa [opettajana].

Olen huomannut, että kun on Vihreä lippu -opettajana toiminut niin kauan kuin on itse toiminut opettajana, siitä on tullut itselle tärkeä elämäntehtävä, mitä haluaa siellä kouluarjessa viedä eteenpäin ja pitää yllä sitä ympäristökasvatusta.

Mulla on siinä [ympäristökasvatuksessa] paljon opittavaa. Ympäristökasvattajan rooli on mulle uusi aluevaltaus, joka laajentaa näkökulmaa energiansäästöstä

Itse koen nämä ympäristöasiat omakseni. Oon superhyperkierrättäjä kaikessa mahdollisessa. Ei ainakaan tiimin vetäjänä pystyisi olemaan, jos olisi täysin ristiriitainen ajatus tässä mukana.

Se [ympäristökasvatus] on mun opettajuuden keskiössä, kova ydin, josta saan motivaation tehdä tätä työtä. Ajattelen, että mun luokassa istuu tulevaisuuden päätöksentekijät ja se mitä me koulussa tehdään on tosi arvokasta heidän arvomaailman, tietojen, taitojen, asenteiden ja arvojen oppimisen kannalta.

Koen, että se on niin syvällä siellä mun arvoissa, että mä en laske sitä, että saanko tästä nyt palkkaa. Se on hyvin tyypillistä, että 'hei, eihän meille makseta siitä yhtään ylimääräistä.'

Mulla henkilökohtaisesti on aika helppoa, kun olen itse perehtynyt siihen ja se on mulla itsellä arjessa läsnä. En koe sitä kauhean vaikeaksi. Se toivottavasti

Toisinaan tulee tilanteita, että joudun ottamaan vastuuta ympäristökasvatuksen asioista tietävänä. En koe, että se on huono asia. Se on haaste just sillä tavalla, että opettajan työ

Opettajan työssä tietenkin sitä[ympäristökasvatusta] saa tehdä, mutta itse halusin vielä opiskella sitä

Mulle on hirveän tärkeää, että meillä olisi maapallo olemassa vielä muutamankin sukupolven päästä.

Luonto on itselleni tärkeä. Haluan viedä sen luonnon suoman energian muillekin. Se [luonnossa käynti] katkaisee mukavasti opiskelupäivän ja taas jaksaa ahertaa. Vaikka ottaisi matematiikan kirjat luonnon helmaan. Kyllä se tärkeää on.

Taustalla [ympäristökasvattajan roolissa] on se, että pitää tärkeänä sitä, että huolehdittaisiin ympäristöstä.

Itse haluan johdattaa omia oppilaita kokemaan jotain semmoista, että tulee todella syvä ja ihana kokemus siitä, että tämä on mun kotiplaneetta.

Koen, että luontosuhde on hirveän tärkeä.

Mun tavoite olisi, että saisin kaikki meidän kunnan päiväkodit ja koulut mukaan Vihreään lippuun. Se on mun oma henkilökohtainen tavoite.

Yritän olla hyvä esimerkki, esim. välituntivalvonnassa vaivihkaa nostelen roskia.

Kiinnostusta on [ympäristökasvatukseen], mutta en

Meillä ei ollut puhettakaan

TABLE 2. Example of simplifying

ORIGINAL EXPRESSION	SIMPLIFIED EXPRESSION
The greatest added value [in Vihreä lippu] is in finding my personal interest in the topic. With Vihreä lippu I understood that this is what I want to do.	Deepened interest about the topic for self
It is a value for our school that we are a Vihreä lippu school. Some sort of meaning for status even. There's a direction for the goal in doing it.	Meaning of status for the school
Maybe the problem is also the lack of peers. As we look at it only from the perspective of our own school we dont really know how much better or worse things are in other schools.	Lack of knowledge about other schools

TABLE 3. Example of clustering

SIMPLIFIED EXPRESSION	CLUSTER (OR SUB-THEME)
Deepened interest about the topic for self	Meaningfulness for self
Meaning of status for the school	Meaningfulness for school
Lack of knowledge about other schools	Lack of relationships between schools

TABLE 4. Example of abstraction

CLUSTER (OR SUB-THEME)	THEME
Meaningfulness for self Meaningfulness for school	Added value of Vihreä lippu
Lack of relationships between schools	Experience of the Vihreä lippu community

had insights and some were simple statements. Then, instead of writing all phrases manually, I created a digitalised process to help me proceed faster into clustering.

The digitised data formulation was done by copying the phrases of each interviewee word to word and pasting them on a spreadsheet, one phrase per row. From the spreadsheet all rows were pasted into an empty canvas on the Miro application and colour-coded accordingly. After doing this with all phrases it produced a full canvas of digital post-it notes, which I was able to print out and start clustering manually.

Clustering the data into groups is also known as affinity diagramming. I employed this method manually by grouping similar answers together on a sheet of paper until all post-its had found their positions and themes started to emerge (see Image 5). Each theme was named accordingly. To be able to sort the data more systematically I created a table on a spreadsheet with the same themes and brought all original, word-to-word phrases in a simplified form in order to crystallise the data into themes and subthemes (see Tables 2 and 3).

After clustering and classifying the data it was justifiable to translate the data from the language of interviews (Finnish) to English. Not all phrases or simplified phrases needed to be translated. Also deciding to translate less leaves less opportunities for misinterpretations. At this stage I was able to better see the meanings (see Table 4) and implications in this data, which is discussed further in the following chapters.

5.3 Ethical considerations

All interviewees were given details about this research both in writing before hand as well as orally at the time of interviews. All participated voluntarily as single juridical people to share their personal experiences in teacherhood. As a response to the second invitation for the interview I received one detailed enquiry about the cities' official research permissions for this study. This led me to research into official procedures that different cities have for doing research in their schools involving either teachers or pupils. As the focus of this research is not on the representatives of a particular city but of teacher's as juridical people, I was encouraged by the specialists in The Trade Union of Education in Finland (Opetusalan Ammattijärjestö, OAJ) to continue. Teachers responded from personal perspectives and did not represent their employers.

All data has been anonymised to secure confidentiality of all participants and the schools that they refer to in their experiences. No individual person or their geographical locations can be identified from the quotes or details of this thesis. In terms of data handling, the steps for personal data management were followed as strictly as possible.

Compensation of 15 euros as a gift card was given to all participants in the interviews. Ethically, compensation in research is complex and could be seen as questionable, as for some academic research should be based on sincere willingness to research a phenomenon. However, in this type of case study based on user experience I evaluated the pros of having more motivated participants over the cons of having possibly fewer participants. The main rationale was to compensate each participant as I respect their time as educated professionals and generally believe that fair compensation is correct for everyone.

6

Findings

In this chapter the findings and insights from the workshops and analysed semi-structured interviews are presented. First, findings are described in detail and second they are interpreted as insights based on the earlier. Translated quotes from the interviews are included to support the findings. Through repeating this pattern for all data, the essence of findings can be crystallised for being utilised in design proposals and the development scheme of Vihreä lippu.

6.1 Teachers’ general impressions on environmental education

Prior to examining the case study of the research, I wished to grasp the teachers’ overall impressions on environmental education in general and briefly. The main findings were that teachers perceive it (1) as a concept for a sustainable framework in teaching and (2) as an enabler for other things (3) while being a difficult topic for some. Based on the interviews, teachers involved in environmental education can be (4) highly motivated both on a personal and (5) professional level, and that work is done in addition to their other work with no separate compensation.

> *That [environmental education] is not a separate thing but*
> *rather a holistic way of looking and seeing the world.*
> *–Teacher, 48, Vihreä lippu experience for 1 year*
>
> *Work for sustainable development and environmental education gives*
> *you nothing [as a monetary compensation], nothing at all. Presumption is*
> *that you do it because you want and then eventually it gets forgotten.*
> *–Teacher, 58, Vihreä lippu experience for 16 years*

6.2 Factors contributing to the culture of environmental education

To better understand how Vihreä lippu is experienced in a single school unit, it is important to first create an image of the culture in environmental education in general. That culture sets the context and ideological climate where to operate and can influence how teaching is done and new study topics approached.

The main findings about factors contributing to the culture of environmental education in general are divided into two, negative and positive factors. Negative factors contributing to the culture of EE found were negative attitude, lack of actions, one-sided actions, non-aligned staff, ethos of managing along and lack of structure in school activities. In opposition, positive factors contributing to the culture of EE found were positive attitude, good resources, clearly structured action, collaboration, action being based on Vihreä lippu, environmental education being in the center of school activities and lastly history. Those are listed in Table 5. Next, some of these findings are looked closer into.

Attitude can be motivating or discouraging. Negative attitude refers to the experiences the teachers have had usually about their own work community, meaning their

TABLE 5. Negative and positive factors contributing to the culture of environmental education

NEGATIVE FACTORS	POSITIVE FACTORS
Negative attitude	Positive attitude
Lack of actions	Good resources
One-sided actions	Clearly structured action
Non-aligned staff	Collaboration
Lack of structure in school activities	Action being based on Vihreä lippu
Ethos of managing alone	Environmental education being in the center of school activities
	History

---

colleagues or other staff, not about the pupils. For some EE has been seen as a compulsory extra that might even lead to expressing one's disdain and responsibility is pushed for the less experienced teachers. Positive attitude was described as participants being compliant, some even passionate, active or excited. Self-evidently positive cycle reinforces the positive effects and vice versa, and therefore the community's general attitude plays an important role in creating the culture for EE.

The way actions are assigned and organised also contributes how the culture is experienced. There can be too few actions or those are one-sided or not at all structured and the experience is negative. This can also lead to non-alignment of staff as expectations are not clear or met.

> *Our operations are not very comprehensive and it's not continuous because it is based on happenings arranged by a small group. Culture of operating is not cross-cutting.*
> *–Teacher, 50, Vihreä lippu experience for 10 years*

> *Engaging adults to for example our Vihreä lippu -rules or procedures according to sustainable development can be surprisingly challenging.*
> *–Teacher, 34, Vihreä lippu experience for 8 years*

Similarly, when the activities were clearly structured or the actions were based in Vihreä lippu programme positive experiences were described.

> *There's a lot of work over the school year, so we have shared it so that no one gets too overwhelmed. It's certain that someone has done more but it cannot be said that one would have done the most.*
> *–Teacher, 53, Vihreä lippu experience for 7 years*

> *Surely that [sustainable development project] could be done without it [Vihreä lippu membership]. It just helps a lot, when everything you can do is readily available and then there's a concrete thank you in the end, the flag.*
> *–Teacher, 33, Vihreä lippu experience for 3 years*

Significant factor is how the culture is born and kept up, whether it is alone or together. Collaboration as a positive factor is brought up by many of the interviewees just as the ethos of managing alone was described as a negative factor.

> *In our school this Vihreä lippu is handled very nicely between colleagues. We have defined clearly what it contains and what we do in it. We have it well covered together.*
> *–Teacher, 28, Vihreä lippu experience for 1 year*

An interesting view about non-alignment of saying and doing was brought up. Talking about sustainability does not mean that one acts upon those sayings. This is a good reminder that even in schools with an established culture in environmental education there might not be relevant action for it.

> *The fact that you speak about sustainable development does not necessarily lead to you making choices according to that in your work. About 20–30 percent of the teachers are indifferent, they simply don't care.*
> *–Teacher, 58, Vihreä lippu experience for 16 years*

Lastly, having a past and some history is a positive factor contributing to the culture of EE. However, this is the result of years of commitment, and might have a variety of experiences in the background.

6.3 Factors of Vihreä lippu programme as a service

Factors of the general culture of environmental education and Vihreä lippu programme are looked at separately as the earlier encases Vihreä lippu as a practical application. This relationship was also brought up in the interviews and therefore the focus in the following is in the Vihreä lippu as a service. The main findings about factors of Vihreä lippu programme in general are divided into two, negative and positive factors, and those can be examined at three different levels: at personal level, at school level and the level of the programme.

Negative factors of the Vihreä lippu programme on personal level summed are laboriousness, burden for reporting, feeling of inadequacy, being active alone, uselessness for self or the student, difficult beginning or lack of motivation. On school level again these are challenging for the school in multiple ways and lack of support from the principal. Lastly, on a programme level those are negative first impressions of the service, its content, forms in multiple ways and lastly the criterion of the programme. In opposition positive factors are on a personal level: meaningfulness of own work, joy brought by the children, added value for its users, being in nature and reasonable use of time. On school level these are well-functioning structure, practicality and concrete actions, sense of community and long term implications. On programme level the positive factors relate to the mental image of Vihreä lippu as well as technical features of the forms and criterion of the programme. These are listed in groups in Table 6. Next, some of these findings are looked closer into.

Negative factors

The negative factors on personal level for the teachers were multiple. First, many of the teachers experience Vihreä lippu as being laborious. The burden can be felt on a personal level as being challenging for a perfectionist or professionally as an additional task to overcome at work.

> *For many the mental image of it [Vihreä Lippu] is primarily laborious. You have to have a passion to be willing to run it. Many perceive it as an additional laborious thing on top of the teacher's other tasks.*
> *–Teacher, 34, Vihreä lippu experience for 8 years*

In specific, the requirement of reporting was highlighted as a negative factor in the programme. Also, being active alone is a negative factor felt on a personal level. Additionally not being able to manage these requirements again reflects in feeling inadequacy, which was also brought up by many.

TABLE 6. Negative and positive factors related to Vihreä lippu programme as a service in three levels: personal level, school level and programme level.

NEGATIVE FACTORS	POSITIVE FACTORS
PERSONAL LEVEL	**PERSONAL LEVEL**
Laboriousness	Meaningfulness of own work
Burden for reporting	Joy brought by the kids
Feeling of inadequacy	Added value for its users
Being active alone	Being in nature
Useless for self or the student	Feedback
Difficult beginning	Reasonable use of time
Lack of motivation	Meaningful events
SCHOOL LEVEL	**SCHOOL LEVEL**
Challenging for the school	Well-functioning structure
Lack of support from the principal	Practicality
Challenge for engaging the community	Concrete actions
Evaluation of the activities	Sense of community
	Long term implications
	Creating a routine
PROGRAMME LEVEL	**PROGRAMME LEVEL**
Negative first impression	Mental image of Vihreä lippu
Content	Technical features of the forms
Forms: technical/content weaknesses of the forms	Criteria of Vihreä lippu
Criteria of Vihreä lippu	

> *Those reports have to be made, and that causes stress. –– If I was alone, I would die under that burden. Feels like at times the whole thing has to be forced and that 'we have to get those points it it'.*
> *–Teacher, 50, Vihreä lippu experience for 3 years*

> *It [writing the action plan] is a lonely task, it has to be made, then it's written and then it's sent to others, 'please read and comment' and then barely no one comments.*
> *–Teacher, 50, Vihreä lippu experience for 10 years*

> *Writing that report [causes frustration and harm. It always gets dumped on one or two people. You cannot do it as a group.*
> *–Teacher, 33, Vihreä lippu experience for 3 years*

> *Feeling of inadequacy is present as a beginner in Vihreä lippu*
> *–Teacher, 54, Vihreä lippu experience for 2 years*

Struggling with the initiation of the programme also emerged as a negative factor on personal level. Starting a new project is time-consuming, when one has to learn not only about the contents to be taught and what is requested but also about the practical aspects of the programme.

> *In the beginning the first year was 'oh no, stress, stress' and oppressive. Now that the team is better and positive, we have done small things with baby steps.*
> *–Teacher, 58, Vihreä lippu experience for 3 years*

On school level the negative factors relate to the burden caused by the bureaucracy, being costly or otherwise challenging to the school. For some, the requirements of the programme are too loose and for some too strict.

The experience of laboriousness seems to be directly linked with the burden caused by reporting and also with being active alone. Similarly, those who are sharing their burden with their colleagues are also not reporting about the feeling of inadequacy to the same extent if at all.

> *When we didn't know this yet that [action plan and forms] took a disproportionate amount of time and now that we have done it, it still takes time.*
> *–Teacher, 52, Vihreä lippu experience for 2 years*

> *It was very much the responsibility of this one teacher and I was there helping, and then [when the other left] the responsibility was left to me alone.*
> *–Teacher, 44, Vihreä lippu experience for 3 years*

> *Some get a panic attack because of the reporting.*
> *–Teacher, 58, Vihreä lippu experience for 16 years*

Particularly having to evaluate the actions the school has carried out throughout the school year is one emerged negative factor. This means additional work as before doing the reporting it is necessary to remember what has been done and evaluate it accordingly.

> *Always in the spring time we have to calculate that we have filled in all the criteria. It's sort of challenging, because it's different stuff than what you have in school otherwise. It's additional to the whole although those are the same actions that already exist.*
> *–Teacher, 54, Vihreä lippu experience for 2 years*

When looking at the negative factors at the level of the programme, a negative first impression stands out. For most, the image built from the messages of other colleagues who had given the impression of the programme being laborious and therefore negative.

> *First touch in the circle of environmental educators was that it is laborious, causes a lot of work and requires much effort in the beginning.*
> *–Teacher, 54, Vihreä lippu experience for 2 years*

Similarly, for some the first impression was either complex, distant or meaningless. This could be caused by colleagues or simply by the general reputation of Vihreä lippu.

> *My impression is that it is now widely acknowledged. In the beginning it seemed distant and meaningless.*
> *–Teacher, 28, Vihreä lippu experience for 1 year*

Another programme-related aspect is the content of the programme, which refers to both educational content such as topics related to sustainability but also the physical materials provided by Vihreä lippu programme. Some experience the different topics in environmental education to be complex, too abstract or otherwise heavy to teach about.

> *That [environmental education] can become heavy as it relates to many heavy, abstract things. How to split that for the child so that it is somehow concrete? It's so easy to stumble to stuff that then goes beyond understanding for all.*
> *–Teacher, 44, Vihreä lippu experience for 3 years*

Negativity might also be caused by the paradoxical fact there is lack of relevant information on something while there is too much information available otherwise.

> *At times it's difficult for me to convince students what they really should do, as I myself haven't seen convincing calculations that this one should do and this one must do. Lack of information and lack of transparency irritates. What is it based on what is worth doing? Can you call this greenwash?*
> *–Teacher, 50, Vihreä lippu experience for 10 years*

Reporting and the forms for it emerged as negative factors. It is not only about the burden for having to report but also the tools for doing it are causing harm for some.

> *Some questions and steps in the tables repeat themselves. I noticed that I was listing the same things over and over again. You could make it even more simple*
> *–Teacher, 34, Vihreä lippu experience for 8 years*

Criteria of the programme are seen as a negative factor in two ways.
For some, the criteria are too strict and for others too loose.

> *We teachers and pupils have good intentions, but the project does not seem to require that the chain is thorough and finished until the end.*
> *–Teacher, 50, Vihreä lippu experience for 10 years*

Positive factors

Positive factors on a personal level are also multiple. Teachers are experiencing meaningfulness of their work when they can work for sustainability and participate in creating a better world. Also being able to influence the everyday activities of the pupils and see the joy of the children contributes to giving meaning. Added value of Vihreä lippu is also a positive factor but that is examined in greater detail in Chapter 6.4. Lastly, being in nature is seen as a positive factor as it contributes to strengthening one's relationship with nature both on the personal level of the teacher but also of the pupils.

> *It took a few years to get inside of it properly and then an environmental educator was born inside myself. I realised that this is a superb thing.*
> *–Teacher, 34, Vihreä lippu experience for 8 years*

> *[I feel joy] if I notice that a child has experienced moments of success when in nature or if I notice that a child's relationship with nature has developed.*
> *–Teacher, 34, Vihreä lippu experience for 8 years*

> *Connection to nature is very important. I strongly believe that when a small child is in nature it will reach far and that it is a supporting resource, and for me it is a huge source of happiness.*
> *–Teacher, 54, Vihreä lippu experience for 2 years*

Positive factor on a personal level is the reasonable use of time that was mentioned by some teachers. This presumably relates to the person having a past experience in the programme and the requirements are not surprising.

> *It's nicer to start writing the report when you know that you don't need to spend many evenings writing it.*
> *–Teacher, 33, Vihreä lippu experience for 3 years*

The positive factors are in greatest number on school level. Well-functioning structure refers to how the programme is organised in a school unit and how people involved in it know what is expected. There might be regular meetings to create a rhythm for collaboration or the whole school year is built around themes brought by Vihreä lippu. In summary, Vihreä lippu creates the structure and framework for sustainable actions.

> *Before that [Vihreä lippu] our sustainable development had been more of messing around, meaning that we just did something general and not according to any programme. It immediately brought structure to that thing.*
> *–Teacher, 50, Vihreä lippu experience for 10 years*

This links with the aspect of practicality as the schools are able to execute curriculum easier by following Vihreä lippu programme. This is done through concrete simple actions, such as picking up rubbish or sitting down at the fire to have a break.

> *One of the most important points in the newest curriculum is environmental education and that is part of the everyday all the time. For us it was very easy because we had Vihreä lippu and because it's so punctual with it.*
> *–Teacher, 50, Vihreä lippu experience for 19 years*

Sense of community suggesting active collaboration with others is a significant factor that is highlighted by many teachers. Vihreä lippu is seen to contribute to creating and keeping up the sense of community by offering opportunities to do things together outside of age group boundaries, which again creates shared experiences.

> *Doing something together in school [makes me feel excitement or happiness]. It enhances the sense of community.*
> *–Teacher, 44, Vihreä lippu experience for 3 years*

> *The most memorable moment is the collaboration of children in the Vihreä lippu team. There all pupils from first to fifth grade were operating nicely in teams. Rarely do you get possibilities to cooperate with so different ages.*
> *–Teacher, 28, Vihreä lippu experience for 1 years*

Long-term implications of participating in Vihreä lippu programme are experienced as positive factors at the school level. Teachers describe positive feelings when they get feedback from the parents or commitment for sustainability issues in the school has lead to general raise in awareness

> *[I feel happy] when the parents come to say that*
> *now there is something remarkable*
> *happening in school. When it creates real action, not only knowledge.*
> *–Teacher, 58, Vihreä lippu experience for 16 years*

> *Wakening awareness makes me feel happy. When*
> *I realise that my work has a meaning.*
> *–Teacher, 28, Vihreä lippu experience for 1 years*

The image of Vihreä lippu is seen as a positive factor for some, especially after having a personal experience or as a result of changes in the programme over the years. Forms for reporting are the practical aspect of the programme and gaining experience in the programme in general is reflected in how the forms are perceived.

> *What it is in practice has increased positiveness and the*
> *mental image has improved for the better.*
> *–Teacher, 28, Vihreä lippu experience for 1 years*

> *When I started in early 2000 writing the reports was horribly laborious. One had to get images and all. Then it took a lot of time to work on the final report. Now when it's done on the computer it's not so laborious. It has changed for the better.*
> *–Teacher, 50, Vihreä lippu experience for 19 years*

Lastly, for some the criteria of the programme have changed to more positive and therefore those are experienced as a positive factor in general.

> *That [report] was substantially easier than the earlier. –– The bar has been lowered with reference to producing text and it is possible to get that Vihreä lippu easier.*
> *–Teacher, 33, Vihreä lippu experience for 3 years*

Added value of Vihreä lippu programme

Added value emerged as one of the positive factors of Vihreä lippu for the teachers involved. Added value could be interpreted as giving meaning or adding meaningfulness to the users at different levels. Those levels are (1) personal and professional levels and (2) visible and symbolic meanings for the community and lastly, (5) economic savings that the programme offers (see Table 7). Next these levels of experiencing meaning are examined closer

Professionally and personally Vihreä lippu includes multiple values for the teachers. For some it represents pride in being involved in bringing the programme to their school or it is a way to strengthen their own relationship in environmental education.

> *The greatest added value [in Vihreä lippu] is in finding my personal interest in the topic. With Vihreä lippu I understood that this is what I want to do.*
> *–Teacher, 34, Vihreä lippu experience for 8 years*

> *That [Vihreä lippu] creates more awareness for myself too.*
> *I don't know if I would have been so conscious and excited about environmental education without Vihreä lippu.*
> *–Teacher, 28, Vihreä lippu experience for 1 years*

Added value can also be created by being an additional channel for learning for teachers themselves but most often was mentioned the merit it is when applying for jobs.

> *It has had a value when applying for new jobs. You have know-how for a narrow niche. I am totally sure that I got my [current] job because I had that [know-how for a narrow niche].*
> *–Teacher, 50, Vihreä lippu experience for 19 years*

For the community the meaning is both visible and symbolic. Self-evidently the green flag in the pole and certificate in the school hallway represent visible and symbolic added value

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TABLE 7. Ways of creating meaning as the added value of Vihreä lippu programme.

MEANING FOR SELF	MEANING FOR THE COMMUNITY
Professional level	Visible meaning
Personal level	Symbolic meaning
	Economic savings

but it goes beyond that. Many experience that the label of being a school involved in an eco-school programme creates a certain status or acts as a merit for achieved acts.

> *It is a value for our school that we are a Vihreä lippu school. Some sort of meaning for status even. There's a direction for the goal in doing it.*
> *–Teacher, 50, Vihreä lippu experience for 10 years*

Lastly, economic savings are seen as an added value as that is a concrete way of evaluating impact created.

> *It [Vihreä lippu] saves money if we, for example, sort our waste well and save energy. The price gets paid [multifold].*
> *–Teacher, 58, Vihreä lippu experience for 16 years*

> *In another municipality the savings were calculated and with that money the school could invest in new outdoor sport racks. It was beneficial. That also ignited the want to try that 'hey, we want to save some money.'*
> *–Teacher, 50, Vihreä lippu experience for 19 years*

Insights

Majority of the negative factors in Vihreä lippu programme are experienced by the teachers themselves on a personal level, whereas positive factors are more related to the operations of the school as a whole. This could be interpreted that the teachers experience the burden personally and the negative aspects are not experienced as a community or a shared experience. In opposition, the positive aspects of the programme are experienced more as a community although the positive factors on personal level are also many.

By enabling teachers to make their personal burden more a shared experience the programme would assist in creating a balance between how the negative factors are experienced and divided at different levels. Its practical implications might be complex as the programme is directed at national level, not on school level. Nevertheless, teachers' experience of negative factors needs action, support and tools to turn into more positive factors.

Also, acting sustainably and creating economic savings is not that straightforward in schools. The savings are not necessarily ever concretised for the pupils, teachers and staff themselves but are left as numbers in the system. Being able to directly turn that value into benefits requires a systemic change.

6.4 Experience of the Vihreä lippu community

Based on the interviews, the experience of the Vihreä lippu community is currently loose (see Table 8). For many, there is a lack of relationships between schools participating in the programme or those relationships are weak.

> *I know nothing about other Vihreä lippu schools, what they do or do we have some other schools in the neighbouring municipalities. There is no collaboration between schools in terms of Vihreä lippu.*
> *–Teacher, 28, Vihreä lippu experience for 1 years*

> *I have no relationship whatsoever with anyone [in any other Vihreä lippu schools]. We are probably the only in town and neighbouring areas. Only in some training sessions we might be at the same time.*
> *–Teacher, 50, Vihreä lippu experience for 19 years*

Ethos of managing independently seems to be present not only on a personal level as described earlier but also at school level suggesting that each school focuses on their own agenda. Collaboration across schools inside the same municipality is not present.

> *Rather alone we're doing that [Vihreä lippu] stuff.*
> *–Teacher, 28, Vihreä lippu experience for 1 years*

> *In this municipality there is another Vihreä lippu school but all schools do their own stuff.*
> *–Teacher, 48, Vihreä lippu experience for 1 years*

Peer support has existed for some on a personal level if there has been meetings in conferences or in other ways but it has not been systematic or organised by the community.

> *At times I go to training events and then I can share experiences and get ideas and get peer support, but in the everyday I have no contact in any way to other schools.*
> *–Teacher, 34, Vihreä lippu experience for 8 years*

Some of the teachers seem to yearn for a sense of community between school units and colleagues outside of their own work community.

TABLE 8. *Experience of the Vihreä lippu community*

EXPERIENCE OF THE VIHREÄ LIPPU COMMUNITY
Lack of relationships between schools
Weak relationships between schools
Ethos of managing alone
Peer support on personal level
Yearning for community

> *That communication or meetings between schools doesn't exist. I wish it did.*
> *–Teacher, 48, Vihreä lippu experience for 1 years*
>
> *That [relationship with other Vihreä lippu schools] doesn't exist and there is no action. -- It would be important and an important resource.*
> *–Teacher, 54, Vihreä lippu experience for 2 years*

Insights

As the ethos of managing alone is strong at both personal level for the teachers as well as school-level for single school units, shifting this ethos to a more sustainable one would be beneficial for all. If a teacher cannot have collegial support for managing with Vihreä lippu programme in a single school unit the support could be provided by the Vihreä lippu community as a peer support from others in similar situations. Creating a simple infrastructure for the sense of community to be born might lead to the community growing organically from the needs of the teachers. Although the sample size of this research is small the insights from these teachers should be considered significant as these reflect the ideas of the majority.

6.5 Teachers’ stress factors in Vihreä lippu programme

Based on the interviews some teachers’ stress factors relating to Vihreä lippu emerged (see Table 9). Lack of time and the amount of work are known to be characteristic stress factors for teachers in general and teachers in this research were no exception. Teachers have much more than simply teaching as their duty and therefore the amount of work is experienced as enormous.

> *I like to teach in nature, I like to teach about nature, I like to teach about diversity and our way of consuming, but I would like to do more. There’s not enough time.*
> *–Teacher, 33, Vihreä lippu experience for 3 years*

> *We teachers have other stuff than Vihreä lippu – all topics, specialisation topics, care of the pupils and all other things – so time is often too little.*
> *–Teacher, 54, Vihreä lippu experience for 2 years*

Having Vihreä lippu programme as an addition to the existing workload is stressful for some and it is highlighted because of the requirements set by the programme. Not only do the teachers commit themselves to organise and manage the programme but also to excel the required criterion. Arduousness of the programme was mentioned as another stress factor that is directly linked with the former two.

> *It’s an official system so the criteria are awfully strict. It feels like a forced necessity.*
> *–Teacher, 50, Vihreä lippu experience for 3 years*

> *The programme for Vihreä lippu is demanding and it sets requirements for you and the actions of your community.*
> *–Teacher, 54, Vihreä lippu experience for 2 years*

> *It appears in those [streering groups where I go] that women in their 30s are totally burnt out. -– A kind executor wears out. First she cannot sleep, then she cannot do anything. And if on top of that there is Vihreä lippu, God bless her.*
> *–Teacher, 58, Vihreä lippu experience for 16 years*

> *She [a colleague] totally burnt out for running Vihreä lippu in our school.*
> *–Teacher, 50, Vihreä lippu experience for 10 years*

TABLE 9. *Teachers' stress factors in the Vihreä lippu programme*

TEACHERS' STRESS FACTORS
Lack of time
Amount of work
Arduousness of the programme
Pressure set by the community

Lastly, some teachers experience stress caused by their work community. For some it appears at work overload that one has to manage alone when others are not interested to participate or it might cause otherwise ambivalent behaviour.

> *When there is a teacher who is excited about something that wakes contradictory feelings in some. –– That can be envy about 'who does she think she is'. I occasionally see spite, but that's how it is and there's not chemistry with all.*
> *–Teacher, 58, Vihreä lippu experience for 16 years*

6.6. Teachers' needs in Vihreä lippu programme

Based on the interviews teachers are able to articulate their needs in order to excel in Vihreä lippu programme better. Simplified, all of the teacher's needs link with support and at multiple levels (see Table 10).

TABLE 10. Teachers' needs in the Vihreä lippu programme

TEACHERS' NEEDS
Peer support with other schools
Peer support in one's own community
Support for first steps in Vihreä lippu
Materials and knowledge
Reporting
Education
Planning

Teachers wish for peer support in their own communities to help with the workload in practise and also in engaging others to act.

> *I would need a working partner to do it with me. How to implement it [Vihreä lippu] and how to get the whole school engaged. We would need more people than just one for it.*
> *–Teacher, 48, Vihreä lippu experience for 1 years*

> *As a younger teacher I would like to have more similarly thinking staff in the teachers' room so that it would be easier to execute the programme when there would be someone there to run those projects.*
> *–Teacher, 33, Vihreä lippu experience for 3 years*

Peer support with other schools is not present currently with anyone of the interviewees but many saw potential in having that opportunity.

> *Maybe the programme is also peer support. When we look at it only from the perspective of our own school, we really do not know how much better or worse things are in other schools.*
> *–Teacher, 50, Vihreä lippu experience for 10 years*

> *Couldn't you couple up similar types of schools? It would be very important and an important resource. I would like to see live and arrange such [peer meetings].*
> *–Teacher, 54, Vihreä lippu experience for 2 years*

As a service process starting the Vihreä lippu programme was highlighted as the phase for increased support. For some the programme is new and there is no experienced colleague sharing the experience and explaining the steps required. Even for those who are starting in a school with a history the increase in need for support is present.

> *After having just started in Vihreä lippu I ponder, help, how do we manage. For that reason I need support in the beginning.*
> *–Teacher, 48, Vihreä lippu experience for 1 years*

> *Maybe there that organisation could work on so that in the beginning there would be a suitable starter's kit of some sort. 'Hey, this and this and this' Of course it is always so that you have to be a proactive self but no matter how much you would like, sometimes it's impossible. In that beginning one needs and should have peer support.*
> *–Teacher, 54, Vihreä lippu experience for 2 years*

Practical needs for support relate to the materials and knowledge available to be used for teaching and how the use of those materials is planned. Also, for some teachers the need for education and training for themselves emerged as a relevant way of support.

> *I wish that the theories of environmental education were clearly available. Those would be easy to look at and there would be clear systems.*
> *–Teacher, 48, Vihreä lippu experience for 1 years*

> *[I need] tips. -- The everyday life at work is hectic so ready made ideas to execute on a short notice and quickly.*
> *–Teacher, 50, Vihreä lippu experience for 19 years*

Lastly, many teachers expressed the need for a simplified system for reporting and that the contents would be more relevant from the teacher's viewpoint. Currently for some the reporting increases the threshold to start and the system is experienced as laborious as described earlier.

> *Now that I have filled in that report self, indeed, it was a lot of work. I wish it was a little lighter system.*
> *–Teacher, 48, Vihreä lippu experience for 1 years*

> *Relating to that [writing a report] it would be important that there would be a couple experienced teachers involved in doing those templates for reports and actions plans. They would be inside the reality of schools and teachers, and they would know what should be asked and what not.*
> *–Teacher, 58, Vihreä lippu experience for 16 years*

7

Design proposals for service improvement

In this chapter, the design proposals for service improvement of Vihreä lippu are presented. First, themes for proposals are presented as was directly proposed by teachers themselves. Second, three design proposals are presented based on the data that was collected with multiple methods and analysed with a design perspective. Lastly, my proposals are described and justified in detail.

7.1 Proposals directly from the teachers

This research utilised service design methods in order to gather diverse data on a multifaceted phenomenon of the teacher's experience of environmental education in Vihreä lippu programme. The chosen methods of five different workshops and 11 semi-structured interviews together were drawn to insights presented in Chapter 6. As a result of these two sets of proposals are refined: proposals directly from the teachers and proposals interpreted by myself from the data. The earlier is explained next.

In the semi-structured interviews teachers shared their experience in environmental education as well as Vihreä lippu programme step by step. Some questions were open-ended and allowed teachers to ponder how the existing service could be developed further. In addition, all were asked in specific "Which things in terms of environmental education do you need most support for?" These combined produced direct proposals for further development and the single theme overarching all answers is support. In other words, teachers wish for help in different ways. Different themes of support are presented in Table 11 and elaborated on next.

Help for the beginner

The first year of the programme is perceived as demanding and therefore teachers wish to have more support for the first steps of the programme. The following concrete methods are suggested as aid: (1) a beginner's starting kit, (2) naming a local support person, (3) starter's support or training for using the web materials and (4) peer support.

TABLE 11. Themes for concrete ideas for developing Vihreä lippu as proposed by teachers

NEW IDEAS FOR VIHREÄ LIPPU
Beginner teacher's need for support
Need for peer support
New activities
Reporting
Materials
Development of the programme
Education

Peer support for all participants

Although the idea of Vihreä lippu is to act collaboratively and as teams, many teachers seem to lack peer support in their communities. For them peer support does not necessarily mean collegial support inside the same organisation as it can extend beyond their own work community. To enhance peer support the following concrete methods are suggested: (1) "Godparenting", (2) connecting similar school units, (3) regional meetings as a built-in element of the programme, (4) tutoring and (5) more opportunities for meeting peers.

New activities and materials for the programme

Paradoxically, many teachers perceive that Vihreä lippu has extensive materials already but are at the same time willing to expand on the content or opportunities the programme provides. Untapped potential is seen in the following methods for building new activities: (1) international projects, (2) collaboration with local operators and (3) exhibiting achieved savings in a concrete manner. Similarly, the following are suggested for improving the materials: (4) listing operators who support environmental education and allow visits categorised by towns and cities, (5) helping teachers remember dates, (6) template for seasonal events and (7) video clips on diversity.

Easy reporting for all

Teachers expectedly perceive reporting as a laborious and time-intensive task, for which they had straightforward ideas for development. The main goal of them all is to make reporting easier and the methods could be: (1) reporting as checkboxes or self-evaluation and (2) erasing unnecessary questions to make reporting shorter and concise.

Making the programme easier

Generally, teachers are motivated to operate in Vihreä lippu but at the same time they wish it could be made easier and support their work better. Minor frustration was implicit in ideating for changes but the expectations are explicit: the programme should be empowering, a consistent model of action and an easy tool for a teacher. However, concrete actions for getting there were lacking. Only two relevant ideas are suggested: (1) engaging an experienced teacher for further development of the programme, (2) researched knowledge available for argumentation to participate in Vihreä lippu.

Education available for all

Currently training and education are available only as a separate commission by FEE Suomi. As schools have strict budgets and Vihreä lippu itself is chargeable, the training could be available for all. For that the following is suggested: (1) free training for all Vihreä lippu participants.

7.2 Proposals interpreted from the data

Based on the findings presented earlier in Chapter 6 and ideas directly suggested by the teachers as described above, the following three proposals are refined. They can be perceived as practical implications of the research results. For the case organisation these are the main takeaways of this research. Each proposal is described in detail at concept level and as concrete as possible, where applicable. However, the proposals are not complete as such and should therefore be each developed further.

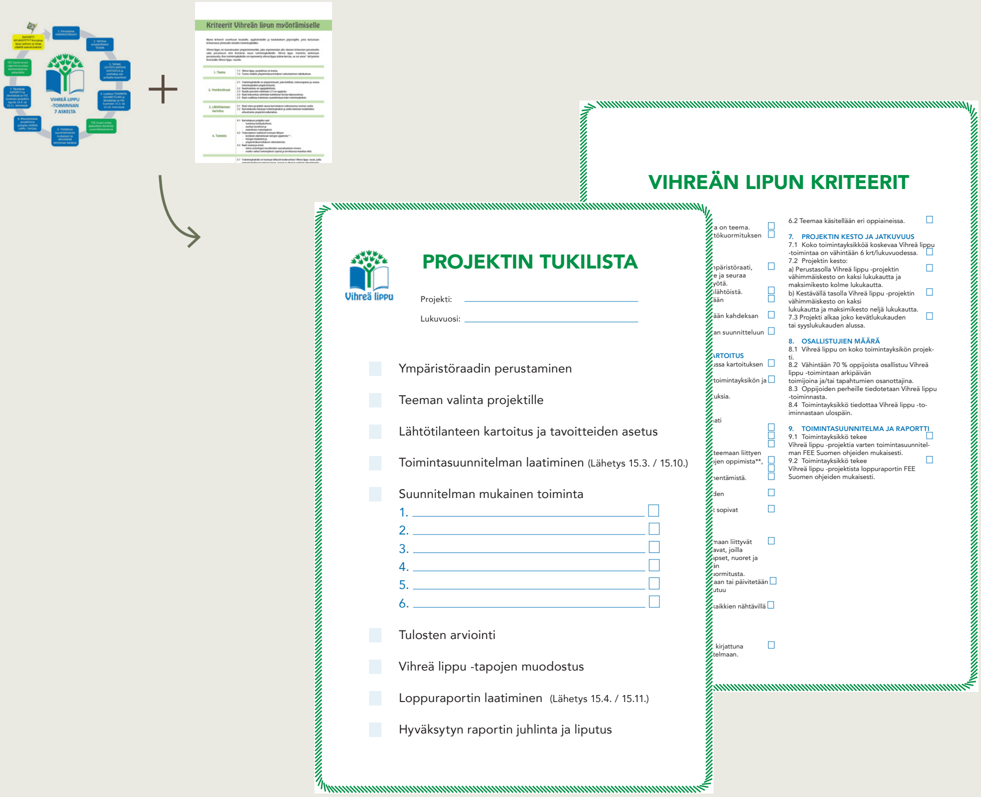
Proposal 1: Support teacher's flow

One of the main insights was that the teachers lack time at their work or are already overloaded. At the same time they are stressed about the requirements for the programme or about the pressure set by their community. Subsequently, requesting anything extra for the teachers can be difficult and might cause a counter-reaction. Although this is not the case with all, the trend should be recognised and acted on proactively. Finding solutions for it also supports those who are not yet struggling with the same issues. Nevertheless, this is the context where the teachers operate and instead of feeling stressed, they should be given the feeling of being supported for dealing with the current burden. For this I suggest supporting the teacher's flow and enhancing sense of meaning by first delivering and then communicating easiness. The following changes could aid in the teacher's context:

Step 1: Structuring and visualising workload

Vihreä lippu project ties the teachers for 1–2 years and this is currently described in seven steps. Despite these steps, the overall workload can be perceived as abstract and vague. This perception can be avoided by structuring and visualising the workload of different steps in as concrete a manner as possible.

Concrete solution for this step is a project checklist (see Figure 13). The project checklist should not only contain the steps of the project, but time estimations where applicable and possible. Additionally, the criteria of the programme should be available. Instead of having this data available online, the checklist should be a physical printout added to the teacher's physical calendar, which many of the teachers use. In being able to predict the required time and expectations, teachers can better manage their time and feel competent to cope with the project. The checklist not only acts as a to-do list but it can also help in streamlining the service experience. Particularly steps that are perceived as fuzzy, such as ending a project, can be given more emphasis as part of the overall service experience.



VIHREÄN LIPUN KRITEERIT

6.2 Teemaa käsitellään eri oppiaineissa. ☐

7. PROJEKTIN KESTO JA JATKUVUUS
7.1 Koko toimintayksikköä koskevaa Vihreä lippu -toimintaa on vähintään 6 krt/lukuvuodessa. ☐
7.2 Projektin kesto:
a) Perustasolla Vihreä lippu -projektin vähimmäiskesto on kaksi lukukautta ja maksimikesto kolme lukukautta. ☐
b) Kestävällä tasolla Vihreä lippu -projektin vähimmäiskesto on kaksi lukukautta ja maksimikesto neljä lukukautta. ☐
7.3 Projekti alkaa joko kevätlukukauden tai syyslukukauden alussa. ☐

8. OSALLISTUJIEN MÄÄRÄ
8.1 Vihreä lippu on koko toimintayksikön projekti.
8.2 Vähintään 70 % oppijoista osallistuu Vihreä lippu -toimintaan arkipäivän toimijoina ja/tai tapahtumien osanottajina.
8.3 Oppijoiden perheille tiedotetaan Vihreä lippu -toiminnasta.
8.4 Toimintayksikkö tiedottaa Vihreä lippu -toiminnastaan ulospäin.

9. TOIMINTASUUNNITELMA JA RAPORTTI
9.1 Toimintayksikkö tekee Vihreä lippu -projektia varten toimintasuunnitelman FEE Suomen ohjeiden mukaisesti. ☐
9.2 Toimintayksikkö tekee Vihreä lippu -projektista loppuraportin FEE Suomen ohjeiden mukaisesti. ☐

PROJEKTIN TUKILISTA

Projekti: ______________________
Lukuvuosi: ______________________

☐ Ympäristöraadin perustaminen
☐ Teeman valinta projektille
☐ Lähtötilanteen kartoitus ja tavoitteiden asetus
☐ Toimintasuunnitelman laatiminen (Lähetys 15.3. / 15.10.)
☐ Suunnitelman mukainen toiminta
  1. ______________________ ☐
  2. ______________________ ☐
  3. ______________________ ☐
  4. ______________________ ☐
  5. ______________________ ☐
  6. ______________________ ☐
☐ Tulosten arviointi
☐ Vihreä lippu -tapojen muodostus
☐ Loppuraportin laatiminen (Lähetys 15.4. / 15.11.)
☐ Hyväksytyn raportin juhlinta ja liputus

FIGURE 13. Project checklist combining the existing information about the 7-step programme and the criteria.

Step 2: Simplifying reporting

Expectedly one critical stumbling block in Vihreä lippu programme is the requirement to report. It has not only emerged from previous studies and user surveys but has also been acknowledged by the organisation. For the moment, reports are the key instrument for FEE Suomi to be able to assess and evaluate the actions of each school. In other words, without the reports there would be nothing to assess. From the teacher's viewpoint, the important thing in Vihreä lippu are the activities that the school participates in, whereas for FEE Suomi it is important that those activities are reported accordingly. To align the gap of interests the compulsory reporting should be made as simple and easy as possible. Simply styling and making the reports look nice is not sufficient. The forms should help the teacher's flow as much as possible.

Concrete steps for simplifying reporting could be the following:

- Time estimation of each report made visible (to help in time management)
- Content of the forms evaluated accordingly (i.e., remove redundant questions, to increase simplicity)
- Changing the format of reporting (to avoid time spent on adapting the model)
- Improved legibility by adjusting layout and in specific typography (to increase clarity and simplicity).

Step 3: Communicating easiness

If the previous steps are made and the experience of easiness is delivered in the service, this should also be communicated. However, this can only be done once relevant changes are made first.

One approach to communicating easiness is to utilise value propositions in marketing. This is the only step where different user groups are explicitly considered as both have their own value propositions. In general communication the message should obviously be universal but when communicating to specific user groups the message should be formulated accordingly. In highlighting easiness in the communication and marketing the overall image of Vihreä lippu can be nudged away from complex and laborious first impressions.

Aforementioned three steps are interlinked and executing them combined can enhance the teachers' overall experience of the programme.

Proposal 2: Create a sense of community

Another main insight of the study is that the ethos of managing alone is strongly present in the programme. This emerged at two levels: both as teachers having to manage the programme more or less alone in their schools as well as schools having to cope alone, isolated from other school units involved in Vihreä lippu. Simultaneously, some teachers reported lack of support. This could also be interpreted as a feeling of support as, de facto, support is available but not perceived. One solution to call for support at both personal and school level would be enhancing the sense of community by the following steps:

Step 1: Creating an open network

Currently each Vihreä lippu school operates as a single unit and might not be aware of each other. Although contact information of other participating school units is available on Vihreä lippu website, that is not actively used for contacting other school units as the ethos of managing alone is strong. In a way, a passive community exists currently, but it needs to be activated by enabling and facilitating communication between participants.

Concrete solution for allowing schools to find each other proactively is through modifying the current online presence. Easiest way could be developing a community website and creating a platform for contacting other participants. This opportunity can ignite cooperation between units and teachers naturally.

Step 2: Starting mentoring or tutoring programme

Teachers and schools are expected to adapt and pass the programme independently. This expectation can be demanding particularly for beginners when the programme with its contents and criteria is unfamiliar. The threshold for having to cope alone can be lowered by offering concrete support and help by peers.

One concrete step is to offer a mentor or tutor for teachers participating in the programme. At the simplest, this could be done by coupling ones needing help and willing to give help. The rules of mentoring should self-evidently be precise to avoid the feeling of extra burden. The main idea would be to offer an easy point of contact and peer support.

Step 3. Communicating about the community

If the previous steps are taken, it is important to communicate about it. The sense of community is not only born as a result of mutual action and collaboration but also communicating about the existence of the community. One logical and easy way to build the sense of community is to inform each unit about another unit close to them. This bridge-building act can be enough to open the connection between different schools. Likely intervention for this would be communicating about the existence of the community, the closest other unit or another similar unit as well as the mentoring or tutoring option in the beginning of each project.

Crucial in this proposal of three steps is that this can enhance the teacher's overall experience in the programme by improving the feeling of being supported. Although FEE Suomi has until now offered support for the teachers via phone and emails, this has not been perceived as enough. There is evidently a need for peer support, which cannot be given by the staff of FEE Suomi alone. This study has shown that peer support that teachers need does not necessarily have to be by the colleagues of the same work community but can be of peers from other work communities, even from other towns. Majority of the teachers reported that they would be interested in sharing their thoughts and experiences with others in similar schools. This is a significant finding and implies that FEE Suomi can contribute to that by creating a sense of community.

Proposal 3: Aim for systemic level change

Based on the interviews, the majority of the teachers are participating in the Vihreä lippu programme and implementing environmental education based on their personal and professional interest and motivation. Majority of the teachers are not compensated for their time spent on running the programme for the eco certificate.

In the current school system, depending on the school unit, some teachers are allocated time for doing IT work, which in practise means that they are compensated for their time spent for IT. This unjust setting is not motivating for teachers promoting environmental education and therefore directly impacts the operational system of Vihreä lippu. Teachers need to have a pay rise or be allocated enough time for environmental education in order to make the topic appealing and sustainable for teachers to cope. Possibly the only way to change the status quo is to aim for systemic level change and find allies for driving that change in the Finnish educational system through collective agreements. For this proposal there is no concrete step other than to consider building a strategy with the allies in how to get a pay rise for teachers involved in environmental education.

Validation of proposals

All of the proposals were introduced and discussed in an evaluation and validation workshop with three members from the FEE Suomi organisation and one interviewed teacher. Generally, the proposals were welcomed and the majority of them were seen relevant as such.

Supporting the teacher’s flow of the everyday in concrete steps was highly valued by the participating teacher. Particularly the checklist with the criteria on the other side was seen to have potential in helping in the practise of time management. It was pointed out that Vihreä lippu is not necessarily physically present for teachers the same way it is present for the pupils through the visible Vihreä lippu rules. Therefore, a concrete reminder inside the calendar that is used daily would be useful. In evaluating this FEE Suomi staff learnt that although necessary steps and criteria have been available online for all participants for ecological reasons, those might not be printed and used by the members. This ignited the discussion of the downsides of getting a checklist printed and mailed for all. It was also agreed on that reporting should be easier and that value propositions could be utilised in communicating for the programme but further steps of either were not discussed in detail.

Creating a sense of community was mainly agreed on. The participating teacher saw potential in allowing open collaboration and connections between participants. She also stated that the research findings about not having cross-school collaboration aligned with her experience. Towards the idea of creating mentoring or tutoring she was affirmative. The only thing that representatives of FEE Suomi brought out was about the effort required for creating the system and that it should preferably be little. Obviously the main purpose of FEE Suomi is not to facilitate collaboration between different schools but as long as it can be done with reasonable effort and costs, it is justifiable.

Systemic level change for the payrise of teachers involved in environmental education got support equally from all at the level of the idea. However, the reality is that such topics fall under the responsibility of The Trade Union of Education in Finland (OAJ) and therefore FEE Suomi is not particularly keen on driving it alone. However, at the moment, OAJ does not include topics of environmental education in its agenda and therefore is not actively promoting systemic change in that. As an end result, the last proposal is not possible with the current resources.

The expectations of FEE Suomi were achieved. In the kick-off workshop it was stated that they expect the project to offer an eureka-moment and to be able to say “ah, you can do it this way as well”. Despite some results of the research being expected, there was room left for moments of aha and building better knowledge of the users of Vihreä lippu.

8

Discussion

In this chapter the findings that lead to the proposals for service improvements are discussed and reflected to previous studies. In these discussions the meaning and implication of the whole research are overviewed. Furthermore, the limitations of the study are examined while making suggestions for further research. Lastly, the success of the research work is evaluated.

8.1 Answering the research question

This study expands the knowledge of how comprehensive school teachers experience environmental education. More specifically, the users' needs, experiences and values in Vihreä lippu eco-school programme have been identified and communicated. This was the first objective of the research. The research question I aimed to answer is: *How do teachers experience an eco-school programme?* In this study, the research question is addressed mainly via empirical study, namely semi-structured interviews. The sub-question for the previous is: *How is an eco-school programme experienced in the case study of Vihreä lippu?* Other service design methods were used in order to dissect the service process of the eco-school programme, to analyse the user's experience in that process and overall to support the research process.

Based on the findings, the added value of the programme is in the meaning it creates. Meaning is created at personal and professional level for the teacher but also for the whole community in both symbolic and visible ways. I interpret it that this aspect of meaningfulness contributes significantly to the overall experience as the teachers are willing to commit to running the programme despite the challenges the programme creates in workload, time management and in the general ability to cope. Although the teachers were encouraged in semi-structured interviews and discussions to reflect on their feelings and emotions, it proved to be challenging. The teachers described their personal feelings relatively narrowly and the approach in the answer was mainly pragmatic, focusing on describing the practicalities of specific experiences or events, rather than emotions in depth.

In talking about the positive factors of the programme, the teachers described the feelings of joy, happiness, inspiration, excitement and succeeding. In opposition, teacher's described harm, frustration, confusion, exhaustion and incompetence when talking about the negative factors of the programme. Overall, teachers seem to be personally and professionally motivated in their tasks involved in Vihreä lippu but at the same time they explicitly express the need for support throughout the process.

Managing Vihreä lippu is not the core competence nor is it the only thing teachers focus on. Although actions for sustainable development should be integrated in the schools activities, often the case is that the programme is done as an additional extra curriculum thing. It seems to require a little extra effort from the staff to at least start the programme before it can be integrated in the activities of the school. Despite that the Vihreä lippu eco-programme is experienced as meaningful the teachers wish to break the ethos of managing alone and find support for themselves in order to make it sustainable and long-lasting. In the following chapter I discuss the thesis objectives and research questions further.

8.2 Discussion through design proposals

Second objective of the research was to utilise research findings in order to create proposals for developing Vihreä lippu eco-school programme further with the focus on teacher's user experience. This was addressed in the sub-question of the research: *How to improve an eco-school programme as a service in order to enhance the teacher's experience?* This thesis makes an important contribution to the existing service and knowledge about Vihreä Lippu practices in making concrete design proposals. The findings from multiple methods implied that despite being personally and professionally motivated in their tasks, teachers need support throughout the process of running the programme for 1–2 years. To improve the current service and experience, design proposals were made based on these findings. This was the research gap that this thesis aimed to examine as previous studies and user surveys have lacked concrete suggestions for development. Some proposals were directly formulated by teachers themselves and additional three proposals were suggested by myself as a designer through my interpretation of the data. The aim is to make the teachers' needs met, which enhances the overall user experience of Vihreä lippu eco-school programme. In practise, it is about supporting teachers in not only getting their tasks done but creating meaning while doing it, which was found to be the added value of the programme. Design proposals address practical implications of the research results and those are discussed next in relation to theories presented in the literature review.

Generally on research results

Based on the research results, there are unmet needs in the service process of Vihreä lippu. Some of the challenges experienced as part of the programme are such that cannot be influenced by FEE Suomi as an operator of Vihreä lippu. For example, lack of support from the principal, challenges in engaging colleagues or negative attitude in the culture of environmental education, are problems inside the school's system, which are difficult or impossible for outsiders to influence. However, some of the needs stated by the teachers are in the reach of FEE Suomi and can be acted on. To exemplify, in creating relationships between schools FEE Suomi plays a central role in, and similarly most steps in the process of reporting are manageable. Furthermore, the majority of the explicit needs expressed in the research are in the sphere of influence for FEE Suomi.

Based on the findings, teachers involved in environmental education can be highly motivated both on a personal and professional level. Despite the motivation, the practise of participating in Vihreä lippu eco-school programme is perceived as demanding. This was an expected result as the perceived heaviness or sense of bureaucracy was stated in the brief of FEE Suomi as well as in their previous user surveys. Particularly reporting is known to be difficult for teachers and that is often done only when it has to be done (Hämes, 2009, p. 60).

Designing for a positive user experience should start from the needs of the users, claims Hassenzahl (2011) in his three-leveled model. Although the model is created for technology-mediated experiences, in my opinion it is applicable to the service of Vihreä lippu. By acknowledging and acting on the needs increases the level of pleasure for the teacher. As the current organisation of FEE Suomi does not have any teachers employed, they should actively seek in-depth knowledge from teachers to build on empathy and to be able design with a human-centered focus, which the intention of this research has been. Previous research as well as the organisation's earlier observations have also stated the challenges in the programme "being described as heavy or bureaucratic" and "participants experiencing lack of support or not having their needs met well", as stated by the executive manager. The proposals later in this chapter have addressed these problems and the aim to start building the experience from these needs.

One significant aspect in user experience is its temporal dimensions. In the context of Vihreä lippu that can also be described as complex as the overall service lasts usually 1–2 years or even for an unpredictable time, if a school binds to participating in it continuously. In practise, the user experience consists of before, during and after phases of the interaction between the system. In Vihreä lippu the stages in using the service are many. Although many steps are the same for everyone, meaning different reports that are to be sent, there are always steps that are unique for each user, such as personal contact to the service-provider. The amount of steps in Vihreä lippu scattered over a long period of time might make the service process seem chaotic and difficult to manage. In addition, some of the events during that overall programme are likely to be more memorable than others and can have a strong influence in the overall experience. In the UX laws (Yablonski, 2020), this is explained with peak-end rule, where adding a better end can enhance the sum of experiences. I would argue that this is applicable with Vihreä lippu, too. Getting the green flag to pull to the flagpole is a visible symbol and as an event often meaningful for teachers themselves as an ending of a project. However, some teachers were not sure how they had finished their most recent project or if it had even been expressed explicitly. In some instances only the staff knew that a project had finished but no pupils were informed. For others this celebration was a pivotal part of their project and culture of celebration. In the light of peak-end rule, I suggest emphasising the meaning of celebration and ending the project to support a user-centeredness and positive overall experience.

Today's teachers are not only there to teach. Both literature and my experience through the interviews show that the teacher's experience today can be paradoxal. On one hand, teachers enjoy their work but on the other hand they are stressed because of various factors, ranging from the changes in the surrounding environment and pupils

being more difficult than before as suggested by literature. The core competency of a teacher to teach and educate has been accompanied by other tasks. One example of these extra tasks is different techniques for measurement, as introduced by Jari Salminen. Vihreä lippu as an eco-school programme represents one of those techniques as an approach to sustainable development. Despite its good intentions, in a way it represents an extracurricular time-consumer. Afterall, time spent on adopting and maintaining the system are all away from the spontaneous educational moments in the classroom, de facto. Based on the research results, it can be suggested that this ambivalence drains teachers. Teachers are content for the meaning that the programme creates, particularly through the joy of the children and activities that call for collaboration, which are directly related to the teachers' core competencies. However, at the same time teachers are burdened by the tasks outside of their core competencies, particularly having to report and manage the programme with scarce resources or alone. From the perspective of user experience, I interpret that if the teachers are not able to evaluate how much extra time and effort is required of them in specific, they cannot determine the overall influence on their own system of teaching without first trying. In summary, the overall flow of the teacher's everyday activities should be supported. Practical solutions to how the needs can be fulfilled are discussed in detail next.

Supporting teacher's flow

When designing for an experience everything should start from the needs, as stated earlier by Hassenzahl (2011). In the context of this study, the needs are the ones of the teachers. Based on the findings, the main insight is that the teachers need support at multiple levels in executing the programme. This was also explicitly expressed by the teachers themselves. However, I see that it is equally important to find the root causes for needing support. Teachers seem to be busy in their everyday work, suffering from lack of time but still wishing to pursue goals of sustainable development set for their schools. I would argue that teachers might need less help if the steps in the eco-school programme supported their daily activities and time management more in practise.

My first proposal relates to supporting the teacher's experience of flow in the everyday. The steps for that would be by (1) structuring and visualising workload, (2) simplifying reporting and (3) communicating easiness. This could also be seen as streamlining the service process. A practical example is to give teacher's hands-on tools, such as a checklist, so that an abstract and long project of two years can become more digestible and reasonable. If examined through user experience laws, a few principles are relevant in this context. Hick's Law about simplifying "choices for the user by breaking down complex tasks into smaller steps", can be applied particularly in visualising the programme for beginners. Additionally, the Zeigarnik Effect supports the idea of a checklist as people are more likely to remember incomplete tasks than ones that have been completed. To support our brain in that tools such as to-do lists can help. Similarly, Law of Prägnanz or Law of Simplicity suggest that we perceive organised patterns and objects by nature. This interpretation requires the least cognitive effort of us as we simplify things and make them clear and ordered, leaving less room for surprises. This is a relevant law to follow in designing the service for teachers as well. Lastly, yet another principle to follow in streamlining the process is the Pareto Principle, or 80-20 rule, where the majority of the energy and effort should be spent on things that create greatest benefits for the majority of the users, that could be for example the reporting.

Many of the negative factors of Vihreä lippu programme dismount to difficulties experienced in reporting. If examined through Pareto principle, that 20% of the programme, i.e. reporting, causes 80% of the negative feedback, in my interpretation. This might not be exactly the case but nevertheless, there is a grain of truth. In other words, if many give feedback about the difficulties experienced in reporting that should be paid the most attention to. In detail that might mean fixing the majority of the report templates but not trying to satisfy all requests. For that reason, I suggested simplifying the reports not only visually and technically but also in content. After all, filling the report is not the core competency of the teachers and that is where the greatest effort should be invested to make that experience as smooth as possible. Other laws supporting in simplifying reporting is Jakob's law, where to create a positive user experience, a website should not offer a new model for the user but rather be designed around existing patterns. At the moment reports are not built on a website but a modifiable PDF instead. However, considering creating a web-format with as many familiar models from other websites as possible, would enhance the teacher's experience. This way the teachers could spend all their time efficiently on reporting itself rather than anything else.

Teachers experience meaningfulness through the programme. Meaning is created at personal and professional level for the teacher but also for the whole community in both symbolic and visible ways. These can be understood to be valuable not traditionally in a financial sense but rather social and psychological dimensions. These are difficult to measure but are indisputable results of the research. From the teacher's viewpoint that was an expected result and aligned with Enni Kajaste's master's thesis work (2018) results. She argues that the meaning is born above all as a result of the educational relationship with pupils and from the ability to influence children and society through work. She continues that to maintain this feeling support is needed from the community as well as experience of flow in the everyday and joy and experiences that support one's own development and wellbeing. Particularly rush and feeling of inadequacy put a strain on teachers and make them question the meaning of their own work. The results of my research indicate the same in all aspects. I see that in the context of Vihreä lippu attention should be paid to the experience of flow in the everyday as well as to the support from the community, which is discussed next.

Creating sense of community

Expectedly teachers reported that they need peer support in their work for Vihreä lippu. However, unexpectedly the research findings suggest that it is not the peer support only in their own communities that is yearned for. Teachers were also lacking peer support by colleagues in other schools. Findings also suggest that there are more or less no connections between different Vihreä lippu school units although teachers explicitly express the need for that. Kajaste's study about the meaning of teacher's work (2018) suggests that there is support needed from the community. I interpret that the community can be built in a larger sense, not necessarily physically but virtually. The research results amplify the conclusions made in previous research. For example, Hämes in her diploma work (2009, p. 63) suggests that the tools of Vihreä lippu should be developed so that students and staff participating in Vihreä lippu could get in touch with one another via the website. Inspired by these results, I proposed creating a sense of community in Vihreä lippu by connecting schools and teachers together. This would enhance the teacher's overall experience but also possibly influence the student's experience of environmental education indirectly. In summary, if the sense of community is not strong in one's own school unit, with the existence of a virtual community teachers could seek peer support outside of their own immediate communities.

Aiming for change in a systemic level

Greatest way to make an impact is at a systemic level. Currently the system of teaching environmental education has evident elements of inequality. Some of the teachers are doing it after having specific and special education for it, but might not get any compensation for it. In opposition, teachers involved in IT or running the library are compensated. This is unfair and does not support other teachers to get involved or promote the meaning of environmental education in the big picture.

I did not plan to discuss compensation for teaching with the teachers, it happened unstructured. It was evident that the majority of the teachers were currently working for no additional compensation although the programme itself causes additional work. In other words, teachers were motivated intrinsically. However, relying solely on this carries a risk as this links to emotional labour and the burden it creates. According to Pihkala (2018), the burden of teachers in environmental education is a sum of multiple factors: teachers are not being educated for emotional labour, there is little respect for it in work communities and there are no treatment procedures for being emotionally burdened. These all call for systemic level change. One instrument could be money, meaning that teachers involved in environmental education would be compensated for their time and effort. For these reasons, in my proposal I suggested driving for a pay rise for teachers involved in environmental education. Sadly that proposal is not possible as FEE Suomi as an operator is not directly responsible for such. Despite the reality, an open discussion about the compensation of teachers in environmental education should be maintained.

8.3 Limitations of the study and suggestions for further research

The aim of this study was to build user understanding in an eco-school programme by researching teachers in the case of Vihreä lippu programme in Finland and suggest relevant actions based on those findings. As the research is qualitative in nature, absolute generalisations of the results cannot be made. There are other limitations to this study, too.

The research process for this thesis was, as wished, iterative and holistic as service design methods were employed. The project continued from March to October in 2020 leaving enough room for iterations and reconsiderations of the process. In line with my personal objective, I was able to both learn about service design in theory but also get to apply a handful of methods accordingly. However, the process could have been even more iterative and more human-centered. In particular, I would have wished to co-create together with teachers in practise more, but due to time constraints and particularly restrictions caused by the pandemic we had to keep the encounters to a minimum. Despite that, this project so far has shown the benefits of applying service design methods as the process has revealed the blind spots in the service as was hoped for.

Rather significant limitation of the study is the research cohort. Although eleven professionals of different levels of expertise and experience were interviewed, they were all homogenic in gender, women. Although this reflects the reality of Vihreä lippu users as the majority of them are women, it could have been beneficial to also involve men. It would also be interesting to conduct similar research on men to compare the findings of the current research and see if there are gender-specific differences.

Research scope has limitations in itself. In focusing on primary and secondary school teachers in Vihreä lippu programme for example early childhood educators are left out. They might be a little different user group based on the differences particularly in the environment of operation, i.e. children and their needs and external demands and requirements. Also, other eco-certificate programmes are not considered although some of the findings might be relevant to those as well. Comparative research could shed light on how different programmes are experienced, particularly if the same school units participate in both. Similarly, further research could examine early childhood educators experience in particular.

Geographically this research was based in Finland and the majority of it was executed in Finnish language before translation. As the programme is national, the results are not directly applicable elsewhere. Although the concept is global, the grassroot level actions are not. Therefore, for example the service structure and protocol might be different between countries. However, research of teachers' experiences in other countries could benefit in finding universal solutions for meeting the teacher's needs better.

Another significant factor limiting this research was the timing, in relation to COVID-19 pandemic in specific. It impacted on multiple levels and its real impact is impossible to measure. Teachers were interviewed in June 2020, after each being socially distanced for nearly three months and after finishing their school year. Situation was unique as all teachers had also endured the spring of remote teaching and this had self-evidently influenced their Vihreä lippu activities and most recent experience. Despite being asked to omit this aspect, it can to some extent influence the results.

Practical limitations set by the pandemic reflected on execution of the research. Physical meetings were mostly possible outdoors or via digital connections and the general social infrastructure of the everyday was minimised to avoid unnecessary exposure to potential carriers of the virus. This implied that the majority of the research was conducted at home with limited ergonomy and dialogue with peers. Similarly, running workshops in nature requires a little extra effort and this immediately reflected in their durations. Ideally, I prefer workshops that are held compact in 2–3 hours to maximise quality and good spirit. Lastly, conducting more collaborative workshops or utilising methods requiring physical presence, such as shadowing, were naturally omitted. Further research in empathising teachers would deepen the knowledge on how teachers everyday in environmental education is built and perceived.

8.4 Evaluation and reflection of the case study

Although the pandemic was one reason for having to arrange interviews in safe outdoor locations it also supported the researched topic. I saw these interview sessions as an opportunity to be outdoors, the same way as an environmental education teacher might see teaching mathematics in a new, inspiring environment. The natural locations allowed us to have a break from the everyday and enabled the interviewees to focus better in fresh air.

All interviewees were compensated for participating in the research. How this has influenced the research results is difficult to speculate. Before the research, I speculated that the potential harm the compensation might cause might be having overly positive and straightforward answers to questions with no real criticism or unfiltered storytelling regarding their experiences. This hypothesis proved wrong as I gained trust of each interviewee and heard everyone's personal experiences including negative ones. In summary, the impact of compensation seems insignificant.

Validity and reliability are central elements of any research. In qualitative research, these can easily be questioned in relation to the researcher's subjectivity. The philosophical approach for qualitative research in this thesis represents interpretivism, which does not seek an objective truth but rather unravels patterns of subjective understanding. By validating my interpretations of the results and design proposals with the organisation and an interviewee, I aimed to validate this research. Reliability refers to the ability of a research method to produce similar results if repeated in another time (Brink, 1993, p. 35). To yield as reliable results as possible, I have paid attention to several factors. I have tried to detach myself from previous knowledge and assumptions and I selected the interviewees to represent the cohort as extensively as possible. Similarly, I chose the methods of data collection and analysis to produce as credible and applicable data as possible.

9

Conclusion

In this chapter are stated the concluding words for this master’s thesis.

This thesis aimed at shedding light onto how teachers experience an eco-school programme, particularly in the case of Vihreä lippu. The topic was difficult to approach as we are in the intersection of multiple fields. Often as a designer finding relevant theories and justifications can be challenging as design does not have a long scientific history as its own discipline and it borrows from other sciences. In this thesis work, I challenged myself to familiarise myself with environmental education and education from the perspective of a teacher's work. Similarly, research for user experience could be shallow without borrowing from sciences like psychology.

I strove for this research project with personal motivations and objectives, particularly because of my interest for environmental education, the will to contribute to a good cause and lastly to learn about service design. I did my best in acting as an interpreter between the teachers and the organisation, when trying to utilise service design methods in an empathic way and make the teachers' voices heard. As a result of the findings of different research methods I was able to make design proposals as suggestions for future changes in the programme. I focused on contributing to designing the user experience of the teacher holistically rather than through simply styling visual touchpoints. This means that the outcomes of this thesis are not traditionally designed two- or three-dimensional items but rather abstract ideas and descriptions for a service process. This is exactly how I wished this project to be.

During this process I feel related to teachers themselves. When I interpret my findings, I educate. If the teacher's role has changed over time beyond the core competency of teaching, so has that of a designer as stated by Buchanan (2001). Today I see myself as a designer expanding my previous role as merely designing traditionally in two dimensions to having to master in more dimensions and excel in fields previously unknown to me.

My sincere wish is that some of the findings in this research benefit FEE Suomi in their development scheme for Vihreä lippu programme. Possibly the findings can also be utilised for similar purposes by other instances or equivalent programmes elsewhere. In any case I continue to take steps in transition to sustainability by continuing to give outdoor nature education for my own children.

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Appendices

Appendix 1
Interview questions for the semi-structured interviews

Foundation of environmental education

- How would you describe your relationship to environmental education? What does it mean to you on a personal level?
- What type of teaching methods do you apply for topics related to environmental education?
- How do you perceive the culture of environmental education in the school you work in?

Feelings, thoughts and expectations related to environmental education

- How do you experience your role as an environmental educator in relation to national curriculum and your internal world of emotions?
- How do you see your role in your work community (in terms of environmental education)?
- How do you see your role as a part of student's school experience (in terms of environmental education)
- Which situations and things related to environmental education bring you joy?
- Which situations and things related to environmental education make you face challenges or difficult feelings?
- Which things in terms of environmental education do you need most support for?

Vihreä lippu programme

- What feelings are raised when you hear Vihreä lippu?

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- Which related to Vihreä lippu makes you feel excited or happy?
- Which related to Vihreä lippu makes you feel frustration or nuisance?
- How is Vihreä lippu present in your everyday life as a teacher?
- How would you describe the added value that Vihreä lippu brings to your everyday life as a teacher?
- What comes to mind when you think of your most recent project's initiation mapping or first steps?
- What comes to mind when you think of your most recent project's action plan?
- What comes to mind when you think of your most recent project's report?
- What comes to mind when you think of the end of your most recent project?
- How would you describe your relationship to other Vihreä lippu schools?
- Share your most memorable experience related to the Vihreä lippu programme.

Appendix 2
List of interviewees

Interviewee no	Age	Professional experience (years)	Vihreä lippu experience (years)	Date	Length (min)
1	48	23	1	2.6.2020	51
2	34	8	8	3.6.2020	42
3	50	24	10	3.6.2020	45
4	53	24	7	3.6.2020	30
5	44	15	3	4.6.2020	32
6	58	31	16	4.6.2020	78
7	50	26	19	9.6.2020	44
8	28	2	1	10.6.2020	31
9	50	21	3	11.6.2020	43
10	33	6	3	16.6.2020	56
11	54	27	2	24.6.2020	107

Parallel to this research process were other things.

Globally we lived in strange times as the pandemic of COVID-19 was declared and that resulted in restrictions to support social distancing. Forests and nature in general became the perfect hideaway for many. Personally, there was additionally a great renovation, which meant designing a new home for the family for maybe decades and running the project on the side of everything else.

These overarching themes of 2020 are present in this layout. The photos are chronological recollections of the outdoor life and moments of environmental education on the scale of a mother. The colours are directly borrowed from the Tikkurila colour palette; the same shades that have now been painted on the walls of our future home.

Colours
Sacher– L462
Jaava – M448
Kanaali – V384
Kaoliini – H497

Typography
Headings – Plantin
Body text – Sofia Pro