



Learning Green Care in Nordic Countries

Based on observations, good practices and supporting theoretical frameworks.

Authors:

Heidi Honkajuuri

Lena Lidfors

Bente Berget

Karen Thodberg

Eva Solhäll

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PREFACE

This report is the result of the Erasmus+ project “Learning Green Care” that have been running from 2018-2021. Heidi Honkajuuri at Kiiipula Vocational College in Finland has coordinated the project and three other collaborators has been involved. Lena Lidfors from the Department of Animal Environment and Health at the Swedish University of Agricultural Sciences (SLU) in Skara, Sweden. Bente Berget at Agder University in Kristiansand, Norway. Karen Thodberg from Aarhus University in Foulum, Denmark.

Visits were made to Kiiipula Vocational College in Finland, to Kristiansand in Norway and to Malmö in Sweden during the project. Due to the Covid-19 outbreak, a planned visit to Aarhus could not be carried out. However, the visit was organised as a Zoom webinar with the planned study visits presenting their work and a presentation by Green Care Denmark. A Zoom webinar was also organised at Kiiipula involving the students at the college and Green Care Finland. All the places visited or presented via Zoom are presented in the report.

We hope this report will be of interest to schools, teachers, special pedagogues and any other professions working with pupils and education on basic level or upper secondary level.

Kiiipula Vocational College, 15th of November 2021

SUMMARY

The aim of this report is to give some background research on how Green Care, Nature-based interventions (NBI) and Animal-assisted interventions (AAI) can support students at different levels in the school sector, and to present eight different schools/farms that offer support to students with different challenges. The report is the effort of a collaboration between Finland, Sweden, Norway and Denmark within the Erasmus+ project *Learning Green Care* that has been running from 2018-2021.

There is an increasing awareness in the Nordic countries that children with special challenges have problems with the regular school and increasing problems with school attendance, in some cases leading to complete dropout. Developing schools with much outdoor activities such as Kiipula in Finland, Karolinaskolan in Sweden and Green Chimneys in USA is one way to give students support. Another option is that private farms can have some students visiting the farm on a regular basis such as with Inn på TUNET in Norway, Green Arena farms in Sweden and private farms in all Nordic countries. This is usually based on close collaborations between schools and farms in municipalities. As the municipalities decide how they want to use the government money for schools, offers to the students in need of support may vary between municipalities, regions and countries. Politicians need to learn about the “good examples” of how farm schools and private farms can help students in different ways.

Learning Green Care should be carried out within the One Health – One Welfare framework. International research shows varying results on how Green Care, NBI and AAI affects students of varying ages. Therefore, there is a need for more research, especially in the Nordic countries and within the Nordic school and health system. If students can finish school with approved grades, they have a better possibility to get a job or to continue studying. This will lead to improve national economy due to lowered risk for these students to end up having to be financially supported by the society.

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1 INTRODUCTION

This report gathers the good practices based on the excursions, observations and discussions conducted in the partner countries during the *Learning Green Care* project. This project was co-funded by the Erasmus+ Programme of the European Union. The funding has supported the exchange of good practices between the partner organizations and countries in the application of Green Care approach and methods. The three-year project reinforced cooperation between vocational education and higher education. Partnership of this project was the following: Kiipula Vocational (special education) College (FI), University of Agder (NO), Aarhus University (DK) and Swedish University of Agricultural Sciences (SE).

The main idea was to get deeper understanding of the Green Care approach through visits/excursions in places that utilize Green Care methods in rehabilitation and promotion of wellbeing and work ability of persons with disabilities, mental health issues or background in drug/alcohol abuse. However, the COVID-19 pandemic required adjustments to the channel of delivery, which is why instead of the excursions the capacity-building was delivered partially in form of online webinars. At the same time online practices combined with strong Nordic cooperation allowed the project to substantially benefit from experiences and knowledge of not only partners but as well as other participants; researchers, professors/teachers and trainers, therapists, psychiatrists, sociologists, philosophers and Green Care experts/practitioners. Some of the many results of this project were knowledge sharing, increased awareness and receptiveness, future thinking as well as networking.

Green Care in this report is understood as the use of nature for promotion of health (physical, mental) and well-being. In particular, the means and methods targeted at young people with special needs are considered. These young people have disability, developmental disorder, mental health issues or other challenges that affects their learning and/or well-being. Central to the approach is guidance, purposefulness and the benefit of nature. Moreover, nature and animals can be used to support such young people in various ways, for example, in school attendance, to develop social skills, and to increase their sense of belonging and self-confidence

The following chapters will introduce the background for the project and needs analysis for Green Care methods. The report then delves into theories and interventions in Green Care, followed by the good examples from the partner Nordic countries (FI, SWE, NO, DK). At the end, reflections and conclusions on the topics are made.

2 BACKGROUND

2.1 Well-being for youth

Within the school sector, there are youth with different challenges where pedagogical activities located on a farm can be a great help for individual students. Several students with problematic schooling have different types of neurodevelopmental disorders, such as Autism spectrum diagnoses and Attention Deficit Hyperactivity Disorder (ADHD). Autism spectrum diagnoses include the earlier diagnoses Asperger's syndrome and atypical autism and is today often presented as autism with an intellectual neurodevelopmental disorder, lower speech ability or something else (<https://www.autism.se/>). Autism includes lasting limitations in the ability of social communication and social interaction and limited, repetitive patterns in behaviour, interests, or activities. It is also common with increased or decreased sensitivity to sensory impressions such as sound, light, smell and touch. Students with ADHD have difficulties to concentrate and/or regulate their activity level and to suppress impulses (<https://www.hjarnfonden.se/om-hjarnan/diagnoser/adhd/>). ADD is a variation of ADHD which lacks the hyperactivity, but these students are easily distracted, loose attention and have difficulties in starting (and finishing) activities. These different disorders can individually or in combinations lead to problematic school absences, sometimes resulting in complete "school drop-out" (Kearney and Albano, 2004; Munkhaugen et al., 2019). Problematic school attendance can occur both in compulsory school (grades 1-9), upper secondary school and in other pedagogical activities (after-school centres, preschools). The Swedish National Agency for Education stated that more than 20,000 students had high school absenteeism in the compulsory school during 2018.

Kiipula Vocational College has witnessed a growing amount of students with issues in mental health, troubles in concentration, presence and well-being. At its best Green Care methods could foster inclusion, togetherness, coping and health of students.

Young people with problematic school attendance or absence can, by taking part in the activities on a farm, get a sense of context, in the small, and gradually build up their sense of belonging to the bigger picture. On the farm, there are births and deaths, seeds are sown that turn into plants, the young people follow the year from sowing to harvest, which gives experiences with the context. This allows young people to develop a sense of their own life based on it (Hassink et al., 2018). Further, students or youth on a farm accept the farmer as more authoritarian than, for example, staff who work with the youth (Hassink et al., 2018). It is explained by the farmer's feeling and pride in his farm that he conveys to the youth (Hassink et al., 2018).

Dr. Samuel B. Ross formed Green Chimney in Brewster (New York State, USA) in 1947. Samuel and his wife bought a farm and began including students with various problems in completing their schooling. Over time, the business grew, and has now expanded with school premises and boarding houses. Today, the school can accommodate up to 200 students aged from five to 18 years from across the state of New York. About 90% of the students who go to school are boys and the average length of stay is three years. About half of the students live in the boarding school from Monday to Friday, while the rest commute to the school every day. Green Chimney is a large farm with about 200 different animal individuals such as horses, cows, sheep, pigs, camels, llamas, chickens, rabbits and smaller animal species. The school have stables, a garden, rehabilitation of wild birds of prey, pool, gymnasiums, classrooms, etc. Evaluation of

how students are affected by attending Green Chimney has shown that they gain increased competence, better self-confidence, improved character, more contact and nursing, and improvement of problem behaviour (Brandes, 2019). A study has shown that students get a development of their self-regulation when working on the farm (Flynn et al., 2019). Teachers had to hold students who got outbursts of rage to calm them down only 0.3 times/unit of time when they were on the farm, but 278.9 times/unit of time in the classroom (Flynn et al., 2019).

2.2 One Health – One Welfare

One Health has developed from One Medicine that started as a collaboration between veterinary medicine and human medicine. One Medicine had primarily focus on zoonotic diseases, i.e. transferable diseases that can spread between animals and humans. One Health emerged during a symposium with the title "One World One Health" where "The Manhattan Principle" (2004) added biology to the former veterinary and human medicine areas. Today there is both the more narrow interpretation of One Health and the broader one that has been presented as an umbrella under which many different subjects are included (Lerner and Berg, 2015). It is important that interventions and research are made according to the whole or at least parts of this multidisciplinary field (Lerner & Zinsstag, 2020).

Animal welfare researchers and the International Association of Human-Animal Interaction Organizations (IAHAIO) use the term "One Health - One Welfare". One Welfare aims to highlight that there are good reasons to have a holistic view of the welfare and well-being of both humans and animals. When animals get hurt, there is a high risk that humans will too, and vice versa, and we are all dependent on well-functioning ecosystems and biodiversity (Pinillos, 2018; Smith & Velarde, 2016). One Welfare can thus be seen as a broader concept than One Health, and is defined as the relationship between animal welfare, human well-being and physical and social environment (Pinillos, 2021), which covers both physical and mental health for humans and animals but also the relationship between them.

In the area of *Learning Green Care* we should make sure that the students are supported within and also learn the framework of One Health – One Welfare. This will develop them to show respect for and protect the humans, animals and nature, and to care about both animal and human welfare. A new area of neurodidactics (i.e. how the brain learn new things) may be important to consider in all education settings.

2.3 Research on children and adolescents

Randomized and controlled studies (RCT), where quantitative measures are used (that are analyse with statistics) has several challenges and are rarely done in Green Care settings for children and adolescents. Some studies in the scientific literature have investigated the effects of animal-assisted interventions (AAI) and interventions with animals for on children and young people (see section 5). This has been done in laboratories where the test subjects are exposed to experimental stressful situation, in studies of actual therapeutic interventions, or of children or young people going through a painful procedure as part of a medical treatment. These studies use a broad range of effect measures and are either dealing with long-term effects, using mainly measures of mental wellbeing, whereas others focus on the immediate effects of being in contact with or

doing activities with animals while measuring the physiological responses related to stress and/or recording the test subjects' behaviour.

2.3.1 Challenges in the field of research

The decision-makers and the community want clear information about how implementing Green Care/Nature-based interventions (NBI) and Animal-assisted interventions (AAI) will benefit the pupils in vocational schools and similar institutions. To obtain information about the effect of treatments and interventions, scientific evidence is needed. However, performing this type of studies involves the recruitment of test subject, and before the study can begin, the ethical issues and concerns of such a study, need to be evaluated and approved by an ethical committee. This is to ensure that the wellbeing of the test subjects is not compromised, and that the benefits outweigh the disadvantage for participants – especially if they belong to a vulnerable group.

It is a challenge to carry out randomized controlled studies in sensitive groups of patients or pupils. Imagine that you were to study the effect of riding therapy for a population of vulnerable children. You would need to give the treatment – riding therapy to half of the children, and not the other half – maybe depriving them from a more preferred intervention, compared to a control intervention. Oppositely, some of the children in the riding therapy group could be prevented due to allergy or that their parents were afraid of them being hurt. If you compare different types of medication, it is possible to blind the participants, so that they are not aware whether they receive the real medicine (the intervention) or a placebo (the control) – this type of blinding is often impossible in studies of different types of AAI. However, using a waiting list control group (where the participants got the intervention after being in the control group) is one possibility to deal with the ethical issues using a RCT- design.

Another challenge for research in this field is the broad range of parameters/measures. You can either measure long-term effects, such as mental health (using questionnaires, and psychological scales), learning, social competences, and simply presence and participation. Another approach is the immediate effects of an intervention, which can be measured by taking physiological measures, and studying the behaviour.

3 THEORIES AND MECHANISMS ON THE EFFECT OF NATURE AND ANIMALS ON YOUTH

Today many different possible mechanisms in the context of Green Care are suggested, and psychological, social, and physiological mechanisms behind observed beneficial effects are proposed. These may include the Biophilia hypothesis, Attention restoration theory, Salutogenic theory, The Recovery model and Self-efficacy theory (Sempik et al., 2010). The Biophilia hypothesis is used as an umbrella theory for nature experiences and a possible explanation for physiological responses seen in interaction with animals. Social support theory and self-efficacy theory are extensively examined in relation to beneficial effects in mental health for different target groups, i.e. youth interacting with horses (Hauge, 2013).

Biophilia hypothesis

In the book *Biophilia*, Wilson (1984) defined biophilia as humans' natural tendency to focus on life and lifelike processes and he includes a range of emotions like attraction and peacefulness, but also aversion and anxiety. In a review of a more than 50 studies, Grinde & Patil (2009) concluded that a link between the Biophilia hypothesis and observed beneficial outcome of nature experiences are likely. Ulrich (1993) divided this biological based response into; a) liking or approach responses, b) restoration or stress recovery responses, and c) enhanced cognitive functioning. The stress reducing effect of outdoor recreation and natural settings are extensively investigated and Ulrich (1993) emphasizes a probable relationship between nature, reduced stress, and health. This stress recovery response is also much used as a potential mechanism of the observed health effects in companion animal research, i.e. a decline in blood pressure and heart rate in people interacting and having physical contact with a pet animal (Allen et al., 2002) and an increase in the beneficial hormone oxytocin (Handlin et al., 2011).

Social support

Social support is related to one or more of the following aspects: information leading to the subject believing that she is cared for and loved, esteemed, and valued, and belonging to a network of communication and mutual understanding (Cobb, 1976). These are protective factors that may buffer the negative impact of difficulties. Social support is frequently presented as a potential mechanism in companion animal research, and if the animal creates a sense of connectedness and belonging, an experience of social support, similarly to that of a peer inhuman–human relationships may be happening (Serpell, 1996). Social support is an important part of mental health interventions as it could preserve feelings of self-esteem and sense of mastery (Milne, 1999). For individuals who are receiving and depending on the care of others, it is a meaningful and valuable experience to provide care for another living being that depends on them for their well-being. This responsibility will enhance their self-esteem, just as appraisal of the farmer and the animals will influence their self-evaluation in a positive way.

A supporting network includes feedback from peers, teachers, or others outside of the family, supporting the individual in mastering challenges (Hjemdal et al., 2006). In a Green Care context, several factors such as the instructor, the environment and other

participants may be important for the outcome of the intervention in addition to the animal (Kazdin, 2011).

Self-efficacy

Self-efficacy is described as a person's belief that one can successfully produce the desired outcome by own actions (Bandura, 1997). It is the belief that one can use one's abilities and skills in a certain situation to reach a specific goal. Low generalized self-efficacy is correlated to both depression and anxiety (Schwarzer, 1993), and in one study, Dalgard (2008) found low self-efficacy and powerlessness as important explanatory factors for the social gradient seen in mental health. People with low self-efficacy often lack adequate social relationships. Previous studies with AAI with farm animals in a Green Care context, showed significant increase in self-efficacy in a population with adults with psychiatric disorders, from baseline to follow-up six months after a three month-intervention compared with a control group (Berget et al., 2008). Similarly, Pedersen et al. (2012) found significant increase in self-efficacy from baseline to the end of a three-month intervention with an intervention with dairy cows for adults with a depression disorder.

Care farming

There is a huge variation in the work tasks that can be carried out on a farm. Care farms make use of this variation to adapt the rehabilitation process to individual participants' physical and mental health and capacities on a day-to-day basis. Typically, the participants take part in the ordinary work tasks, like feeding animals, cleaning animals and the barn, milking cows, and they can pet and interact with the animals. Through the care farm programs, the participant takes part in occupations that demand attention to daily routines, like getting up in the morning and being on time. Previous studies have also shown that participants describe activities and work tasks on the farm as ordinary farm work (Elings, 2012). A study of Iancu (2013) also found that rehabilitation professionals have emphasized that care farms are a suitable transitional workplace, as they offer the possibility to enhance work and social skills, as well as motivating participants to try to reach further vocational goals (Iancu, 2013). This is also in harmony with a literature review of Green Care services for students out of school and young adults with mental health and drug problems in the Nordic countries (Steigen et al., 2016). More specific they found five essential factors: (i) contact with animals, (ii) supportive natural environments, (iii) the service leader as a significant important other, (iv) social acceptance and fellowship with other participants and (v) meaningful and individually adapted activities in which mastery can be experienced. These five components showed a synergetic effect extending the sum of the single factors.

The Green Care farm context may also be connected to the theoretical concept of salutogenesis because the farm offers possibilities for feelings of safety (relationship with the farmer), meaningful, physically active work and connectedness to other living beings and the environment). These aspects help to reduce stress, promote health, and have the potential to make the world more manageable, more comprehensible, and more meaningful for the participants.

Outdoor pedagogics

Studies concerning outdoor pedagogics shows that pupils both get more exercise, increases well-being and develop their social interactions (Faskunger et al., 2018). This pedagogy tends to facilitate also for pupils with special needs.

Children with the opportunity to regularly visit a forest-garden, integrated with ordinary school education, develops their capability of "ecological literacy", increase their experience of connectedness with the environment, develop new practical skills and learn to take care of other species and the environment (Hammarsten et al., 2019). A part of the study by Hammarsten et al. (2019) also showed that learning skills and being in social contexts seems to interlink.

Being a human in interplay with the environment

David Abram, philosopher and social anthropologist, offers one possible way of understanding the basic living conditions of the target group of the Erasmus+-project, as he speaks about humans' interplay with and dependence of our natural environment (Abram, 2013). Humans are biological, creating beings who seeks meaning in life. During thousands of years, our species have developed as any other living being in the ecosystem, we are nature. Abram unfolds a perspective where humans are living in the world dependent on a system greater than we are and which cannot be defined from our angle. A world of "the more than human". Thus, in the industrial world we have created a way of living that turns us away from our roots (Abram, 2013). Geography professor Edward Relph (1976) discusses the connection to place as a place to be *in* - not just a place being *at*. He tells about the feeling of placelessness and highlights the fundamentally human in bonding, connecting to a place, and how essential it is for our experience of affinity and roots. As youngsters in the projects' target group often lack this, it addresses the importance of the milieu, i.e. the surrounding environment.

Additionally, the philosopher Martin Heidegger (2004) says that you cannot separate humans, things and the world. We open up to the world with all our senses and it shows itself to us at the same time that we always are present in it and show ourselves to it. It is altered and shaped through our relationship with it; simultaneously we are shaped by it. Regarding the Erasmus+ project this is important because it includes young persons with difficulties managing life.

Further, the phenomenology philosopher Maurice Merleau-Ponty (2012) adds the perspective of humans being in the world in our bodies. We experience the world through our perceptions, our senses, together with others and our environment (Merleau-Ponty 2012). Many of the youngsters with special needs favour a natural environment, which offers experiences of body awareness and skills, together with connection to animals and nature.

To tie the "red thread" of this section together and turn to the youngsters' possibilities to make positive changes as human beings in a/ facilitating environment, we end with prof. Marie-Jose Enders Slegers. She talks about enactivism, the embodied, active, meaningful interaction between living species (Enders Slegers et al., 2019). This contact makes it possible for interplay, mutual attunement and the opportunity of creating meaning, reacting and to change (Verheggen et al., 2017).

Existential, spiritual, health and nature

As presented earlier in this report, we have an innate disposition to connect to nature and other forms of life (Kellert and Wilson, 1993). Further, we are unconditionally dependent on other beings for safety and inner growth. The philosopher Martin Buber (2005) describes the relationship, where we can develop as humans, as an “I-Thou relationship” where we are seen by each other and where we also connect to our environment and the spiritual dimension. Hans Herlof Grelland discusses being seen by an animal, a dog, in contrast to a person (in Berget et al. 2018). How we can find ourselves in their non-judging presence, in the gaze of their eyes. To youngsters this is an important issue as they are developing their identity in a process where the opportunity and capability of building meaning in life is essential.

Christina Lloyd (2018) is expressing existential health as an important factor to individual resilience. She points out existential health and the experience of meaning as vital to young people’s inner-growth and development (Lloyd, 2018). She describes the importance of experiencing and expressing emotions to be able to create and build meaning in life. In this process, nature can be facilitating and in connection with animals, arts and crafts, it can be easier for youngsters to gain insights, in a way that otherwise is harder.

Cecilia Melder (2011), religion-psychologist and researcher, discusses in her doctoral thesis WHO’s regular surveys and the variables according to the existential dimension, significant to wellbeing and health. Her study unfolds a number of aspects important to existential health and quality of life. Melder (2011) is also describing the lack of arenas in everyday life, for meeting and sharing thoughts and issues about existential questions.

The oxytocin system

Activation of the oxytocin (OT) system may play a central role in the anxiolytic effect of social interactions (Powell et al., 2019). OT is a neuropeptide produced in the hypothalamus and it is released by social interaction and induces prosocial behaviour in mammalian species including humans (Heinrichs et al., 2009). OT can also play a role in interactions between animals and humans and has been reported to have a modulatory effect when administered to dogs intra-nasally, stimulating positive social interactions with people (Hernádi et al., 2015). Other studies have shown stronger anxiolytic effect of positive human-animal interactions when there is a bond between the partners (e.g. own pet dog vs unfamiliar dog (Odendaal and Meintjes, 2003; Handlin et al., 2011), but positive findings of AAI with dogs indicate that a personal bond is not needed. Whether findings about dog-human interactions can be generalized to other animal-human interactions is yet to be explored. Although farm animal species, such as cattle may be novel for the urbanized human participants, and bigger in size, various non-noxious sensory stimulation, such as smells and tactile stimuli were shown to induce a rise in oxytocin (for review, see Uvnäs Moberg 1998). Therefore we can assume, that the warmth and hairiness and calm behaviour of most farm animals may be general features of anxiolytic stimulation.

Oxytocin is of interest to use in studies, but it is difficult to measure as the most optimal method is through blood samples. Cortisol is easier to measure, since it can be analysed from saliva samples. As cortisol usually decrease when oxytocin increase some studies has used cortisol from saliva samples as an indicator of oxytocin. Today there are new

methods to analyse oxytocin from saliva samples, but the methods have been criticised, as oxytocin does not seem to pass the blood - brain barrier. Furthermore, it is secreted in very short-lived pulses, and very frequent samples are necessary.

Summing up

There are different theoretical frameworks for using nature and animals for stimulating social support, self-esteem, and self- efficacy for young people with different mental and physical abilities. In a Green Care context, it is different possibilities to customize a lot of activities and work experiences based on the individual's prerequisites and interest. The farm context is also suitable as an arena for both rehabilitation and therapeutic interventions. As such, theories based on the biophilia hypothesis and salutogenesis are central.

4 NATURE BASED INTERVENTIONS

Environments designed for wellbeing

By conducting an education or an intervention in a healing environment, in the wild nature or a designed garden, we place it in a safe space and change the milieu for the youngsters in the target group. In his theory of supportive environments, Grahn (2005) shows eight characters of nature that is important to us. Complemented with Bengtsson's theory of careful and inspiring design, it is the base for many Health gardens and restorative milieu's (Bengtsson and Grahn, 2014). A Health garden as a "concept" include areas designed for different purposes, as working, horticulture, resting/restoration, stimulation of senses, to be in solitude or interplay, an atelier for arts and crafts, and a plant/glass house where you can find shelter and be indoors while being outdoors. Here you often find the atmosphere of a small park with old trees and stones. The nature should be as varied and rich in species as possible and cared for to create conditions for a habitat of as big biodiversity as possible. Ponds and other small water bowls, as bird-baths, are an important part of the design for wellbeing for both people, animals and insects. No Health garden is the exact copy of another; they are all unique. In interplay with nature, the specific gardener and designer put his/her own experiences and knowledge into the shaping of the garden.

Patrik Grahn 8 supportive characters of nature

- Serene
- Space
- Wild
- Biodiversity
- Open, accessible
- Shelter
- Social
- Culture



Figure 1. The eight supportive characters of nature according to Grahn (2005) (Photo: Eva Solhäll).

Connecting to nature and gardens renders healing effects - bodily, for our senses and existentially (Ulrich et al., 1991; Grahn, 1991, 2005). By itself, nature and gardens include symbols that carry meaning to us. The circularity of day and night, seasons, growth and withering, deepens our contact with existential and spiritual dimensions of

life (Grahn and Ottosson 2010; Bengtsson and Grahn 2014). Being in contact with nature is stress reducing, we open up for relating to others, feeling of serenity and ability to manage affect-regulating increases (Kaplan & Kaplan, 1989; Kaplan, 1995; Dolling et al., 2017). The design and atmosphere of place, where we meet, is significant to the way we interact, are able to experience affinity, and build meaning of life (Relph, 1976; Solhäll, 2019). A satisfactory designed, or a place naturally shaped in a way for us humans to relax in, improves the capacity of constructive collaboration (Kellert and Wilson, 1993; Dahlgren Sjölander et al., 2007).

Youngsters' possibilities to find their way in life can be supported by the environment. A place that offers the experience of belonging, which facilitates stress reduction and supports the body and senses are also able to support the relationship with oneself and others (Solhäll, 2019). This is a basis for human development and learning as a young person (Lloyd, 2018). In a place that offers support, the youngsters can receive help both through their own direct contact with the place, and via the support that the pedagogues receive from the place that makes them stronger and more useful to the youngsters (Solhäll, 2019).

5 ANIMAL ASSISTED INTERVENTIONS

The largest number of studies on the effect of animal assisted interventions (AAI) investigate long-term psychometric effects. In this type of research, measures of mental well-being, or the prevalence of symptoms, are usually measured before and after a period with AAI. The effect on the study subjects is compared to study subjects in a control group, receiving either a control intervention or no intervention. These studies cover several types of interventions, e.g., equine therapy for children with ADHD (Pérez-Gómez et al., 2021, White et al., 2020) and autism spectrum disorders (ASD) (Droboniku and Mychailyszyn, 2021; Tan and Simmonds, 2019), animal-assisted interventions for school children with ASD (Dimolareva and Dunn, 2020, Hardy and Weston, 2020), and children with post-traumatic stress disorder (PTSD) and depression (Hediger et al., 2021).

Generally, these studies find some positive effects of AAIs when they are compared to a control group. As an example, a review of studies, examining effects of equine-assisted therapy for children and young people with ASD conclude that this type of intervention improves the children's social interactions and reduces problematic behaviour (Tan and Simmonds, 2019). However, the improvements in AAI are often small, and several review papers that compile and presents the findings of several primary research papers, state that the positive findings, need to be confirmed in future studies, in order to reach more valid conclusions about long-term effects of AAI. Santaniello et al. (2020) stress that it is problematic that the studies in this field are so different in their approach, often have few test subjects, and have challenges with the study designs, as also mentioned in the background of the report. These issues make it difficult to compare the results from the different studies and reach common conclusions.

Another approach is to study the immediate effects of the presence, physical contact or activities with animals. This type of studies can give us knowledge about how different aspects of animal contact and interactions may affect humans here and now. If this information is combined with knowledge about the long-term effects, we can learn more about how different activities with animals affects the mental well-being and other effects measures in the end.

Studies of these immediate effects have been performed in both healthy test subjects and with inpatients or individuals belonging to a diagnostic group. In many of the studies where healthy children and young persons are test subjects, the immediate effects are measured during classical and standardized stress tests, where the response with or without the presence of an animal is compared. The most used stress test is the Trier Social Stress Test (Allen et al., 2017), where the person is stressed by preparing and giving a speech for an unfamiliar group of people. The animals used in these studies are usually dogs, either the persons' own dog or an unfamiliar dog. Roughly half of the studies find that the presence of a dog has a stress-reducing effect e.g. by lowering the blood pressure, heart rate, anxiety level or stress hormone concentrations compared to when the persons experience the control situation without a dog (Friedmann et al., 1983; DeMello, 1999; Wheeler and Faulkner, 2015; Crossman et al., 2020). Other studies do not find a stress-reducing effect by a dog (Straatman et al., 1997; Gee et al., 2015; Kerns et al., 2017; Kertes et al., 2017); even though the latter two studies used the test subjects' own dogs.

Beetz et al. (2012) tested boys with either insecure or disorganized attachment styles in a Trier Social stress test where they were together with either a dog, a toy dog or a

human. They collected saliva samples from the children and found significantly lower concentrations of the stress hormone cortisol in the last part of the test, when a dog was present, compared to the other test situations.

Some studies have been performed in situations where children are in hospital and receive a visit where an animal is brought along. Hinic et al. (2019) compared the anxiety level (STAI – C) in hospitalized children before and after having either a dog visit or doing a puzzle. They found that both situations reduced the state of anxiety, but that dog visits had a stronger effect than doing a puzzle. An opposite result was found in two other studies of hospitalized children, where no stress reducing effects of dog accompanied visits was found when compared to visits with only a human (Branson et al., 2017; McCullough et al., 2018). Calcaterra et al. (2015) even found a significantly increased heart rate in children receiving dog visits right after an operation, compared to when no dog was present.

6 GOOD EXAMPLES FROM NORDIC COUNTRIES

This section presents practitioners and their good examples in utilization of nature and animals, based on the observations and excursions done during the Erasmus+ project (2018-2021).

To find more practitioners and examples from each of the countries use the additional links.

6.1 Finland

In 2018, as a result of various development projects, discussions and nationwide coordination project, Green Care in Finland ended up being divided into two sub-concepts: Nature Care (Luontohoiva) and Nature Empowerment (Luontovoima). Nature Care services are social and health care services intended for long-term rehabilitation. Nature Empowerment services are preventive and health supportive services intended for educational and recreational activities (Ylilauri & Yli-Viikari, 2019).

Additionally, quality criteria were built to ensure:

- customer and goal orientated approach as well as responsibility,
- that the operation is safe,
- that there is respect for the environment and animal welfare.

(Green Care Finland, n.d.)

Find more information <https://www.gcfinland.fi/in-english/> provided by the national green care network of Finland.

6.1.1 Kiipula Vocational College – “Proudly different”

Background

Kiipula Vocational College is a vocational special education institution offering upper secondary education and training for student with special needs (normally ages 16-20). Forty percentages of the students have development delays, 30% physical illnesses or mental disorders and 15% have been diagnosed with Autism or Asperger syndrome that have effects on their learning. Kiipula Foundation runs the Vocational College. In addition to the Vocational College, Kiipula Foundation's operations include Rehabilitation Centre, Gardens, Accommodation and Business Services. The Foundation have 500 employees, and the Vocational College has around 900 students.

Special needs teaching at the Kiipula Vocational College offers vocational basic education and preparatory and rehabilitative instruction and guidance. The aim is to prepare a profession where work seems sensible and appropriate for the student's own skills. Empowerment and individual study paths are the focus of studies. The study groups are small, and students benefit from various support services to complete the studies. Learning takes place through practice (learning by-doing pedagogy). All students have a disability or illness that affects their ability to learn. Learning through practical work is

easier and more individualized. Practical work is done in the real learning environments (companies). The college has strong cooperation with companies.

Relations to nature and animals

Within *Learning Green Care* project Kiipula has conducted many discussions, a survey for teaching staff and interviews to students to find out the current usage of nature and animals.

Evidently, it is clear that Kiipula Vocational College has several opportunities to utilize Green Care activities. Although, so far Green Care methods have not been used purposefully and systematically. In the future, Green Care-oriented studies will be integrated into students' study paths or alternatively, Green Care-influenced methods will be used to guide students and ensure their well-being. In addition, Green Care activities can be pursued through nature and animal-based service products. The purpose of the *Learning Green Care* project has been to get to know the context of Green Care and to deepen the possibilities of its utilization.



Figure 2. Rabbit supporting a pupil at Kiipula Foundation (Photo: Karin Pasila).

In the field of Natural Resources (forestry, gardening, agriculture) lessons are mostly held outdoors including the utilization variety of nature environments (forest, swamp, parks, lakesides etc.). The environments are used to learning, calming, perception and focusing on the moment. The calming and stress reducing effects of nature and animals has been realized in different student groups by the teaching staff. Additionally to nature environments, animals can be meaningful companions to work with, to rely on and cuddle when having a bad day or needing someone to talk to. Being with them can make a huge difference on students' behaviour and well-being. For students the animals are often easier to work with since they are not so requiring, and they might have more time to listen.

The main reasons for students to choose forestry or agricultural field were the access to nature and physical exercise. Their regular study day includes working outdoors. In forestry education, daily activities are mostly cutting down trees and forest clearing. Lunch is offered in school unless the destination is further away, and then lunch is enjoyed in the forest by the fire. For students in both fields the school days in the forest or in the farm can be physically rough but at the same time having many positive effects.

Here is to highlight some of the quotes from student interviews:

“Nature helps you to cope better”

“There are no people around me when in forest and it is nicely calming feeling”

“I like to take pictures of nature and its movements while working in the forest”

“Animals are good listeners and easy to work with”

Relation to Green Care approach

Two of the personnel members have received GC education diplomas. There is high interest in personnel to develop Green Care approach, yet more training is needed and common discussion. There is a new project accepted in Kiipula and during 2021 we will build an environment supporting nature-based activities -> focus on resources, empowerment. In the area users can calm down, perceive, and sense the nature, recreate, get involved and learn, etc.

6.1.2 Alkumaa – “New beginnings and carry forward in everyday life”

Alkumaa offers a preventive and socially advantageous service model to support the everyday coping of families with special children and young people through nature-based group activities based on Green Care methods. The children are provided with natural situations of social growth and parents are provided with tools to deal with challenging everyday situations.

Services

The services offered are professional social services including short-term day care or accommodation and caring for young people with disabilities when their families, foster parents or caregivers are in need of a break/holiday. Services include also coaching for children with neuropsychiatric disorders, young people and to their families, or only to their parents.

Other activities are experiential farm and forest excursions offered to for example to kindergarten and school groups as well as relaxing and refreshing well-being days for companies and communities.

Additionally, Alkumaa offers expert services in a form of trainings and lectures for events, with themes e.g. in different neuro spectrum disorder related challenges and Green Care activities.



Figure 3. The dairy cows and the rabbit are animals that the students can work with at the Alkumaa Oy Green Care farm. (Photo: Liisa Käiväräinen)

6.2 Norway

In Norway, there are not any upper secondary special schools, as Kiipula. However, we have ordinary upper secondary education (Naturbruksskoler) where the students can choose Green Care as a single subject and may write an essay about, e.g., how farm animals may be included in care farming. More common in Norway is the use of ordinary private farms (IPT-farms) offering services for students in the primary and secondary schools. By now approximately 230 farms offering such services and in collaboration with nearby schools. The farmers facilitate suitable activities, and the pedagogic personnel are responsible for the education progress in harmony with the plan for the single student. Such services are now established in many municipals, and experiences is that farm-based adapted education can promote the students' social behaviour, self-esteem and motivation for further education (Grimsæth, 2016). By now, the Norwegian Research Centre (NORCE) in collaboration with the University of Agder, Helsinki University, Aarhus University and The Swedish University of Agricultural Sciences have an ongoing research project (2018-2022) with the aim to explore the phenomenon of integrated farm-based educational programs with adapted education for pupils in 8-10 grade. Another aim is to examine how the cooperation between local schools and IPT-services in Norway and in the other Nordic countries may be designed to offer young people an alternative learning environment and successfully complete secondary school. The Norwegian Research Council finances the research project.

In the section two places is described in this Erasmus+ project. Both places have extensive experiences with adapted farm-based education for students at the secondary level.



6.2.1 **Søstrene Kjevik**

The farm is located nearby the city of Kristiansand and is owned by the three sisters Caroline, Terese and Torunn Kjevik. They took over the farm from their father in 2019.

The sisters have together broad competence in agronomy, child- and youth education and in economics and accounting. In addition, they collaborate work with a person responsible for the horse activities, one who is responsible for the other animals on the farm and one who is responsible for the farm shop.

Figure 4. The sisters Kjevik running the dairy and beef cattle farm as well as a poultry farm in the South of Norway (Photo: Torunn Kjevik).

The animals

The main animal species are dairy cows, beef cattle (the breed Angus) and laying hens. The production is yearly 150 000 litres of milk, 6 tons meat and 30 tons of eggs. A little of the meat is also sold in the farm shop. In the stable it is 10 horses of the breed Island horses. In addition, it is approximately 10 lambs in the out yard.

The activities

Horse riding and horse experiences. For both the public population and clients (both adults, young people and school children struggling in the ordinary school and drop-outs from the school. The activities are mastery of the horse from the ground and horse-back riding.

Adapted education for children in the primary school (7-13 years). The activities are adapted to the ordinary curriculum and in collaboration with the schools. The activities are practical work with the animals and the nature around the farm. The social experiences with the farmers and other peers on the farm are essential and is chosen to motivate the pupils to concentrate in the ordinary school subjects the rest of the school week. The frequency ranges from one to several days pr. week and the duration varies depending on the aim of the intervention.

Work training. Activities are directed to young adults and youths who are in processes for clarification of work ability, future employment, and rehabilitation.

Examples of activities are:

- Animal care both inside and outside the barn
- Traditionally barn work
- Work in the forest nearby the farm
- Planting and sowing
- Maintenance of marches and implements and houses on the farm

6.2.2 *Kjerlingland Hest- og Aktivitetsgård* - “Belonging – meaningfulness - joy of life”

Kjerlingland is a certified Green Care farm in Lillesand, a municipal nearby the city of Kristiansand. The farm is owned and drifted by several women; Agnete Rislå, Silje Fossli and Kristin Tveite and the «grand old man» and owner, Tore Rislå. Together the group has competence ranging from agronomy to pedagogics and mental health.



Figure 5. Interaction with horses for different target groups are essential (Photo: Agnete Rislå).

Client groups

Pupils from the primary, secondary, and high school, adults getting welfare different welfare arrangements from the Norwegian Labour and Welfare Administration (NAV), and persons with mental health and drug related challenges. By now, there are four pupils from the primary school and high school, and four clients recruited from NAV and one person with mental health problems recruited from the municipal.

Animals

Horses is the main specie, and there are 10-11 horses, with different breeds. In addition, it is some small animals like pigs, hens, and rabbits.

Activities

For the client groups. The main activities are horse related activities, both handling the horse from the ground and horseback riding. These activities are customized to the different student. The activities are designed in collaboration with the actors (buyers). It mainly consists of work-related activities, development of skills and combination of activities and teaching in the basic school subjects. Activities in the forest, garden and nature around the farm is diligently used. The clients also participate in picking the vegetables and making lunch. For some, handcraft is interesting. There is also a lavo, nearby the farmyard, which is used during all the seasons, and where the clients can be together, having a nice time and making small meals on a fireplace.

In all the activities, it is highlighted that the clients shall experience mastery, self-esteem, and positive emotions in a safe and clearly environment.

For the public. At Kjerlingland, they have developed a course called: «Get known the horse». It includes three days for children and one day for adults. During the course the participants got information of the welfare of the horse, they try to sit on the horse with and without a saddle and handle it during riding. For some this basic course give motivation to learn more, and they may get a further education course including voltage, dressage, and more advanced horseback riding.

6.3 Sweden

Sweden do not have large schools as Green Chimney or Kiipula for students. However, we have several upper secondary schools focused on farming and nature (in Swedish Naturbruksgymnasier) that accept students with disabilities, such as Lillerudsgymnasiet. For students in primary school (grade 1-9) several Green Arena farms (see Hushållningssällskapet.se) around Sweden let students with problematic schooling come to the farm for support, for example Eriksgård and Lyckegården, (see Berget et al., 2021). There are also private farms that receive students with high school absenteeism, for example Stallyckan (see Berget et al., 2021). For the Green Arena farms and other private farms, the students have their schooling in the regular school and spend one or more days per week on the farm. However, if the student has dropped-out of school, completely they may visit the farm on a daily bases and could get support from a student assistant or a teacher from their school. Amendments of the Education Act (SFS 2010: 800) in 2018 clarify the school's, the principal's and the home municipality's responsibility for noticing, investigating and acting on absence. This put a higher pressure on the schools to take action when a student do not want to attend school due to different reasons. In the following section, three places included in this Erasmus+ project are presented.

6.3.1 Färentuna Hälsoträdgård - "The Health garden as a healing pedagogic room"

Client group and Aim

Pupils, age 12–16 years, at risk of dropping out of school, with psychosocial and existential issues, in need of special support and education.

The aim is to increase wellbeing and self-esteem, support school attendance and fulfilment of curriculum of the pupils, and to help decreasing the number of pupils at risk of dropping out of school.

Progress is already showed in school attendance, motivation and fulfilment of school curriculum as well as wellbeing and hope for the future.

Pedagogical approach, design and content

The work is based on specific perspectives: Nature-based and Animal Assisted Interventions (NBI and AAI), expressive arts, subjectivation outdoor pedagogics (see Davies, 2006 for details about subjectification in pedagogy) and dialog about life.

The work is performed in the interface between Nature-based and Animal Assisted Activities and Education (Jegatheesan et al., 2018). It has its base in holistic and salutogene perspectives with an approach of empowerment where the youngsters' own resources are highlighted (Antonovsky, 1996; Apelmo et al., 2018). The intention is to form a safe atmosphere in a coequal learning environment (Todd, 2008). An important part of the pedagogics is to let go of "the inner judge", and to make room for dialog.

Small groups, about five participants/group regularly visits Färentuna Hälsoträdgård, integrated with ordinary school education. The visits starts with 1 time a week, steps up to 2 times and is phased out with, at first 1 time a week and the following semester, boost-visits, 1 time a month.

The leader of the group has education and practical knowledge within the perspectives included in the program. A teacher or a resource-person from school is attending during visits. Each visit has a theme that is inspired by and varies with the season, culture-tradition and existential topics. Every visit has the same structure. The work includes attending to the garden with the different occupations including horticulture, caring for the small animals and the beehive. Certain pedagogical models, arts/crafts and bodily movements are also used. Forest-walks with a special educated leader, along with horses and a dog belonging to the owner of the garden are scheduled.



Figure 6. The Green house as a retreat at Färentuna Health Garden (Photo: Eva Solhäll).

The Health garden

Färentuna Hälsoträdgård is 2500 m². The design is based on the theories of supportive environments and health garden design. The nature is as varied and rich in species as possible and is cared for to create conditions for a habitat of as big biodiversity as possible. The garden is situated in rural surroundings.



Figure 7. Students are building bird nests as one of the activities at Färentuna health Garden (Photo: Eva Solhäll).

The Animals

Wild animals adds a natural way of speaking about the ecosystem and our dependence of nature. They also adds to the outdoor education and the experience of belonging.

The domestic animals are two cats and a young dog (Flat Coated retriever), five adult hens, a rooster and two new-born chickens. There is a beehive which is registered at the "supervisor" for bees at the County Administrative Board and two ponds with a connecting stream. There are fishes in both ponds, altogether four Koikarp (*Cyprinus carpio*), eight Goldfishes (*Carassius auratus*), four (in Swedish) Guldid (*Leuciscus idus*) and spawns. The environment and care for the pond fish are arranged according to facts about the species needs.

A local veterinarian tends to the cats and the dog. The district veterinarian is responsible for the healthcare of the chickens. Regarding registration and regulations, we have contact with the County Administrative Board and The Swedish Board of Agriculture. The responsible person for the program is a licensed nurse and specialist in mental health of youth registered as healthcare provider at the National Board of Health and Welfare.

6.3.2 Karolinaskolan

Background

Karolinaskolan in Fogdaröd (Höör municipality in the south of Sweden) is an upper secondary school in natural management for young people with neurodevelopmental disorders, such as ADHD, autism and Tourette's syndrome. The school is placed in a park with closeness to nature and possibilities for out-door activities. The school offers nature management program with focus on gardening for students with eligibility, vocational introduction with vocational training for students who do not have approved grades for eligibility and program-oriented individually as an election aims to give eligibility for the national program. From the school year 2021/2022, the education is four years long.

Karolinaskolan is focused on those students that: 1) Thrives and learns and develops best in the small class. 2) Appreciates learning through practical work outdoors. 3) Has difficulty finding a suitable school in the home municipality. 4) The boarding school's complete solution with housing and leisure

The goal is to give students a good vocational education, and in addition prepare them for a functioning adult life with work, their own housing and meaningful leisure time.



Figure 8. Watering the plants outside the green house with the boarding house in the background at Karolinaskolan in Fogdaröd, Sweden (Photo: Åse Ljungdahl).

The boarding school

The students live in a homely environment together with their schoolmates. The different accommodation has different numbers of rooms and the school try to group in the accommodation according to the students' different needs.

Each student has their own room but shares a shower room with one or two peers. They also have access to a shared kitchen and living room. Staff are available in the accommodation around the clock as support and supervisors.

Students gain experience of living with others, taking into account and showing respect. They are prepared for their own accommodation by taking part in everyday chores. On weekends and holidays, all students go home.

Pedagogy and working methods

Karolinaskolan work with a solution-oriented approach and meetings that are based on a belief in the students' own ability and willingness to find their solutions and to take responsibility, both in teaching and in everyday life, and in relationships and conflicts. The school start from each student, where he/she is right now and pay attention to small and big progress. Through the presence of adults in teaching as well as in activities, meals and breaks, a safe environment is created for the young people.

In addition to their teacher education, the teachers have good knowledge and experience of working with the current target group. The boarding staff also have varying adequate professional backgrounds, such as leisure leaders, as well as good knowledge and experience of working with the relevant target group. The goal is to stimulate young people to develop interests so that their free time will be meaningful and active. Through the activities, the students train and develop their social ability and understanding of the social interaction with people of different ages.



Figure 9. Students and teachers cutting the trees in the garden of Karolinaskolan in Fogdaröd, Sweden (Photo: Åse Ljungdahl).

Classroom

The school have place for 40 students, i.e. 10 students in each class. They focus on students who need the small class with proximity to adults who provide support in both the development of knowledge and the personal needs. The school has classrooms for smaller groups of students where they sit around a table. They can sit on special balls that are good for training the balance and making focusing better. There are pedagogical aids for the students in the classrooms and in corridors. For example, photos with names of all teachers are hanging on the wall in one corridor.

Relation to nature and animals

Surrounding the two greenhouses are different sections of a large garden. The students work every day in the garden or in the greenhouse with different projects depending on time of year. They can also walk to the nearby forest, where they do different types of work. Inside the greenhouse are pedagogical posters put up with the daily schedules and a plan of the year showing when to carry out different types of garden-work. The menu for the lunches is also put up in the greenhouse section, as this is an important part of the daily plan. The students need very structured plans for what and when to carry out different activities.

In the boarding school one of the teachers have a private dog with him, but it is not an educated school or therapy dog. Still, he told us during our visit that several students are seeking contact with the dog and seem to get support from it. Especially the first year students that have never lived outside their home and may feel alone seem to appreciate the interaction with the dog. This school do not keep any animals as part of their education programme and do not carry out any Animal Assisted Interventions. Still they have access to wildlife with insects, birds and smaller mammals when they work outdoors. Since our visit, the school has introduced dogs in both boarding houses during evening time. They cooperate with a cat shelter for abandoned cats and has recently received two cats that will be in their outdoor environment.

6.3.3 *Humlamaden*

Background

Humlamaden is a private farm placed in the countryside of Veberöd municipality in the south of Sweden. It has horses and therapy dogs, as well as garden rehabilitation. Activities at Humlamaden started 1991 by Lis-Lott Andersson with a small riding school for children with and without functional variations. They saw great benefits in having all the children share a meaningful leisure activity. As the conviction grew for what animals and nature can do for our well-being, the target group also expanded. From this, a model for treatment of stress-related mental illness as a fatigue syndrome emerged. Today they receive participants with various needs including children and dropout students.

They run a pilot project with the aim of developing a model that can be duplicated throughout the country. It is a concept with collaboration between BUP (Child and adolescent psychiatry) and IVO (the Swedish Health and Care Inspectorate), registered farms at the Organisation for Equine Assisted Interventions (OHI) and certified staff

with the right profession. Humlamaden Rehab have for many years received children with mental illness. BUP has not been able to buy the service and Humlamaden will try to change this. Through projects, BUP wants to include horse-assisted therapy in its offers.

At Humlamaden totally six persons work with different activities; Lis-Lott Andersson, OHI-certified specialist nurse with licence, business manager and method developer of Humlamaden' s treatment model. Kristina Aretjäll, licensed psychologist and psychotherapist. Cajsa Stålhammar, communicator, treatment assistant and therapy dog handler as well as responsible for the dogs and horses' training and education. The other three are group leader and administrator, assistant nurse and stable personal.

The Nature and surroundings

The surroundings consist partly of wild, untouched nature, but also in carefully planned designs that will invite to rest and promote relaxation. Small nature trails meander through the forest that surrounds the glade. In the immediate vicinity of the farm, there are e.g. a winding stream, a small pond surrounded by mixed forest, and a fireplace among the moss and spruces.

Overlooking the horse paddocks is a gazebo, which is used extensively. The old stable building has a fully equipped kitchen, rest room, shower, toilet and stove.



Figure 10. Rehabilitation with a horse in the forest around Humlamaden (Photo: Cajsa Stålhammar).

The animals

Humlamaden has eight horses, from small ponies to larger horses. In order for them to do a good job, it is important that horses really enjoy their task. They are trained and well prepared to feel safe in all situations. Participants do not need to have any prior knowledge to be able to get a lot out of being with the horses. Humlamaden have very

high demands on how the horses are best taken care of and they do their utmost to let them live as naturally as possible. That is why all horses at Humlamaden live outdoors with access to a lying hall around the clock - all year round. They live in flocks where they can have their needs for foraging and social contact met. In the summer pasture, they eat grass and can drink water directly from the stream.

The activities the therapy horses participate in:

- Forest bath on horseback. On horseback in nature, we can experience a unique form of body scan and relaxation. The horse carries us and rocks us.
- Relaxation in the stable to the meditative sound of the horse who chews his hay.
- Relaxation exercise safely lying on horseback.
- Interaction and communication through exercises on foot next to the horse or through riding.

Humlamaden have two trained and certified therapy dogs Alice and Lava. They are both Labradoodles and selected and suitability tested for this particular task. Together with their driver Cajsa Stålhammar, they have undergone a one-year training at Hundens Hus Sundsvall. Training and internships were done with a focus on both students in school and patients in psychiatry and thus Lava and Alice can call themselves both therapy and school dogs. The dogs spread joy, give attention, love, and calm and stabilize, offer comfort and closeness. Their participation is based on volunteering and letting them make their own decisions and initiatives. The dogs together with their driver, also work in nursing homes, schools and preschools. On the farm, dog breeding is conducted with mainly therapy dogs and assistance dogs as breeding targets. Therefore, the participants and patients often get the opportunity to spend time with the puppy litters and their mothers.



*Figure 11. Relaxation in the hammock with one of the therapy dogs
(Photo: Cajsa Stålhammar).*

The stable cats Soja and Sushi are not educated, they have no diplomas and they take few directives from humans. However, they often choose to join in and share pleasant moments in the hammock or in the rocking chair.

Imagine that day rolled in a blanket with screams in panic, fresh cuts on arms and legs, anxiety and bottomless despair may be replaced by calm heartbeats against the horse's back, gentle movements over smooth fur, unpretentious nature in the horse's back and eventually conversations in trust where the feeling of security and respect can almost be felt.

We can in a calm, pleasurable, concrete and unpretentious way build up joy of life, self-esteem, confidence and health while we arouse curiosity and desire to think, reflect and learn new things.

Parents describe how their children suddenly open up, almost like magic.”

6.4 Denmark

Until 2017, where the Danish Green Care network was founded (www.greencare-netvaerk.dk), Green Care was not a well-known concept in Denmark. The network now has a broad group of members, mainly practitioners in the field, representing non-profit-organisations, providers of therapeutic treatments (garden therapy, animal assisted therapy, nature or farm-based therapy), socioeconomic companies and people working in residential accommodation and day care institutions using Green Care elements. The webpage of the Danish Green Care network is a comprehensive and updated source of information about the situation in Denmark, but mainly in Danish. They published a report in 2019, presenting a status for Green Care in Denmark (<https://www.greencare-netvaerk.dk/rapport/>).

6.4.1 Havredal praktiske uddannelser

Havredal is a specially adapted education and occupational option, with the overall goal of supporting and guiding young people towards a life as equal and active fellow citizens, being as self-reliant as possible. Havredal offer education in farming and gardening for young people with special needs, and helps their pupils to get a job after they have finished their education. Havredal is located in the Central Denmark Region in Jutland.

The animals

Havredal have 60 dairy cows, 120 sows, and 18 horses

Client group

The pupils are young between 16 and 25 years of age with special needs. They often have learning disabilities, and attention or developmental disturbances. They receive adapted and practical education adapted specifically for this target group.

The activities

The education is without books, and based on practical work with the animals and farmland, maintenance of the physical surroundings and runs a shop that sell their own products.

The goal is that the pupils are able to have a job and live by themselves when they leave Havredal.

6.4.2 Holmstrupgaard



Figure 12. Equine-assisted therapy at Holmstrupgaard. The children in the photo are not patients (Photo: Anne Hove).

Holmstrupgaard is a social psychiatric treatment institution. They aim at supporting young people with psychiatric diagnoses to get a better life as close to normal as possible, through development of the young's own abilities, and by enhancing their social and personal competences, and ability to have relationships with other humans

Client groups

Young patients (14-23 years of age) with a range of psychiatric difficulties and diagnoses: eating disorders, schizophrenia, borderline, depression, ADHD, Autism, self-injuring behaviour, anxiety, OCD, Tourette's.

Animals

Seven Icelandic horses.

Activities

Equine-assisted therapy.

7 REFLECTIONS AND CONCLUSIONS

This Erasmus+ project on *Learning Green Care* has been very valuable as we have formed new contacts across the four Nordic countries, and we have learned many new things about how to apply Green Care by involving both the nature, gardening, farms and animals of different species. It is very important to cooperate in this area in order to support our younger generation who have many challenges in their education system. There is also an increasing awareness of the needs that must be reached for students that have special challenges with neurodevelopmental disorders, mental health challenges, bullying, post-traumatic stress disorders or any other problem that may disrupt their focus and attendance in regular schools. We should also remember that ordinary students might have challenges to learn in ordinary school settings due to many different reasons, so developing the school system may gain all students.

One of the main achievements of the project was the promotion of Nordic cross-sectoral cooperation. The project brought together specialists, researchers, teachers and trainers, therapists, psychiatrists, sociologists, philosophers, Green Care experts and practitioners.

During the project in Kiipula, there were remarkable changes in staff's attitudes towards application of Green Care approach to the everyday teaching of students with special needs. This was seen in increased interest, discussions and weighing of options. Some of the Green Care methods were tested and further developed to the purposes of special education.

We hope the provided theoretical frameworks, remarks and best practices of this report will help the reader to advance the application of Green Care approach. Overall, important starting point for the progressing Green Care is awareness raising which will encourage to further discussions and future thinking.

Based on the present studies of effects of Green Care/nature-based and animal-assisted interventions it is often difficult to draw clear conclusions regarding specific effects. This is very likely due to the mentioned challenges, but also because there is such a broad range of different effects measures, both short- and long-term, but also varying according to the target groups in question, and the professional background of the research teams, and their study aims. It is important to underline, that inconsistency in research results and lack of clear conclusion is not the same as there not being any effects of Green Care/nature-based intervention. Rather it indicates the need for a more structured research effort, and probably also a more multi-disciplinary approach (Thodberg et al., 2014).

In conclusion, this Erasmus+ project has given all participants new knowledge and inspiration on what is possible to offer to students who have challenges in school and who need education with less focus on theoretical learning and more focus on practical learning.

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The following persons have written the different sections:

Heidi Honkajuuri, section 1, 6.1, 7.

Lena Lidfors, section 2.1, 2.2, 6.3, 7.

Bente Berget, section 3, 6.2, 7.

Karen Thodberg, section 2.3, 2.4, 5, 6.4, 7

Eva Solhäll, section 4, 6.3 (Färrentuna Hälsoträdgård)

Everyone has read the whole report and made comments in each other's section.

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Web Links

Kiipula, <https://www.kiipula.fi/en/front-page/>

Inn på tunet, <https://www.innpatunet.no/>

Green Care Finland, <https://www.gcf Finland.fi/in-english/>

Green Care Denmark, <https://groenomsorg.dk/green-care-in-denmark-is-interesting-for-professionals-from-other-nations/>

Nordic Green Care Network, <https://www.slu.se/en/departments/animal-environment-health/nordic-green-care-network/>

Alkumaa, <https://www.alkumaa.fi/>

Sisters Kjevik, https://www.facebook.com/pg/sostrenekjevik/posts/?ref=page_internal

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Färentuna Hälsoträdgård, <https://forhalsa.se/>

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Havredal, <https://havredal.dk/>

Holmstrupgaard, <https://www.holmstrupgaard.rm.dk/>