Nurturing affinity to nature

Raquel Heras Colàs (ed.)

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Xavier Bachero Pont

Xavier Bachero Pont has worked as a coordinator and environmental educator in "Associació Centre d'Educació Ambiental Alt Ter" (Alt Ter Environmental Education Centre Association) since its establishment in 2000. This Association is located in Sant Joan de les Abadesses, Catalonia. In the Association, he carries out pedagogical programs and actions for the conservation of endangered species and habitats, and promotes communication and awareness activities to preserve the cultural and natural heritage of the Pyrenees. Linked to the Natural Park "Capçaleres del Ter i del Freser" since its establishment in 2015, the Association carries out educational activities with local schools and provides guided tours for the general public with the objective of promoting the natural and ethnological values of this protected space. He is a member of the Catalan Society for Environmental Education, the Nature Conservation Network of Catalonia and the "Pirineus Vius" Education Network; all three organizations promote networking among Catalan and Pyrenean educational institutions.

Raúl Candeias Pimenta

Raúl Candeias Pimenta works as a technician in the Nature Reserve of Py, France, since 2008. As an expert in forest evolution, his main missions in the nature reserve are the study and monitoring of mature forests and the population of mountain Galliformes, mainly ptarmigans and wood grouses. He is also a member of the association "Accueil et Découverte en Conflent", which focuses on environmental education and the protection of biodiversity. Raúl acts as a link between the nature reserve and the association, transmitting and disseminating the actions that take place in the nature reserve to introduce the most relevant information and allow the public to know and appreciate the complexity and biodiversity of this protected space.

Marie Corbino

Marie Corbino is an experienced teacher of the state-funded school system in France. She has been teaching for twenty-five years in elementary schools in rural areas, and, for the last seven years, in the school of Lascelle, located in "Parc Naturel Regional des Volcans d'Auvergne". She has a fairly good knowledge of the park's territory and biodiversity and she likes inviting her students to engage in a wide range of outdoor learning activities, such as taking part in projects offered by the Natural Park and the province and establishing long term connections for the benefit of students.

Matti Eskelinen

Matti Eskelinen is a teacher at Kintauden koulu (Kintaus school), in the Petäjävesi region of central Finland. He has taken part in previous European projects. While working in Ylämaën koulu (Ylämä school), he took part in the Comenius European project in 2013, which allowed him to get to know Lascelle and Dr. Robert schools and to work in partnership with them to improve pedagogical approaches in mathematics education. He is very fond of nature photography and ICT and tries to convey these interests to his students in his classes. Therefore, he invites the students to take part in nature photography exhibitions.

Maria Teresa Guillaumes Vila

Teia Guillaumes Vila has been working for twenty-nine years as a primary school teacher in the Girona region of Catalonia. She started her career in a school in the town of Molló. She has been working as a teacher of Physical Education for seventeen years (six years in the Pirineu school in Campdevànol and eleven years in the Dr. Robert school in Camprodon, where she currently works). In the recent years, she has been working as a tutor in the Higher Cycle of Dr. Robert School and, for the last four years, she has been part of the school management team as head of studies. Throughout her professional

career, she has had the opportunity to work in nature, especially when teaching physical education, as it allowed her to be outdoors. Born in Camprodon, she grew up surrounded by nature, which has made her passionate about the environment and the mountains, which are still her sources of inspiration.

Anna Haukka

Anna Haukka is an MSc ecologist and conservation scientist with a pedagogical training background in biology and geography. She has worked as the Nature Educator at Haltia's nature school in Finland for 1.5 years during the NANOL project period and has a few years of previous experience in working and planning in the field of nature and environmental education for children and youth both in Haltia and with other actors in the field. She uses a pedagogical approach that encourages learners to be active, think and act for themselves, be creative, and have their voices heard. The equality of all learners is of high importance to her.

Raquel Heras Colàs

Raquel Heras Colàs holds a BSc in Biology and a PhD in Education. She is a lecturer of science and environmental education for teacher training at the Faculty of Education and Psychology, and a researcher at the Institute of Educational Research, both at the University of Girona, Catalonia, Spain. Her teaching and research interests focus on promoting outdoor learning approaches at all education levels in order to nurture affinity with nature and support sustainability actions and learning. She has been involved in several national projects related to education for sustainability and has coordinated the European NANOL project, which has brought together higher education institutions, schools, and nature centres.

Maria Llover Colom

Maria Llover Colom has been working as an environmental educator at the "Associació Centre d'Educació Ambiental Alt Ter" (Alt Ter Environmental Education Centre Association) in Sant Joan de les Abadesses, Catalonia, Spain, since 2009. She studied biology at the University of Girona and has been trained in different fields related to environmental education. She is an accredited guide of the Natural Park of the Volcanic Zone of La Garrotxa, and is currently a guide and educator in the Natural Park of the Capçaleres del Ter i del Freser in the Girona region. Interested in birds since she was a girl, she became a bird bander at the Catalan Ornithological Institute. She has participated in the preparation of educational resources and she has also been trained in the field of disseminating cultural legacy in the Ripollès and La Garrotxa regions. She works as a guide informing people on different historical monuments to present the heritage in a pleasant and rigorous way to all audiences. She likes walking, observing nature and helping to preserve it. That is why she is always carrying binoculars and a bag to collect waste.

Alun Morgan

Alun Morgan is currently a Lecturer in Education at the University of Plymouth (United Kingdom) where he leads courses on Environmental and Sustainability Education, Science Education, Global Education and Outdoor Learning. He has worked in a variety of contexts over thirty years including as a school teacher, teacher advisor and lecturer and researcher in a number of Higher Education Institutions. His work focuses on the interface between geography and science education, environmental education and education for sustainability and global citizenship, and Outdoor and Adventurous Learning. He works across educational phases (Primary to Higher Education) and formal-informal learning sectors, and promotes intergenerational, lifelong and community-based learning. He has a long-standing research interest in Place and Landscape as integrative concepts for learning; and has a particular interest in Citizen Science and Ocean Literacy. Alun is a co-leader of the Learning Outside of Formal

Education Research Excellence Cluster; and Convenor of the Peninsula Research in Outdoor Learning (PRinOL) Regional Research Hub.

Elina Pilke

Elina Pilke works as the Nature Interpretation Manager at the Finnish Nature Centre Haltia. She has worked on nature education at protected areas and nature centres since 2000, and has worked at Haltia for 8 years, starting from the planning phase. She has studied multiple use of forests (BSc), educational science and has an Environmental Educator degree. She is inspired by the subjects of strengthening the relationship of children and youth with nature, learning by doing, supporting participation and student-centred methods.

Dejan Putrle

Dejan Putrle has a BSc in Biology, a degree in pedagogical-andragogic education and has completed a degree level course in teaching science. He is a skiing instructor, cross-country skiing instructor, swimming instructor, canoe guide and scuba diver (CMAS 3*). As an Assistant Director, he is head of the CŠOD Rak outdoor education centre in Slovenia. His previous working experiences include sanitary microbiological analysis of potable and bathing waters at the Institute of Public Health, teaching in a primary school as a teacher of biology and science, working as a high councillor for nature conservation at Nature Park and his involvement in outdoor education at CŠOD.

Carme Ruset Font

Carme Ruset Font is a biologist involved in environmental education for more than fifteen years. She is an experienced educator, highly creative and committed to the environment. She is currently the pedagogical coordinator at CIEM Les Isards (Centre d'Initiation à l'Ecologie Montagnarde) in France and has been involved in the creation of numerous pedagogical tools. Among those, she highlights:

"D'Animale Ours" – a pedagogical toolbox about the brown bear that was distributed to all the departments of the French Pyrenees and all organisations working with the brown bear, with a total of thirty samples; "L'udol" – didactic materials about the wolf used by more than three hundred students. She has been coordinating other programs and activities like "D'Animale Loup, support pédagogique sur le loup", with the participation of DREAL Rhône-Alpes, National Wolf Plan in France, and the Direction Régionale de l'Environnement, de l'Aménagement et du Logement.

Maria Salin

Maria Salin is a nature and environmental educator and is working as a nature school teacher at the Finnish Nature Centre Haltia's nature school since 2013. She has a master's degree from the University of Helsinki in environmental protection science and a professional degree in environmental education. She has previously worked with sustainable development in schools and kindergartens, nature camps for children and environmental activities for young people. She is inspired by hands on methods and participatory activities in outdoor education.

Joan Vila Coma

Joan Vila Coma (1975, Llanars, Ripollès, Catalonia) is a passionate teacher with two decades of diverse teaching experience. Previous to his teaching career at several primary schools in Catalonia, he volunteered at the *Teacher Training Center* of the *Tribhuvan University* in Katmandú, Nepal. Besides his Bachelor's degree, which he completed at the University of Girona, Joan obtained two Master's degrees, one in *Didactics of Mathematics* at the University of Vic and the other in *Art and Education* at the University of Girona. For the last three years, Joan has been working as an *Intercultural Language and Social Cohesion Counsellor* at the Educational Services of the Ripollès and Cerdanya regions (Government of Catalonia), while at the same time specialising in *Scientific and Environmental Education* by doing a Doctorate at the University of Girona.

Mireia Vilalta Cubí

Mireia Vilalta Cubí is a very active thirty-five-year-old teacher. Born in Sant Joan de les Abadesses (Ripollès, Catalonia), she has been working for fourteen years as an early childhood teacher. Ten of these, at Dr Robert school in Camprodon. For the last four years, she has also been the principal of the school. She holds a degree in Psychopedagogy and strongly advocates for active pedagogy. Her devotion is photography and music and she enjoys the little things in life.

Sue Waite

Sue Waite is currently a visiting specialist at the University of Plymouth and Visiting Associate Professor at Jonkoping University in Sweden. Following her leadership of the Natural Connections demonstration project, embedding curriculum learning in natural environments across 125 schools in Southwest England, she is now working with NATCEN, The National Centre for Social Research, in London on the process and impact evaluations of Nature Friendly Schools and a feasibility study of out-of-school engagement in natural environments to promote youth health and well-being as part of the 25-year plan for the environment of the Department of Food and Rural Affairs. She also works with the Royal Society for Wildlife Trusts in the UK in its strategic work to promote education in schools about, for and through nature. She is a member of the leadership council of the International School Grounds Alliance. Founder of the outdoor learning research network at Plymouth in 2006 and former convenor of the Peninsula Research in Outdoor Learning (PRinOL) Regional Research Hub, Sue has always strived to ensure that her series of research projects on Forest schools, curriculum-based outdoor learning and health and well-being outcomes from time spent in nature have been communicated to policy makers and practitioners. Her publications include many journal articles and books, such as *Children Learning Outside the Classroom from birth to eleven*, *Outdoor Learning Research: Forms and Functions and Wellbeing from Woodland – A critical exploration of links between trees and human health*.

Introduction

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It gives me great pleasure to write the introduction of this publication after two years and a half working on the project "Nurturing Affinity to Nature through Outdoor Learning in Special Places" – NANOL.

This project, which has been financed from EU funds, is included within the strategic associations of the Erasmus + program, for the innovation and exchange of best practices.

As the name suggests, the NANOL project was created in order to nurture outdoor activities and increase the connection with nature in primary schools and protected natural areas.

This project has allowed the communication between educators from different backgrounds, mainly from nature schools or environmental education centres, primary schools and universities, who work on the pre-service and in-service training of the teachers. This allowed us to conduct a joint effort, from different perspectives, on learning in nature. The work has been contextualized within the reality of each partner and the individual needs have been respected. As will be seen further on, the involved partners are from the United Kingdom, France, Slovenia, Finland and Spain.

This publication collects the experiences that each partner has undertaken. They are all different, but equally interesting and complementary, as they support a positive trend to improve education through initiatives that promote contact between the immediate school environment and children that are active and involved in real world topics.

Structure and contents of the publication

This publication is structured in three parts. The first one is chapter 1, written by Sue Waite and Alun Morgan, from the University of Plymouth (UK) who, as experts in this topic, frame the NANOL project in theoretical references regarding learning in nature. Based on the definitions of the words that comprise the name of the project and a collection of studies from different authors, they propose a table that educators may use as a guideline when planning outdoor activities. This table shows a series of steps and the questions we need to ask when planning activities to promote the connection with nature,

while taking into account the characteristics of the place where the educational experiences and methodologies will take place.

The second part of the publication comprises eight chapters with the description of the initiatives that different partners have carried out under the NANOL project. These are:

Images 1 & 2. Sue Waite and Alun Morgan teaching a successful seminar in Haltia, Finland, with to an audience of 100 participants from Finland and abroad. Photos: Anna Haukka.

On chapter 2, Anna Haukka, Elina Pilke and Maria Salin, from the nature school in Haltia (Finland), explain the process they have followed to develop materials related to forests and focused on school. Both the authors and the new Finnish syllabus take into account the voices of students, as they are active, able to set their own learning goals, solve problems and reflect on their own learning, both individually or as a group. After explaining the process of a collaborative project with a nearby school, they state the seven principles that an environmental teacher or educator focused on a student must take into account.

On chapter 3, Carme Ruset and Raúl Candeias from the "Accueil et Découverte en Conflent" association and the Natural Reserve of Py, France, introduce the educational terrestrial areas and, how students from two primary schools, participate in the administration of these spaces. An educational area is an outdoor area of limited size, which is the property of a municipality or an individual, and is jointly administered by the students and the teachers of a primary school. The project carried out at the Natural Reserve of Py, France is one of six pilot projects in France selected by the "Réserves Naturelles de France – RNF" (Nature Reserves in France) to test and assess the educational impact of these initiatives.

In chapter 4, Dejan Putrle introduces the initiative carried out by CŠOD (Centre for School and Outdoor Education) in Slovenia, to bring young people closer to nature through educational trails that can be taken via mobile devices. The app "CŠOD misija" (CŠOD Mission) includes more than fifteen outdoor trails in direct contact with nature. Most of them have been created by teachers trained and assessed by CŠOD educators and are related to different course contents on different topics such as knowledge of the natural, social and cultural environment, mathematics, languages, etc. The idea is that teachers can leave the classroom and do the classes outdoors, thus promoting the connection with nature.

In chapter 5, Xavier Bachero and Maria Llover, from the CEA Alt Ter Association from Sant Joan de les Abadesses, Catalonia, introduce an initiative coordinated and carried out to create new materials to be incorporated into the educational program of the "Parc Natural de les Capçaleres del Ter i del Freser" (Natural Park of the Headwaters of the

rivers Ter and Freser) with the participation of teachers from the Ripollès region and the support of the park. The creation of these new materials has been framed within an educational course for teachers recognised by the Department of Education of the Generalitat de Catalunya and has allowed the participants to understand the park better.

Chapters 6 and 7 are focused on two schools that have participated in the NANOL project and have used this opportunity to include more outdoors trips and activities on their programs. In chapter 6, Matti Eskelinen shows us how Finnish primary schools work and describes how they have incorporated the NANOL project in their school at Kintaus, both through more school-wide initiatives and grade-specific activities. In chapter 7, Marie Corbino from the rural school at Lascelle (France) tells us how she used her participation in the project and the support received from different entities in their territory to fill the program of two academic courses with outdoor trips and activities and to connect them with the primary school syllabus.

Another of the schools is the Dr. Robert school of Camprodon. In chapter 8, Mireia Vilalta and M. Teresa Guillaumes explain the ongoing training process they undertook and how it allowed them to restructure their existing school environment projects. They used their participation in the NANOL project to organise, rethink, update and improve all the existent work and, out of this process, create new initiatives.

In chapter 9, Joan Vila, introduces the etwinning platform for the exchange of experiences and the interaction between children of the three schools participating in the NANOL project. It creates a space where students can meet and share online different educational initiatives carried out in the school. Another aim of this tool is to develop general skills.

To conclude, chapter 10, which comprises the third part of this publication, describes some of the resources that we shared and some reflections on the workshops and seminars carried out during the four encounters that took place throughout the project. Although every partner of this project participated in this chapter, the effort of collecting the resources was carried out by Mireia Vilalta and M. Teresa Guillaumes from the Dr. Robert school of Camprodon and I, from the University of Girona, have written the reflections part.

Image 3. From left to right: Mireia Vilalta and M. Teresa Guillaumes working. Photo: Dejan Putrle.

I hope that this publication, which collects the different initiatives of the partners of the NANOL project, will serve to improve educational practices and will be a source of inspiration for entities, teachers and other educators involved, either directly or indirectly, in teaching.

Needless to say, we must not become separated from nature. In doing so, we would lose our essence and the connection to what nourishes us.

Finally, I would like to thank all the partners of this project for their participation and involvement. Ever since the first meeting in Sant Joan de les Abadesses and Camprodon, they showed great motivation and enthusiasm to work together. I believe all meetings were fruitful and, thanks to the work of everyone, we accomplished a successful project. I want to highlight the work of Elina, Anna, Joel and the rest of the collaborators from Haltia, in organising the NANOL seminar during the fourth meeting of the project, which involved a hundred participants and was a great success. I would also like to mention the work of Sue and Alun, for their support as outdoor and experiential learning experts and their help in writing the project and in organising the workshops that took place in the meetings with all the partners. Also, thanks to Ingrid Mulà, for taking care of all the initial paperwork and the organisation of meetings. Many thanks.

1. Outdoor Learning theoretical framework for the NANOL project: Nurturing Affinity to Nature through Outdoor Learning in Special Places

Sue Waite and Alun Morgan

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As part of their regular monitoring of public engagement with natural environments, Natural England found that 12% of children in England (c 1.3 million) had not visited the natural environment over the previous 12 months (Hunt et al. 2016: 1). Of those children visiting, the types of places varied regionally. For example, a higher than average proportion of children living in the South West visited woodland and the coast; children from the North East were also more likely to visit the coast; while children from the East Midlands and South East were more likely to visit country parks (Ibid: 2). Strikingly, nature reserves were rarely visited compared to urban parks, even when they were local. Only 11% of adults identified encouraging an interest in nature and wildlife compared to in excess of 48% stating 'play' as a reason for their child's visit (Hunt et al. 2016). Furthermore, only 7% of adults reported that their child visited natural environments with their school. It is clear that, in England at least, many children's opportunities to nurture an affinity to nature through outdoor learning in special places is seriously limited.

In order to give a theorised context to our NANOL project, we first consider the meanings of terms within our project title and what is already known about these concepts. We go on to summarise some key literature about how best to develop nature connectedness in children and young people, and, finally, we consider some of the ways in which places themselves contribute to developing affinity to nature in light of the location of our project within different natural parks across four European countries. Some implications of this review for the planning and practice of outdoor learning in special places is summarised in a table in the concluding section of this chapter.

Nurturing

Nurturing references the age-old debate about nature versus nurture — what is innate and what is learnt or socialised in children's development. We recognise through this term the widely accepted decline of children's connection to nature (Louv, 2005) and that this increasing disconnection over recent generations requires action to re-establish

exposure to and care for nature and to avoid the worrying societal trend of 'environmental generational amnesia' (Kahn Jr., 2002). Yet, we also acknowledge that we are all indivisibly part of nature and that our nestling within ecosystems brings with it both opportunities and responsibilities (Morgan and Waite, 2017).

Affinity

The Cambridge English Dictionary defines *affinity* as 'a liking or sympathy for someone or something, especially because of shared characteristics.' It also refers to a 'natural' liking for something in the Oxford English Dictionary. These definitions reaffirm a relationship to nature that is fundamental, underpinned by mutual interests and care. It also relates to the concept of developing 'place attachment' (Altman & Low, 1992; Chawla, 1992), which is often facilitated by intimate engagement with the natural world (although it is also possible to develop positive place attachment to urban areas, and through more socially-oriented place-engagements).

Nature

Nature has been described as 'all the plants, creatures, and things that exist in the world t*hat are not made by people*'(Cambridge English Dictionary, online , *our italics*) but it is a much contested term. For example, in much of the Western world, many countryside landscapes that are regarded as quintessentially 'natural' are actually shaped by many generations of farming. Furthermore, many scholars now suggest that we have entered a new geological age, the Anthropocene, where the impact of humans on the 'natural world' has become the most significant impact (Crutzen, 2002). Areas of 'wilderness' are shrinking as human populations grow and even the remotest areas of our planet are being affected by accelerating climate change from human activity.

Outdoor Learning

One response to the concern about children's disconnection from nature has been a rise in the popularity of various forms of outdoor learning. This is another term that is not used identically in different cultures. Its roots lie within outdoor and adventurous education, represented by Outward Bound (see https://www.outwardbound.org/), which tend to involve remote places and challenging activities (Nicols and Waite, forthcoming). The contemporary field of outdoors encompasses three distinct yet related approaches: adventurous activities, environmental fieldwork, and 'nature connection'. It is desirable to integrate two or more of these approaches synergistically to enhance learning opportunities. Education outside the classroom may include learning in natural environments, but also in urban contexts like cities and indoors, such as museums and workplaces (Bentsen and Jensen, 2012). Outdoor learning encompasses learning in natural environments, but also other outdoor spaces that offer different environments and affordances for learning. Thus, Outdoor learning can be seen to occur along a spectrum from relatively human-dominated spaces (the built environment of settlements) to extensive and relatively 'nature'-dominated or 'wild' spaces (whilst acknowledging the problematic nature of these terms). It is towards the latter end of this spectrum that the NANOL project is particularly concerned. Such contexts are 'special' because of their 'natural' characteristics of biodiversity (whether in terms of abundance or rare species) and/or landscape qualities. But they are also 'special' in the sense that they provide a contrast to the typical spaces that most people encounter in their everyday lives within a human-dominated environment. These dual attributes — special natural qualities and experiential opportunities — are why they are often designated as 'natural parks' or 'national parks'.

Thus, in the NANOL project, Outdoor Learning refers to the various activities with children that educators, teachers or nature park facilitators organise in the park environment.

Special Places

For this reason, in order to be more precise about how we are using the term outdoor learning in this project, we added 'in *special places*', and, by this, we refer to areas designated as natural parks. This designation suggests that the geographical landscapes and biodiversity of the area has been considered out of the ordinary and worthy of protection. This is not to downplay the potential to develop 'affinity with nature' in 'ordinary' places such as school grounds, gardens, and local urban parks. Rather, it acknowledges the particularly powerful opportunities presented in places noted for their exemplary quality in terms of biodiversity and/or landscape attributes.

To sum up, the terms we use are loaded and yet we still hope for some room for manoeuvre within them. All communication involves overlaps and gaps in understanding in conveying meanings. Kessler (2016) argues at length about the use of propositions in communicating intimacy *for* or *with* nature. Our use of affinity *to* rather than *with* signals the proactive approach we intend in mending a sense of kinship, childnature, through our project.

What do we know about how to develop connectedness to nature?

Much environmental education in the past was founded on developing greater *knowledge* about nature, but there is now widespread acknowledgement that *affect* — how people feel about nature — is more important in fostering positive environmental attitudes and behaviour (Chawla and Cushing, 2007; Chawla, 2009; Hinds and Sparks, 2008; Lewicka, 2011; Schulz, 2000). In their review, Chawla and Cushing (2007) suggest that

> nature activities in childhood and youth, as well as examples of parents, teachers, and other role models who show an interest in nature, are key 'entry-level variables' that predispose people to take an interest in nature themselves and later work for its protection (p. 440).

This awareness is coupled with a growing concern that contemporary children have become disconnected from nature, an idea popularised in Richard Louv's book (2005) "Last Child in the Woods", in which he coined the term 'nature deficit disorder'. Disconnection is powerfully illustrated by the shrinking distances from home that children are allowed to go unsupervised, what Matthews refers to as 'range' (Matthews, 1992). This has reduced by 90% since the 1970s (Moss, 2012), by surveys of children's changing relationship with nature (Natural England, 2009) that show children's access to natural environments is declining and unequal (Rice and Torquati, 2006) and by the loss from language of common nature words (Macfarlane & Morris, 2017) so that not only physical contact with but also symbolic representation of nature are compromised for contemporary children. This represents another dimension of 'environmental generational amnesia' (Kahn Jr., op cit.).

Another strand of thinking urges recognition that we are inextricably part of nature and that artificial distinctions between us and the non-human world serve only to exacerbate a lack of empathy and concern for the natural world (Pacini-Ketchabaw et al., 2016). This is receiving support in the fields of environmental, developmental and evolutionary psychology through concepts such as the 'biophilia hypothesis' (Wilson, 1984). Anthropocentricism is illustrative of an attitude that sees nature in service to humankind; a perspective that appears to underpin Kellert's (2002) developmental framework of human relation to the natural world, albeit contested by Davis et al. (2006). Far from a dominionistic and utilitarian approach to nature, infants display no perceived separation of self and the world. Indeed, Morgan and Waite (2017) argue that our position *within* nature appears intuitive to very young children but tends to be socialised out of them by dominant social discourses of risk and management.

Notwithstanding this, concern about the decline has led to global efforts to ensure that more children are exposed to nature and have opportunities to reconnect with it, but is mere exposure sufficient to affect this change? Recent meta-analysis of surveys (White et al., 2019) has indicated that a dosage of at least two hours a week is necessary to have impacts on children's wellbeing but does not indicate whether this level of contact means their pro-environmental attitudes are affected. Heras et al. (2019) note that the main impacts of field trips to nature

parks on children in their study were emotional and social, whilst cognitive learning was less apparent from pupil interviews. In another study (Waite, 2010), although children experiencing a special curriculum linked to the National Park, in which they lived, demonstrated detailed knowledge of their local wildlife and landscape features, the impact on their wider environmental attitudes and actions was less clear.

Affinity to nature was found to be a strong predictor of environmental action by researchers in Germany and Lithuania across both urban and rural contexts (Müller, Kals and Pansa, 2009). Their survey of over 400 high school students collected information about emotional affinity with nature, awareness of environmental risks, exposure to nature and pro-environmental attitudes and action. They found that an emotional connection with nature predicted willingness to commit to environmental action, but that contact only impacted through growing attachment. The study also showed some variation amongst groups with girls showing more pro-environmental dispositions, Lithuanian children displaying greater affinity with nature and rural children spending more time in nature than urban. The authors suggest more research was needed about which elements might be universal.

Children have been encouraged to develop affinity to nature through school-based interventions. Several recent Swedish studies shed light on some of the possible processes. Developing school grounds in pre-schools by introducing ecosystem services such as bug hotels and bird boxes did not alter children's preferences for play (Almers et al., under review), but stimulated curiosity and imaginative engagement when pointed out. Greater involvement in design and management of forest gardens over a period of time created more impact on children's care for the non-human world (Hammarsten et al., 2019). Another study in Sweden (Barthel et al., 2018) reported that ten-year-olds developed sympathy for salamanders and increased levels of concern for nature, which persisted even two years after their experience of rescuing salamanders. The researchers note that responsibility placed on the children, their free exploration of the area and direct sensory contact interacting with another species were vital in creating a caring relationship. Furthermore, for children in urban areas, accessibility to natural environments was found important in developing affinity with the biosphere. Children demonstrated greater awareness of human-

nature independence and empathy for the more-than-human in pre-schools that incorporated nature into regular activities (Giusti et al., 2014). Their results contrast with a more cognitive knowledge-based school intervention concerning wild birds where there was minimal post-intervention impact on children's affinity to nature (Ortiz et al., 2018).

Opportunity for routine and repeated affective engagement with the non-human world may be an important element as Mullenbach et al. (2019) found limited gains in positive attitudes towards nature compared to a control group following a residential outdoor education course. This lack of change has been noted previously (Dettmann, Ealer and Pease, 1999; Kieffer, 1992) and may partially reflect difficulties in controlling for all factors. In this case, the treatment group had higher initial levels of nature connectedness creating a ceiling effect.

In a retrospective study, Wells and Lekies (2006) found both wild and domesticated nature experiences before the age of 11 affected pro-environmental attitudes in later life, but that only the 'wild' had a significant effect on pro-environmental behaviour. Unexpectedly, nature experiences with adults had a small negative effect on later pro-environmental attitudes, which, the authors suggest, may be due to over-structured or compulsory forms of supervised engagement.

To tease out the contributory factors further, a group of researchers at the University of Derby used biophilic theory and Kellert's developmental framework of attitudes to nature to propose pathways to nature connection (Lumber et al., 2017). Via two online surveys (n = 321) of engagement with, and valuing of, nature activities based on the nine values in the framework, they identified that contact, emotion, meaning and compassion were predictors of connection with nature. Crucially, they also found that cognitive approaches, such as observing nature, and increasing understanding and a physical or structured focus, such as gardening or sporting activities, were not related to nature connection. This adds some weight to the idea that the relationship needs to be personal to the child to make it meaningful.

In light of the surveys, the following elements to promote connection to nature were proposed:

- Contact – sensory immersion
- Beauty – drawing out the aesthetic qualities of nature
- Meaning –thinking about the meaning of nature and signs of nature
- Emotion – reflecting on personal feelings about nature.
- Compassion – including self within nature creating an empathic sense of care.

A follow-up study (Richardson & McEwan, 2018) tried out incorporating these elements in a walking intervention by asking participants to talk with others about how they felt about the surrounding nature, record any symbolism they imagined in it, and watch a video about creating homes for nature. This combination was found to significantly increase connection to nature compared to simply walking in nature, reinforcing that exposure alone may be insufficient to engender connection.

A widely-used and well-established standardised measure for assessing how related to nature people feel is the Nature Relatedness scale (Nisbet, Zelenski and Murphy, 2009) and commonly for convenience in outdoor contexts, its short form (NR6, Nisbet and Zelenski, 2013) of six statements about nature that cover different types of relationship.

> Four of the items assess self-identification with nature, a sense of connectedness that may be reflected in spirituality, awareness or subjective knowledge about the environment, and feelings of oneness with nature: "I always think about how my actions affect the environment," "My connection to nature and the environment is a part of my spirituality," "My relationship to nature is an important part of who I am," and "I feel very connected to all living things and the earth." Two additional items capture individual differences in the need for nature and comfort with wilderness, as well as awareness of local wildlife or nearby nature: "My ideal vacation spot would be a remote, wilderness area" and "I take notice of wildlife wherever I am" (Ibid.)

These six statements above tap into corresponding aspects of relationships with nature:

- care for the environment [compassion]
- a sense of wonder about nature [beauty/emotion]
- nature being an element of self-identity [meaning]
- feeling part of nature [emotion/compassion]
- positive choice of nature contact [contact]
- curiosity and interest in nature [meaning].

The equivalent pathway, according to Lumber et al. (2016), is noted in square brackets. Choice or freedom within nature experiences noted by Wells and Lekies (2006) amongst others is encapsulated in the last aspect. However, self-report measurement tools can be challenging to use with younger children (Barrable, 2019).

What difference does the place make?

In addition to the different modes of engagement discussed above, the place in which that engagement happens also has a fundamental part to play, as summarised by Orr (2013) and discussed by many place-based education scholars (Gruenewald, 2008; Straker, 2014; Kudryavtsev at al., 2013). Crucially, an important consideration is the characteristics of the place, its 'affordances', which will affect (present or constrain) the types of human-environment transactions that can 'take place'. This will, in turn, dictate the types of experience and learning that is possible there. Such 'affordances' will affect the possibilities for learning in the 'cognitive' domain (e.g. features within a place and how they are interrelated), but it also has implications for the 'affective' domain and the possibilities of learning. Thus, according to Verbeek & de Waal (2002), humans share with primates three major emotional systems:

- attachment, belonging and security
- individual identity and status
- investigation and discovery

A place setting will prove a quality learning environment if it is able to simultaneously provide emotional support in all three senses i.e. provides (or does not compromise) belonging and security, and individual status and identity, whilst presenting a context for rich investigation and discovery.

As noted above, NANOL is concerned with 'special' places, namely those that are recognised as exemplary in terms of their natural characteristics whether in terms of ecology (biodiversity) and landscape to the extent that they have been designated as 'natural parks'. The implication is that these 'special' places provide an exemplary opportunity for 'nurturing affinity with nature'. Once again, this is not to refute the potential benefits of attempting to achieve these aims in more 'ordinary' or less 'wildland' spaces such as a nature-space in school grounds, local parks, brownfield sites, 'vacant lots' etc. (Pyle, 2002, 2008), but rather to acknowledge that experiencing nature in such 'special' settings should prove particularly powerful and efficacious. Such places provide rich material for cognitive (e.g. species, landscape features, and how they are ecologically interconnected; cultural heritage) *and* emotional dimensions (particularly in presenting rich contexts for investigation and discovery). Indeed, according to ecological-evolutionary perspectives on human development, learning is a transactional process that occurs largely through play and exploration (Heerwagen & Orians, 2002). Furthermore, it is to acknowledge the particular expertise that has been developed by educational practitioners who work in such 'special' places in terms of general environmental and 'place-specific' pedagogies that are cognitively enriching, bodily engaged, and emotionally supportive (e.g. discovery-led or inquiry-based approaches).

Taylor et al. (2019) have recently pointed out how the materiality of 'special places' that are specific and meaningful moves discussion beyond a general affinity with nature to place attachment mediated by all the senses and implicated in the construction of identity. However, this particular 'meaningful' relationship is echoed in the successful ways that affinity to nature is promoted (Lumber et al., 2017). Straker (2014) observes:

> Places are somewhere; they retain their material elements and can be touched and smelt. They are however, configured in meaningful ways through the way we live, work, and recreate in them and through our comings and goings to other places. These practical and embodied engagements influence both who we are and the place itself. (Ibid, p. 32)

Taylor et al. (2019) found that the visual and aural were more frequently the medium for affective impacts of nature but that touch, taste and smell were also mentioned by student teachers in describing their relationship with nature. It is this potential for facilitating significant experiential and embodied encounters that lies at the heart of the pedagogical power of 'outdoor learning in special places' for 'nurturing affinity with nature'. Through such experiences, learners will develop both an experientially holistic (embodied, cognitive *and* affective) and personally meaningful engagement, which will, ideally, contribute to their 'ecological identity' (Thomashow, 1996) and 'place attachment' (Altman & Low, 1992; Chawla, 1992). It is also important, however, never to lose sight of the human-dimension of such 'special' places which represent complex assemblages of non-living or abiotic elements (soil, rock, buildings), living elements (plants, animals, humans) and complex social and cultural relations that have evolved there. Thus, another important dimension of outdoor learning in these special places should be a focus on the cultural heritage and sustainable *lifeways* (Buttimer, 2001) which have developed there and which are 'place-responsive'.

Another consideration that is relevant to 'place' is 'scale'. For some, places "can be as small as the corner of a room, or as large as the Earth itself" (Tuan, 1974, p. 245). However, for the purposes of the NANOL project, Matthews' definition is particularly useful, namely places represent "macroenvironments encountered outdoors" (Matthews, 1992, p. 2). However, it is appropriate to consider the nature of the potential environmental transaction that different scales afford. Following Bell (2006), it is possible to distinguish between the 'small', 'immediate' scale of 'projective' space which immediately surrounds the body and is open to manipulation (e.g. objects found in nature by hand). At a larger scale is the 'perspective' or 'panoramic' space, which can be

taken in from a single, stationary viewpoint (but extends beyond the immediate and manipulable). Finally, there is 'navigational' space, which is dependent on locomotion or the repositioning of the whole body to fully encounter.

The foregoing discussion on the relative 'naturalness' and 'scale' of place can also be related to the developmental affordances of place. Many authors have indicated the importance of encountering nature for healthy development in childhood (Cobb, 1993; Taylor et al., 2006). An important area of research in this respect is 'Significant Life Experience' (SLE), instigated by Tanner (1980), but which has been particularly developed by Chawla (1999). This research investigates the self-reported significant or formative experiences reported by environmental activists, which they believe account for their personal pro-environmental behaviours. Two crucial themes that emerge from this research are the importance of: early and meaningful contact with nature; and the presence of an environmental 'mentor' to facilitate this. Clearly, this relates to the NANOL project in terms of both aspects, the latter in terms of the importance of the role of the environmental educators. However, in the Early Years (approximately 0-8), the type of 'place' that this will be encountered will be necessarily constrained or contrived such as a 'kindergarten' space (Sobel, 2015), and will be limited to the 'small' or 'projective' space or what has been described as "micro-environments encountered both indoors and outdoors" (Morgan & Waite, 2018, p. 54). Perhaps the 'perspective/panoramic' scale will also be a potential context for learning at this age. However, the opportunities to take advantage of the 'navigational' scale afforded by the outdoors will most likely be restricted to later childhood. Some have suggested that the period of adolescence might represent something of a 'moratorium' on nature engagements as social identity formation take precedence (Clark & Uzzell, 2006; Kaplan & Kaplan, 2002). This makes the period prior to adolescence particularly important, therefore, in order to provide a grounding to see them through and beyond this developmental phase. The 'Middle Years' of childhood (approximately 8-13), therefore, represents a particularly fruitful developmental period or 'window' for 'place-' and 'nature-engagements' (Sobel, 2002) and it is associated with exploratory and playful practices such as 'den building' and ever-broadening inquiring minds. This is also the period

when children's level of independence is increasing and is manifested in an expanding set of spatial 'ranges' (Matthews, 1992). The NANOL project partners are particularly focused on this period of Middle Childhood. However, it must be recognised that prevailing societal forces are increasingly constraining young people's engagement with place and nature as a consequence of changes

> in the way they engage and learn through the natural, cultural and physical world. This change, signified by many parents withdrawing their children from public spaces such as parks, streets and community facilities, is predominantly fed by a culture of fear and insecurity (Malone, 2008, p. 3).

It is also a consequence of the increasing privatisation of public space (Valentine, 2004) and competition with lure indoors of 'screen-based' entertainment. This is problematic;

> …not allowing children to engage in independent mobility and environmental learning, teachers and parents are denying children the opportunity to develop the skills and resilience that they need to be able to be safe and manage complex environments (Malone, 2008, p. 3).

This provides further warrant for the importance of educational interventions that are being promoted through the NANOL project.

Concluding thoughts

Nurturing affinity to nature is by no means straightforward. On the one hand, children are born *within* nature, but culturally many become separated from an awareness of this relationship (Morgan and Waite, 2017). However, the body of evidence from numerous studies suggest some clear guidance for the design of programmes that seek to redress this illusion of separation. Evaluation of Environmental Education centres' educational project statements are important to ensure quality (Medir, Heras and Geli, 2014), and this study developed

a rubric for assessment which included identity, material and cultural context, goals and values and course content, methods and evaluation.

Our theoretical framework combines factors in the NR6 scale of choice, concern, wonder, interest, identity (Nesbit and Zelinski, 2013) and connection with the University of Derby's recent 'pathways' work (Lumber et al., 2016) and the elements of outdoor learning, Purpose, People, Place and Pedagogy, suggested by O'Brien et al., 2016 and Waite et al., 2016. Taken together, the following steps are proposed to encourage and deepen children's affinity to nature through outdoor learning in special places.

Figure 1. Steps towards Nurturing Affinity to Nature through Outdoor Learning in Special Places

Step 1	**PURPOSE**	Have the aims of the outdoor learning engagement been constructed, defined and shared with all? Why are we here?
Step 2	**PEOPLE**	Who are the facilitators? What skills/ knowledge do they bring? Are they enthusiastic role models? Have communications worked well with the school? Who are the participants? Which previous related experience have they had that can be linked to activities? Is everyone (teachers from school, educators at centres and students) clear about their roles?
Step 3	**PLACE**	What are the special material and cultural features of the place? What aesthetic aspects might provoke a feeling of wonder? What kind of experience/expectations do the participants have of this place? What is its meaning to them? What kind of experience/expectations have they had in other, perhaps more familiar, places that they will bring in their behaviour and attitudes to this place? How might this place make them feel? What might this place need? How long will they stay in this place?

Step 4	**PEDAGOGY**	How will its special qualities be introduced to the participants to create a sense of curiosity, awe or care? Will the participants be able to use all their senses to engage with this place? Will the facilitation include opportunities for personal meaning making, aesthetic and symbolic extensions of knowledge and feelings about the place? Will there be space for consideration of impacts on nature and the relationship between themselves and the non-human world?
Step 5	**REFLECTION**	Will there be a chance to reflect afterwards about the experience and produce something that is personal to them to increase the affective meaning of their experience in another context?
Step 6	**REPETITION**	Will the experience be repeated and extended in a series of visits over time?
Step 7	**EMBEDDING**	Will ways to use the feelings, ideas and knowledge engendered by the programme of activities in special places be found in nearby nature to create sustained meaningful contact with nature?

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2. My Forest — Student-centred approaches for outdoor learning

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The Finnish Nature Centre Haltia

The Finnish Nature Centre Haltia is situated next to the Nuuksio National Park in Espoo, Finland. Haltia's Nature School, exhibitions and the surrounding natural environment give school groups the opportunity to learn, experience, be inspired and try things for themselves. Haltia offers nature school days, nature trail excursions, guided tours of the exhibitions and summer camps. There are 95 yearly, free-of-charge nature school days offered to school groups from the surrounding municipalities. Haltia's Nature School also organises diverse training courses for teachers and educators. Pedagogy focuses on teaching skills for outdoor recreation, nature literacy, natural science, nature conservation, sustainable living and social skills. The teaching relies on theories of nature and sustainability education, such as Cornell's Flow Learning (Cornell, 1989), the Real World Learning Model (www.rwlnetwork.org) and Palmer's Tree Model (Palmer, 1998).

At Haltia, young people are introduced to Finland's unique and diverse nature, as well as the dialogue between the Finnish culture and nature. Haltia's Nature School also emphasises biodiversity, hiking skills and environmental responsibility.

In Nurturing Affinity to Nature through Outdoor Learning in Special Places — NANOL Erasmus + project, the focus was on developing the Forest biodiversity program at the nature school and on providing teacher materials, trainings and workshops on the same topic. The focus of the development process has been on bringing student-centred approaches to the pedagogical approach of the nature school.

Motivation and main objectives

As the nature school of Haltia is situated in the forests of Nuuksio lake uplands, the focus of the project was to develop outdoor learning in the forest environment so that the renewed Finnish National Core Curriculum for Basic Education (Finnish National Board of Education, 2016) is evaluated further. The concept of learning based on the school curriculum regards the child or young person as an active learner, who learns how to set targets, solve problems and reflect on one's own learning

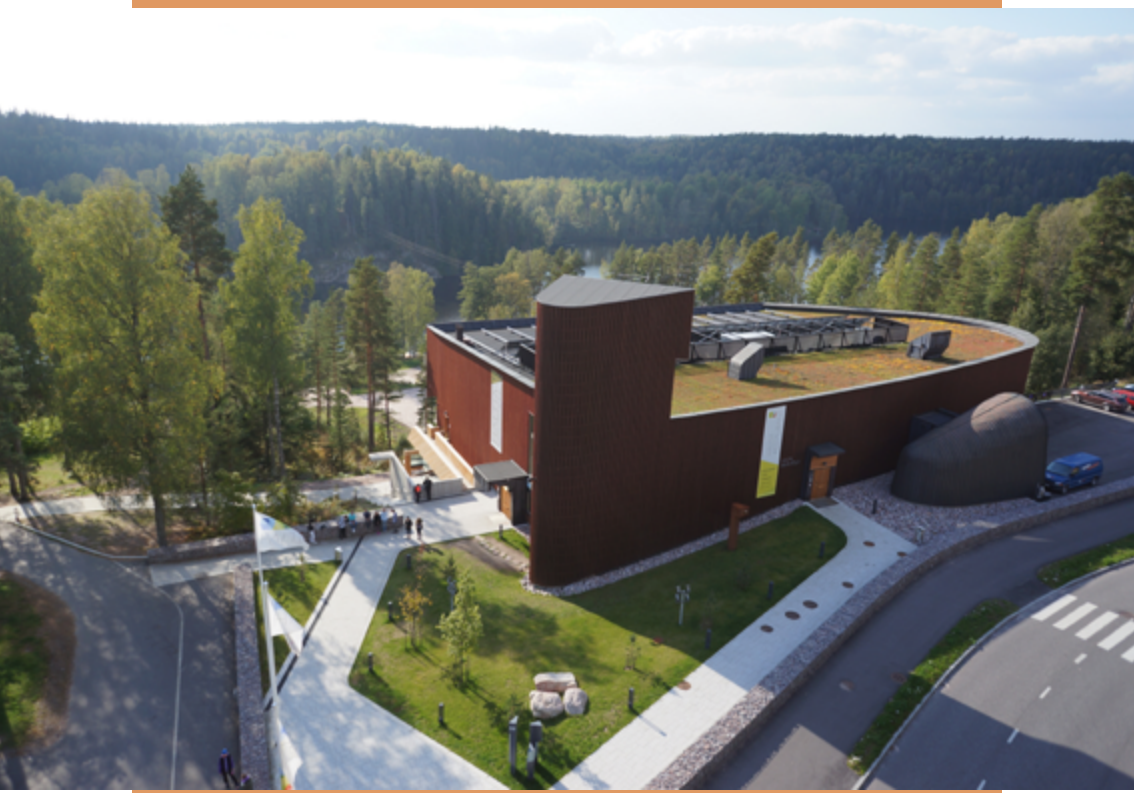

Image 1. The Finnish Nature Centre is a gateway to the Nuuksio National Park and its forests of the lake uplands. The centre offers visitors with information on activities, stunning nature exhibitions, meeting facilities, a restaurant and a souvenir shop. Photo: Metsähallitus Parks and Wildlife Finland, Timo Halme.

in person and together with others. Also, language skills, bodily skills and using different senses are important parts of learning. Learning also takes the feelings and motivation of the learner into consideration. In collaborative outdoor education, all the mentioned skills are emphasised. The Nature School of Haltia's objectives for the NANOL project include supporting the curriculum in an effective way and activating learners with cooperative learning. In practice, this has meant developing activities together with the participating children so that their voices and interests in the natural environment of the forest are heard in the planning process. The aim has also been to carry out a type of learning where the learners are truly active participants and centre points of the learning process. The aim has been to establish collaboration with teachers and young students alike, so that they become part of the planning process of the education offered by the nature school. Everything learned from the process is described and shared with teachers and educators in trainings and in a new reference for student-centred education in the forest.

Collaborative planning of education

The starting point for the project has been to create collaborative planning with schools; both the pupils and the teachers. The School of Nuuksio (Nuuksion koulu) agreed to take part in the project; a meeting was held with teachers to plan and set common targets and then the pupils were invited to join. The teacher took the children on a forest excursion, where they gathered ideas on what they are interested in and what they would like to learn about the forest environment and the species living there. An outdoor forest education day was planned based on the ideas gathered from the teacher and the children. The feedback of the participants was also received at the end of the day.

Additionally, a web survey was sent out to teachers to find out in which areas they felt like they needed more support for education on forest biodiversity. They were also asked to identify the topics that proved to be the most difficult to learn for their pupils.

Images 2. & 3. Taking time to make one's own observations and to ask questions about what is happening in the forest is a valuable learning experience and a starting point to understand the diversity of the forest environment. Photos: Metsähallitus Parks and Wildlife Finland, Jari Kostet & Anna Haukka.

Testing the new pedagogical proposals

After the gathering of ideas and planning for the collaboration school, the approaches were tested, together with the school groups of 10 to 12-year-olds in grades 5 and 6, who came to take part in the 4.5-hour forest nature program at Haltia and the nearby forest. These children gave shared ideas on their interests regarding the forest. Group reflection with the children was used to get an insight into what they had found to be the most interesting and enjoyable parts of the pedagogical program, and if they felt like they had learnt something. Every teacher received a feedback form, which they filled afterwards to give feedback, e.g. on how well the program responded to the school curriculum. Moreover, during the project period, we went through the auditioning of the same program for the certification system of the Network of Finnish Nature and Environmental Schools (in Finnish: LYKE verkosto, www.luontokoulut.fi) and thus received feedback from colleagues in nature education.

Some of the findings from the feedback received demonstrated that there were certain aspects of the existing educational program that the learners really enjoyed. Thus, we kept some of the earlier ideas, such as activities where the group needs to design their own miniature national park. Apart from these, new types of activities on learning by observing the forest, as well as new games and drama methods, were implemented. Some options were added so that the group could choose what to learn and how they want to learn it on the nature school day.

In teacher and educator trainings, such as at the 100-participant NANOL project seminar "Nurturing Affinity to Nature through Outdoor Learning", we shared insight into the student-centred approaches with other educators in workshops or training courses, while, at the same time, learning further from them as to what the positive outcomes and difficulties are in such educational approaches. Altogether, 5 workshops or trainings were held for national and international groups of educators. The first one of these courses was planned together with an elementary school teacher specialised in outdoor education and representing the association of teachers who teach outdoors, Ulko-opet Ry.

Image 4. Sharing thoughts with others is an important part of learning. Learners are asked to give feedback on the activities to find out which ones they enjoy the most and which ones they find most useful. Photo: Metsähallitus Parks and Wildlife Finland, Jari Kostet.

New approaches to student-centred outdoor learning: Planning a guide for teachers and renewing the nature school programme

To implement the ideas gathered from the different participants, we used observations, feedback and ideas from the school groups, discussions with colleagues and NANOL-project participants as well as literature on outdoor education and student-centred pedagogy to formulate the pedagogical and didactic principles of student-centred outdoor learning in the forest. These principles include how to take the learner's ideas and motivation into account, how to plan with them, and how to choose methods which are motivational and in which the learner's own ideas, reflections and interests are the starting point of the learning process.

The new principles for student-centred learning in the forest were used in all the outcomes of the project at the nature centre and beyond, for the development of the Forest biodiversity program, teacher trainings and materials for the independent use of the school. The final material has been uploaded onto MAPPA — the Finnish National Digital Material Bank for Environmental Education and the teachers and educators have been encouraged to put this knowledge into practice as much as possible.

Final products

The final products of the project provide support for schools and other education professionals in arranging student-centred education methods in and about the forest. These are:

- Planning the education together with students and teachers.
- New teacher and educator material.
- An updated forest biodiversity program for the nature school with better student-centred approaches.
- Arranging a national seminar on outdoor education in June 2019 at the Finnish Nature Centre Haltia to spread the

knowledge acquired from the NANOL-project.

- Arranging 4 other workshops and educator trainings for national and international audiences: 2 free-of-charge teacher trainings at Haltia, a workshop at the national Swedish language seminar on outdoor education, and a course for visiting Chinese teachers and educators.
- Presenting the project at the "European Parks: Inspired by the Next Generation" Europarc Conference in 2018. The conference focused on youth involvement in protected areas. "Raising affinity to nature through learning by doing" was presented in the workshop "Nature education — protected areas as learning places".

The final guide of pedagogical principles, including examples of activities for student-centred planning for learning about the forest in the forest, can be uploaded here: https://julkaisut.metsa.fi/julkaisut/show/2407

Image 5. "I want to learn…" Using student-centred approaches in the forest. By enabling the learners to choose what they wanted to learn and how they wanted to learn it, we have seen increased motivation for doing the activities. Photo: Erasmus+ NANOL project, Dejan Putrle.

The principles of a student-centred nature educator are:

1. Planning together with everyone and giving learners the responsibility for arranging the excursion.
2. Finding out what the participants are interested in and choosing learning tasks based on that information.
3. Choosing tasks for learning by doing so that everyone, regardless of their level, can take part in them.
4. Making sure that everyone can participate and leaving no one out.
5. Constructively building the teachings on the previous skills and knowledge of the learners.
6. Reflecting on the learning experience together with everyone: What went well? What could have been improved? What was fun? What did everyone learn?
7. Stepping out of the practice where the teacher is the provider of information: Training yourself to teach and guide in a way that makes everyone participate actively in producing the information and learning, instead of being a passive participant.

Thanks to collaborators

We would like to thank the following collaborators and project participants for their valuable input:

- All the children who took part in the nature school days on forest biodiversity and shared their thoughts on how to improve the program. We would especially like to thank the three groups from Espoo, who took part in the research questionnaire and their teachers, who kindly helped us run the questionnaire.
- The School of Nuuksio (Nuuksion koulu) in Espoo, whose teacher and 5 to 6-grade pupils took part in the planning of the education in the forest.

- All the teachers who answered the web questionnaire on learning about the forest
- All the collaborators in the Erasmus+ NANOL project who helped us get inspired about new educational methods and reflected together on the process
- Teacher Ulla Myllyniemi, from Ulko-opet Ry https://www.facebook.com/ulkoopet, https://www.suomenlatu.fi/yhdistys-ja-toimintapistehaku/yhdistys/ulko-opet-ry.html
- The Finnish Environment Institute, SYKLI https://www.syke.fi/en-US
- The Nature School of Vantaa http://www.vantaanluontokoulu.fi/en/

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3. The involvement of primary school children in the management of educational terrestrial areas

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Accueil et Découverte en Conflent

The association "Accueil et Découverte en Conflent" is an educational NGO that works in the Natural Reserve of Py, France. This is a protected area of almost 4000 ha in the Canigó Massif, at the intersection between the "Parc Naturel Régional des Pyrénées Catalanes" and the "Grand Site du Canigó".

The association has more than fifteen years of experience in designing teaching materials and activities related to the values of the Natural Reserve of Py. Their goal is to facilitate knowledge through outings and on-site discovery, adapting the activities to different audiences and needs. The association shows the qualities of this protected place to the schools and students, but also to the large public by offering pedagogical activities through school activities and workshops, training stays for the technicians and program designs and pedagogical tools. Outdoor learning can take place in two languages: French and Catalan. Three-, five — or ten-days residential stays are also possible in the "Centre d'Initiation à l'Ecologie Montagnarde Les Isards", a well-equipped facility with room for 40 people.

The association is also involved in other specific actions, the organisation of local events, the hay week or the markets in the Rotjà valley, among others.

"Accueil et Découverte en Conflent" is also an active member of the "Réseau Education Pyrénées Vivantes", a network that comprises 60 environmental education centres from the two sides of the Pyrenees (France and Spain), with the aim of creating educational materials and encouraging cross-border exchanges.

The educational terrestrial areas

In France, nature reserves are protected areas determined by the Government which have three inseparable missions:

1. To protect natural environments, animal and plant species and geological heritage.

Image 1. Environmental Education Centre CIEM Les Isards and Natural Reserve of Py, where “Accueil et Découverte en Conflent” operates. Photo: David Morichon.

2. To manage the area among different users.
3. To raise awareness among the public.

"Réserves Naturelles de France — RNF" (Nature Reserves in France) is a national association supported by the State, the Regions, various sponsors and the voluntary membership of the managers. It brings together more than 700 nature professionals (guards, curators, animators, etc.) who work in nearly 350 nature reserves and carry out coordinated transversal projects, one of which is the creation of educational areas.

An educational area is a confined area (not very large), owned by a city council or a private individual and managed in a participatory manner by the students and teachers of a primary school. Educational areas may be marine or terrestrial. In the terrestrial domain, we find, for example, a small part of the woods, a meadow, or an area where there is a river. This is a pedagogical and eco-citizenship project for increasing knowledge and working on the protection of the environment led by the students. Thus, the class group is at the centre of a territorial dynamic, with the school project, the town hall and the people, as well as the user associations of the natural environment.

Children as land managers

In year 2018, "Réserves Naturelles de France" selected six pilot projects in France for children to experience the educational terrestrial areas. One of these pilot projects is the project we present. It is carried out with two schools; the schools of Fuilla and Serdinya, and it is led by our association, "Accueil et Découverte en Conflent". It is within the framework of the NANOL project, which has made it possible to fund and carry out the project.

The two groups that have taken part in the project are schools that are close to a nature reserve (this is an indispensable criterion for participation). Teachers are highly motivated to develop a long-term project (of at least three years of duration) and practise an active pedagogy that ties learning with the natural environment in the vicinity of the school. Teachers are also interested in creating long-term

relationships with different actors in the territory and inviting students to be involved in the protection of biodiversity and the promotion of sustainable development.

The participants are:

- École de Serdinya. 19 students from CM1 to CM2 (9-11 years).
- École de Fuilla. 16 students taking part in the project (CP, CE1, CE2, CM1 and CM2) (6-11 years).

Objectives of the project

Thus, the general objectives of the project we present are the following:

- To preserve the environment through the creation of territorial synergies between the inhabitants, the educational community and the local stakeholders.
- To mobilise schools and stakeholders by enhancing the relationship with the school and community to bring about a new balanced relationship between society and the environment through sustainable development.
- To strengthen and create long-term and stable links with the schools of the valley and their surroundings.
- To involve teachers in a long-term program to ensure that are connected to their natural reserve children throughout their schooling.
- To allow the children of the valley to appropriate their natural reserve through the discovery of the nearby environment.
- To place children at the heart of citizen actions in their territory.
- To develop the eco-citizenship of the youngest and to provide education for sustainable development through a participative approach for the management of a common good.
- To introduce students to the nature around them through this project.

To reach these objectives the actions planned are:

- To link this project with the pedagogical terrestrial areas of "Réserves Naturelles de France" (a small part of a natural reserve that is managed by a school).
- To provide schools with a minimum of outdoor activities in the terrestrial areas per academic year to ensure the effectiveness of the project.
- To design and create, together with the teachers involved in the project, the pedagogical tools to facilitate outdoor learning activities.
- To organise training days for in-service and pre-service teachers in accordance with the school inspections and the "Écoles supérieures du professorat et de l'éducation — ESPE" (Higher Schools of Teachers and Education).

Phases of the project

As the project is three years long, it has been structured into the following phases:

- Phase 1. April-July 2018: Contact with the teachers of the schools in the valley (Fuilla and Serdinya schools) and at the same time with other partners (Department of the Eastern Pyrenees, Region, Parc Naturel Régional, Inspection Académique Pyrénées Orientales).
- Phase 2. July-September 2018: Program design (themes, duration, tools, etc.). Joint work with teachers related to educational terrestrial areas.
- Phase 3. September 2018-July 2019: Implementation of the program. Presentation of the project to the students. Introduction of the "Réserves Naturelles de France" and the reserves of the Department of the Eastern Pyrenees; the missions of the natural reserves and the main characteristics; contact with the town councils to find some communal terrain so that it becomes an educational terrestrial area; students

Image 2. Visit to one of the three potential educational terrestrial areas. Photo: Accueil et Découverte en Conflent.

visiting three different places for the class to choose one to protect and manage for three years; signing of the agreement between the school and the City Council; initial studies and observations carried out by the students with the support of the staff of the Natural Park; and the study of the possibilities that could be employed to manage the land.

- Phase 4. September 2019-March 2020: Implementation of the actions for managing the land. Review of the program, communication of results and decision-making for future actions (What to study, what to do, how to make it known?) Possibility of organising a complete day for biodiversity.
- After the NANOL project: The two educational terrestrial areas of Fuilla and Serdinya are maintained. The association "Accueil et Découverte en Conflent" aims to find new funding from the Department of the Eastern Pyrenees, the

Image 3. Once the educational terrestrial area has been chosen, children will measure the terrain and study it. Afterwards, they will decide on the actions to manage it. Photo: Raquel Heras.

Occitania region or the Regional Natural Park of the Catalan Pyrenees, which will allow us to continue the project, help the schools involved, and, if possible, to develop new educational terrestrial areas.

To conclude

In this project, we place schools and students at the centre of the acquisition of knowledge and competences within the framework of education for sustainable development by allowing them to decide on and take actions to protect the environment they have in their land (depending on the educational terrestrial area they have: Riparian zones, forests, wastelands, etc.).

Therefore, this is a citizenship approach where students become actors in the participative management of a common good. At the same time, it is a matter of reinforcing the intergenerational link, the dissemination of knowledge about the environment around the participants and to teach them the uses and the culture related to the management of a space, together with the professional managers.

The creation of an educational terrestrial area fully accomplishes the pedagogical and civic dimensions of school education. It uses a project-based learning approach which makes learning possible through the combination of experience and theory. This teaching method, in which students learn by actively engaging in a real-world and meaningful project, is particularly effective for transversal pedagogical approaches.

The idea of "Accueil et Découverte en Conflent" is to make this program sustainable and available to all the schools of the valley so that students get to know their natural reserve. Long-term projects like this one (3 years), which take the environment around the school into account, invite students and the whole society to be involved in the discovery of the richness of the village.

Being partners in the "Nurturing Affinity to Nature through Outdoor Learning in Special Places — NANOL" Erasmus + project has allowed us to create new activities and pedagogical tools to better discover the natural reserve, as explained in this chapter.

What is next

In November 2018 and January 2019, we met the academic inspector of the Eastern Pyrenees to present the projects for the schools of Fuilla and Sedinya within the framework of continuous in-service teacher training, in autumn 2020. The aim is to present the evolution of the two projects carried out during two academic years, to present the strengths and weaknesses of the educational areas, and evaluate the first results and the prospects for the following years. There is a possibility of starting new projects with other interested teachers.

Training days related to this subject are also planned for pre-service teachers in the École Supérieur du Professorat et de l'Éducation —

ESPE (Higher School of Teaching and Education) in order to spread and reinforce these practices among the teachers.

To know more

http://tram66.org/

http://cat.repv.org/

http://ciemlesisards.org/

http://www.reserves-naturelles.org

http://www.aires-marines.com/Ressources/Educational-Managed-Marine-Area

http://www.dailymotion.com/video/x54owq4

Thanks to

Students from the school of Fuilla and their teacher, Nicolas Laporte.

Students from the school of Serdinya and their teacher, Barbara Blaise-Lavaux.

The town councils of Fuilla and Serdinya, and the Mas d'en Benissac (Fuilla).

Josep Parera, technician of the Nature Reserve of Mantet.

4. ICT as a means to encourage contact with nature

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CŠOD Rak Centre

CŠOD Rak Centre is a part of the Centre for School and Outdoor Education (Centre šolskih in obšolskih dejavnosti — CŠOD), which has 25 residential centres and 6 day-centres with over 40 day-programs for outdoor education throughout the territory of Slovenia. CŠOD is a public institute and our school programs are part of the compulsory public-school system, so all our school programs are partly financed by the state budget. Our mission is to help schools implement their programs in nature in a way that shapes and promotes healthy lifestyles, responsible attitudes towards the natural environment, enhances respect, cooperation and the acceptance of diversity and tolerance. Our features allow for a greater consideration of didactic recommendations, and, above all, focus on achieving the objectives in the social and emotional areas as well as opinion formation.

Our centre is situated in nature, in a Dinaric-Karst forest, away from urban centres in the area of two Nature Parks: Rakov Škocjan Landscape Park and Notranjska Regional Park. In the context of the above-mentioned goals, students can see and get to know the forest and its natural inhabitants and Karst phenomena at our centre. In addition, the activities are combined with sport activities like canoeing, cycling, climbing, archery, trekking and orienteering.

Motivation for developing ICT tools to encourage contact with nature

Since CŠOD has 27 years of experience in outdoor learning, our intention is to develop as many good tools and programs as possible to bring nature to the young. We are constantly trying to develop new learning strategies and approaches.

Children are increasingly losing contact with nature, which has negative effects on their overall development and their attitude towards nature. Besides that, nature has great potential for experiential learning. Due to the growing alienation of young people from nature and many opportunities that nature offers for learning, there is growing need for learning in nature.

Image 1. CŠOD Rak Centre. Photo: Dejan Putrle.

In line with all we have mentioned above, our goals were to create new educational trails with the use of the ICT in a deliberate way to bring nature closer to children, and to motivate and help teachers from neighbouring schools to use nature as a classroom. We have offered support to the teachers in the development of their programs.

We encourage the permanent use of new educational trails for school and educational purposes. We have included the educational trails in our own free smart phone or tablet application called "CŠOD misija" (CŠOD mission).

How we started

We approached all four neighbouring schools in our area and offered invited them to cooperate in this project. Three of them accepted to cooperate. The schools chose to participate in the preparation of

educational trails. One school also opted for a professional field trip for teachers.

We organised a seminar for teachers who had decided to make an educational trail to teach them how the ICT educational trails in our application work and how to prepare the material for the trails they wished to create. After the teachers prepared the materials, we incorporated them into the application for creating new educational trails.

On the professional field trip for teachers, we introduced them to the Rakov Škocjan Landscape Park with its natural phenomena. Although most of the teachers came from nearby towns and villages, their knowledge specific to our Landscape Park and their use of teaching tools was limited. Their knowledge was also expectedly lower than the knowledge of our teachers who were daily using parks and nature as a teaching tool for years. We also gave them examples as to how we use this outdoor classroom for the groups of children who come to our centre.

We also decided to make one educational trail by ourselves. Its main purpose was to experience nature.

Final products and results

As a direct result of this project, 15 new educational trails have been made — 14 by the teachers from the neighbouring schools and one that we made by ourselves. At least 5 additional educational trails emerged, when the teachers who created the trail in our project encouraged their colleagues to make their own educational trails. The trails are listed in the table below:

Name of the trail	It covers the field of …
Pogledam naokrog: pomlad je tu (I look around: spring is here)	Nature
Slovenska Sibirija (Slovenian Siberia)	Nature

Image 2. Professional ICT field trip for teachers organised by CŠOD. Photo: CŠOD.

Name of the trail	It covers the field of …
Radovedni potep (Curious wander)	Nature and Cultural heritage
Od Ribnice do Sv. Ane (From Ribnica town to St. Ana)	Nature and Cultural heritage
Popotovanje od Cerknice do Rakeka in nazaj (Traveling from Cerknica town to Rakek town and back)	Nature and Cultural heritage
Slivnica (Slivnica hill; educational trail in Spanish)	Nature, Cultural heritage and Spanish
Slivnica (Slivnica hill; educational trail in English)	Nature, Cultural heritage and English
Kulnadedi Planine (Cultural heritage of Planina village)	Cultural and Natural heritage
Prvačina (Prvačina village)	History, Geography, Cultural and Natural heritage
Po poteh kulturne dediščine Cerknice (Following the paths of the Cerknica town cultural heritage)	Cultural heritage and History
Kulturna učna pot po Postojni (A cultural learning trail in Postojna town)	Cultural heritage and History
˝En giro˝ po Kopru (A circle around town of Koper)	Cultural heritage and History
Od šole do šole (From school to school)	Physical education, recreation and History and Cultural heritage
Reševanje matematičnih problemov v okolju (Solving mathematical problems in the environment)	Mathematics
Matematika 4, 5 – merske enote (Mathematics 4, 5 – units of measure)	Mathematics
Matematika 4, 5 – besedilne naloge (Maths 4, 5 – text assignments)	Mathematics
Geometrija v naravi (Geometry in nature)	Mathematics - geometry
Uršulin računalniški potep (Ursula's computer wander)	Computing
S pravopisom na potep (Wandering with spelling)	Slovenian language - spelling

Name of the trail	It covers the field of …
Sprehod v naravi (Walking in nature)	Nature

Table 1. List of educational ICT trails developed.

With 20 new educational trails in a relatively small area, project "Nurturing Affinity to Nature through Outdoor Learning in special places — NANOL" has, therefore, greatly contributed to the approach of learning and education in nature at the local level. In addition, educational trails have been made publicly available and have become a new resource for self-directed learning and sustainable tourism.

A very positive finding was that the educational trails that were made covered a very wide spectrum of fields or school subjects. So, the value of outdoor learning is not only recognised by the science and biology teachers, but also by others.

We would also like to point out that teachers have deepened their knowledge of nearby natural areas and received some ideas on how to use them as a classroom in nature as a result of the professional field trip.

What we have learnt

Last, but not least, as an important result for us, as partners in the NANOL project, the project has allowed us to exchange a substantial amount of useful good practices in the different meetings held. Some of them have already become regular practices for our program, and we are planning to incorporate others in our program in the near future.

I would like to highlight the positive energy which has emerged among all the project partners since the first meeting and which has persisted to the end, enabling quality, productive work and ideas, high motivation and a desire to be able to join our forces again in one of the future projects.

Image 3. CŠOD educational ICT trails developed. Photo: Dejan Putrle.

To know more

All trails are available on our smartphone or tablet application "CŠOD Misija". It can be found on following address:

https://play.google.com/store/apps/details?id=si.digied.naturequest&hl=sl

The English presentation of the application can be found on following address: https://www.youtube.com/watch?v=82hnpLI9TAU

The application is in constant development and there will be more of its content available also in English and other languages in the future.

CŠOD: https://www.csod.si/

5. Starting up “The school in the Natural Park of the *Capçaleres del Ter i del Freser”* pedagogical programme (Eastern Pyrenees, Catalonia)

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Alt Ter Environmental Education Centre Association - CEA Alt Ter

The Alt Ter Environmental Education Centre Association (original name in Catalan: "Associació Center d'Educació Ambiental Alt Ter" — CEA Alt Ter) is an association of professionals in environmental education with different backgrounds (veterinarians, biologists, environmentalists and pedagogues). It was established in 2000, and, since then, it has become a reference point for environmental education in the Ripollès region, Catalonia, Spain.

The aim of CEA Alt Ter is to spread the values of natural and cultural heritage among the society on the Catalan side of the Eastern Pyrenees. CEA Alt Ter is involved in the Catalan Society of Environmental Education ("Societat Catalana d'Educació Ambiental" — SCEA) and collaborates in improving the quality of environmental education centres in Catalonia.

Image 1. CEA Alt Ter team. From left to right: Sergi Del Pozo, Xavier Bachero, Maria Llover, Pau Ortiz and Àngels Gardella. Photo: Associació CEA Alt Ter.

CEA Alt Ter is also part of the the cross-border network "Xarxa Transfronterera d'Educació Ambiental Pirineus Vius — Réseau Transfrontalier d'Éducation à l'Environment Pyrénées Vivantes (XEPV)", together with French, Andorran and Spanish organisations, in order to promote educational cooperation between these countries.

The natural park

In 2015, "Parc Natural de les Capçaleres del Ter i del Freser — PNCTF" (Headwaters of Ter and Freser rivers Natural Park) was established in the Pyrenees, at the northeast of Catalonia. One of the priority actions of the managers (Department of Territory and Sustainability, Government of Catalonia) was to invite people, mainly the inhabitants of the area, to get to know the Natural Park so as to promote the feeling of belonging and involvement in its conservation.

On the other hand, the unique natural and cultural values of PNCTF made it a very interesting educational resource close to the Ripollès schools. For this reason, it was considered a priority to organise trainings aimed at teachers in the region to spread these unique values and to create the educational tools for them to use.

Teachers' involvement in the creation of the educational programme

Thus, in 2017, the CEA Alt Ter Association, together with the Ripollès Educational Service (Department of Education, Government of Catalonia), and supported by PNCTF (Department of Territory and Sustainability, Government of Catalonia), organised a training course, divided into two academic years: 2017-2018 and 2018-2019. The course involved 24 teachers of 12 local schools in the creation of a pedagogical program related to PNCTF within the framework of the European project Erasmus + "Nurturing Affinity to Nature through Outdoor Learning in Special Places — NANOL". Educators from CEA Alt Ter led and coordinated the training course for in-service teachers in the Ripollès region.

Apart from the knowledge on PNCTF acquired by the teachers, outputs from this course were also pedagogical tools and materials linked to official curricula that teachers could use in their teaching. Also, a certified training that was recognised by the public administration and that is useful for the teachers' professional careers.

The main goals of the initiative were:

- To promote the knowledge of the natural and cultural values of this space (PNCTF) by inviting teachers to be involved in the creation of pedagogical resources.
- To motivate a change in teachers and empower them to do more outdoor learning to encourage learning about, in and for the natural environment.
- To encourage school activities in PNCTF, emphasising the emotional bond between school children and the park, so that they know the park, value it and have a sense of belonging to the place.

Contents and timing

For the academic year 2017-2018, training included in-classroom and outdoor formative trips to PNCTF with the teachers. The contents of the course addressed aspects related to basic knowledge of PNCTF (physical environment, bioclimatic aspects, natural, geological, cultural and landscape values, traditional and current human activities, protected space regulations), as well as guidelines and examples for the design of pedagogical activities and materials, and the creation of new activities for the pedagogical programme of PNCTF.

During the following academic year of 2018-2019, the pedagogical proposals developed in the previous year were put into practice with the students from the different participating schools. These pedagogical proposals were structured into the following categories:

- preparation activities, usually carried out in the classroom to contextualise outdoor learning activities in PNCTF;
- field trip to PNCTF to discover and engage with the protected area;

Image 2. Teachers taking part in training activities. Photo: Associació CEA Alt Ter.

- follow-up activities to reinforce and expand knowledge.

At the end of the year, an evaluation session was held with the teachers of the schools that took part in the implementation of the pedagogical proposals to collect suggestions and modifications. The purpose was to improve the strategies and pedagogical materials created in order to adapt them to the maximum curricular and competency needs of the students.

Image 3. Activities with children in PNCTF. Photo: Associació CEA Alt Ter.

Conclusion

The experience presented is supported by references that encourage school and community collaboration (Chawla, 2008; Espinet, 2014; Espinet and Zachariou, 2014; Evans, Whitehouse and Gooch, 2012; Palmer, 1998; UNESCO, 2016, among others). Teachers have been involved in the creation of pedagogical materials adapted to their needs. Thus, it is more likely that knowledgeable and motivated teachers will be encouraged to do activities in PNCTF. Moreover, it has been a way of letting schools get to know PNCTF and create a stable link with it. Indeed, it is not the first initiative in Catalonia, there are successful examples like "El Montseny a l'escola" (in English: Montseny at school; Montseny is a Biosphere Reserve), a consolidated programme, managed by the Provincial Council of Girona and the Provincial Council of Barcelona, in which, nowadays, all the schools of all levels of education in the protected area take part in the programme. Thus, the NANOL project has been a starting point that will be sustained by the commitment of PNCTF to permanently support the programme and their activities economically, and to expand it to other educational levels, since it has been currently intended for grades 5 and 6 of primary education (children from 10 to 12 years old).

The total number of students who took advantage of this programme so far has been 459 children from 13 different schools. In the academic year of 2019-2020, the number has increased to 15 interested schools and there is a prediction for growth in the coming years. Future objectives are to extend the programme progressively to the rest of the educational levels of primary education (from 6 to 10 years old) and to invite students from secondary education to be involved.

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To know more

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6. Let’s incorporate more outdoor learning activities at school!

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Kintauden koulu

Kintaus school is a state-funded primary school in the village of Kintaus (about 800 inhabitants) in the municipality of Petäjävesi (4000 inhabitants) in the central Finland region. The new building of the school was built in 2001 and extended between 2011 and 2012 to incorporate early-childhood education and the nursery in the same building. In primary education, the school has 152 pupils from grades 1 to 6 (6-7 to 12-13 years old), 9 teachers, 3 assistants in classes during the day and 3 other staff members.

School attendance hours vary depending on students' age. Thus, 7 to 8-year-old pupils attend school 20 hours/week; 9 to 10-year-old pupils 24 hours/week and 11 to 12-year-old pupils 25 hours/week. School starts at 8:20 a.m. every morning and a typical school day is 3 to 6 hours with free lunch included.

In Finland, compulsory education starts during the year when the child turns seven and municipalities organise the education. It is

Image 1. Kintauden koulu team. Photo: Internet access.
https://peda.net/petajavesi/kintaus/ajankohtaista/juhlakuva1-jpg

tax-funded and therefore free-of-charge for families. The goal is for everyone to have an equal opportunity to receive high-quality education regardless of the income of the family. All schools follow a national core curriculum, which includes the objectives and core contents of different subjects. However, every school interprets the curriculum in their own way. The basis of the curriculum is national, municipalities do their own alignments and schools decide on the details. Thus, the schools themselves draw up their own curricula within the framework of the national core curriculum.

Motivation for deepening outdoor learning

Finland is the most sparsely populated country in Europe, with varied landscapes that include more than 180,000 lakes, and more than 65 per cent of its total land area is covered by forests. Because of these natural surroundings (there are a total of 99 lakes in Petäjävesi) and the new National Core Curriculum for Basic Education in Finland (Finnish National Board of Education, 2016), which supports teaching outdoors, the main reasons to take part in the "Nurturing Affinity to Nature through Outdoor Learning in Special Places — NANOL" Erasmus + project have been:

- To improve practices related to the 'learning in nature and with nature' aspect of education.
- To increase the amount of outdoor learning.
- To spread it to all the grades in our school.
- To share ideas and activities with colleagues to gain motivation.

Our school setting allows us to easily apply outdoor learning to all subjects or have access to a forest, field or lake to enjoy nature all year round. In addition, teachers are free to plan classes outdoors, and our school has a tradition of working close to the environment. Nature art is one of the typical outdoor learning methods and it is also combined with other subjects like maths, Finnish, biology, physical education, etc. Materials more commonly available are: snow, ice, sand, plants, among other natural materials.

Students are in contact with nature during the 15-minute breaks between each lesson, and particularly in Physical Education (skiing, skating, hiking, orienteering, etc.), Science (exploring, testing, observing, collecting berries, mushrooms, taking photos, etc.) and Art (drawing, painting, modelling, etc.). We do outdoor activities all year round despite the weather. All we need to take into account is that the clothes and equipment we use are suitable.

Image 2. Plogging activity during a Physical Education class. Plogging is a combination of jogging and picking up litter. It is an activity that started around 2016 in Sweden and is spreading all over the world promoting increased concern about waste pollution. Photo: Matti Eskelinen.

What we have done

Although the structure of school day is not very flexible and it is difficult for teachers to exchange classes to allow extended time for outdoor learning, from spring 2018 onwards and under the framework of NANOL project, we have designed several outdoor learning activities, which are detailed below:

- Grades 1 and 2 went to visit a lamb farm. The visit was guided by the SEY organisation to promote knowledge about animals and rights. They also provided materials for pupils.
- Grade 1. Riikka's class incorporated one outdoor lesson per week in different subjects as a norm. The location was nature close to the school. Some examples of the activities are:
    - Colours in nature. Students worked in small groups and each group was given a cardboard divided into different sections by colour. The task was to find appropriate pieces of nature based on a particular colour section (e.g. blueberry - blue).
    - Forest bingo. The goal of the process was to observe and recognise different things found in nature. The cardboard was named "bingogamesheet". On the cardboard, there were pictures of things found in nature (e.g. a pine cone). A student won when he/she found all the right things.
    - The celebration of the 100th anniversary of Finland's independence was an opportunity to do some research and recover traditional games. The goal was to get to know children's life in different decades in Finland. Thus, children did some research by interviewing their parents and grandparents about the games/plays they used to play when they were kids. The results of the research were discussed together. We also discussed what kind of games the pupils themselves play. In the discussion, we noticed that kids used to play more outside in the past and that there did not use to be so many toys. Based on the interviews, the teachers planned three different outdoor workshops to play traditional games. Based on the project, a presentation was prepared for the school's celebration of the Independence Day.
- Grade 2. Elina's class focused on maths in nature. Thus, they organised different outdoor tasks. They also took part in the International Outdoor Learning Day (Ulkoluokka-Päivä) and got to know the plants in nature with the parents in the "flora-working" project.
- Grade 3. Heikki's class organised outdoor games to play with pre-school children and got to do a handicrafts project. They

also played volleyball at the beach and swam in the lake. They went skating on Valentine's day.

- Grade 4. Matti's class organised a photo exhibition called "Finland — Winter Wonderland", which was displayed in the local library and as an online video exhibition. Pupils decided on their own projects, which could be photos, advertising, opening ceremony or Christmas cards. Other photo exhibitions themes organised afterwards are "How can we affect nature and people?" and "Autumn colours" (image 3).

Matti's class took part in Europe Day with a photo exhibition. It was held on the 9th of May 2019, in central Finland, Jyväskylä, with the aim of getting to know the projects that are funded by EU.

- Grade 5. Terhi's class went hiking to the lake beach nearby and swam and played in the lake.

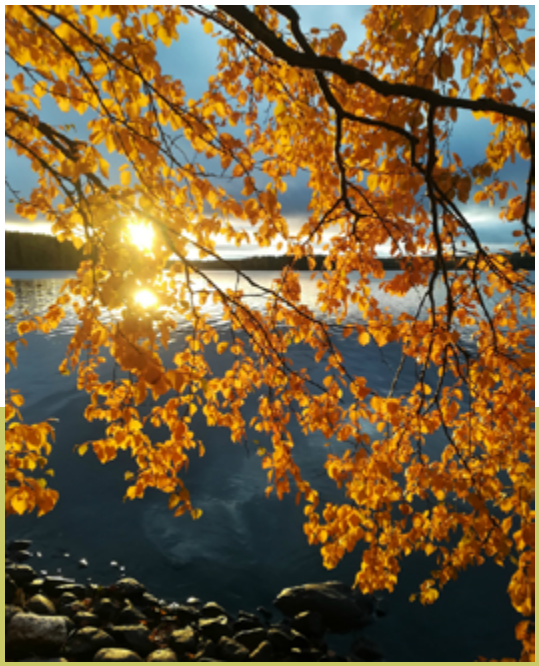

Image 3. Photo of "Autumn colours" exhibition, which was held in October 2019. Picture by student Roosa Kyllönen.

- Grade 6. Vesa's class participated in a camp school in February. They skated and did ice climbing.

In addition to the activities described, there is an annual nature project for the whole school, which consists in monitoring the changes in seasons by observing animals (birds), plants, mushrooms, etc.

Pupils also take part in generating ideas for Instagram (and hashtags) for the school's account @kintaudenkoulu, #kintaudenkoulu. Mostly, the pictures and stories are about nature activities in nearby nature.

References

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The Finnish National Agency for Education (www.oph.fi/en) is a national agency that is responsible for the development of early childhood education and care, pre-primary, basic, general upper-secondary, vocational upper-secondary and adult education in Finland. The Finnish National Agency for Education functions under the Ministry of Education and Culture and its tasks and organisation are set in the legislation.

Outdoor class day: https://ulkoluokkapaiva.org/ (Suomi - Finnish)

https://outdoorclassroomday.org.uk/ (English)

SEY Finnish Federation for Animal Welfare: https://sey.fi/en/

7. Two academic years based on outdoor learning

Marie Corbino

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L'École publique élémentaire de Lascelle

The experience I present has been carried out at "École publique élémentaire de Lascelle" during the academic years of 2017-18 and 2018-19. "École publique élémentaire de Lascelle" is a state-funded rural school in "Parc Naturel Régional des Volcans d'Auvergne", France. The school has, depending on the academic year, around twenty students of primary education (grades 1 to 5, from 6 to 11 years old). The main feature of rural schools, apart from being geographically isolated and having a small population size, is the multi-grade classrooms which are heterogeneously organized with regard to the age of the students. Thus, the experiences presented are carried out with the whole school population.

Lascelle school keeps close relationships with the town council of Lascelle and the Natural Park "Parc Naturel Régional des Volcans d'Auvergne", and has had previous experiences in learning outdoors through several environmental education projects linked to the Natural Park, such as: nocturnal raptors, nature around the school, day hike with flora study and landscape reading, work on waste and consumption reduction, among others.

Image 1. Lascelle school. Photo: Marie Corbino.

Why we are interested in outdoor learning

The motivation for deepening outdoor learning has been to bring new experiences to students, new ways of approaching learning, allowing them to take initiatives in their own activities, encouraging questions and seeking explanations and solutions. Involvement in tangible experiential actions in special places has allowed us to develop knowledgeable practices that are respectful of the environment, creating a culture they can expand outside the classroom into their families and communities and, hopefully, continue to practise later in life.

What the official curriculum says

Taking into consideration the curriculum set by the Ministry of National Education of the French Government, it states that all teaching must contribute to developing self-esteem and respect for others and to the formation of judgment. For instance, by observing reality, students come up with questions and get motivated to search for answers in the subjects of science and technology. In Cycle 3 (the reinforcement cycle, from 9 to 11 years old, at school), they explore different areas of knowledge: the nearby environment to identify technological, economic and environmental issues; and the living world to put the concept of evolution in place. By using the investigative approach, the subjects of science and technology teach students to observe and describe, to determine the stages of an investigation and to establish cause-and-effect relationships. They also learn to adopt ethical and responsible behaviour and use their knowledge to explain the impacts of human activity on health and the environment. Geography also leads students to understand the imperative of sustainable development of human habitation on Earth.

More specifically in science programs, environmental issues have to be addressed, such as the distribution of living beings and populations of environments; describing a living environment in its various components; interactions of living organisms with each other and with their environment; linking the settlement of an environment and the living conditions; modification of the population

according to the physico-chemical conditions of the environment and seasons; ecosystems (living environments with their characteristics and population); consequences of the modification of a physical or biological factor on the ecosystem, biodiversity; identifying the nature of the interactions between living beings and their importance in the settlement of environments; identifying human impacts in the environment; human-made development of spaces and its natural constraints and its positive and negative technological impacts on the environment.

Contents we have worked on, related to the environment and the curriculum

Taking advantage of our participation in the "Nurturing Affinity to Nature through Outdoor Learning in Special Places"— NANOL Erasmus + project, I programmed two academic years during which school outings had a great role. During the project, we studied the following issues through practical activities:

- Bees and their kingdom. Life in society (groups of individuals of the same species organised to survive in cooperation). The individuals who constitute a society must be able to communicate with each other, overcome their aggression and have, for example, a memory, as in the case of bees, to remember the social rank they occupy. Thus, we studied the sensory correlations that exist between the members of the same society; and the collective task, which coordinates the acts in such a way that the work performed is coherent and repeated identically in all the societies belonging to the same species. The action of one of them triggers an adapted response from another individual and so on. The deep cohesion of the insects of the hive does not pass, as in mammals, by sexuality or reproduction, since the vast majority of individuals in society are sterile. Curiously, it is the food that will create close relationships between the members of the community and make each individual dependent on his peers.
- The trees thorough the seasons; knowing the different parts of

a tree, relating the cycle of the tree to the seasons, discovering its surroundings and acquiring landmarks in time. The tree is a living being that changes with time. Life around and inside the tree. The community of nature: individuals who live together in a given and specific space. The inhabitants of the forest (fauna and flora) live there because they find everything they need. The food chain approached with a game: eat and be eaten; moving away from the predator and getting closer to favourable conditions, by taking into account the natural habitat and the constraints, water, food, predators, etc.

- The transhumance of sheep. We followed a stage of transhumance with the herd and the shepherds. One night in camp with the flock, observation of the work of the shepherd dogs.
- Creation of vegetable plots in the school yard. Together with all the students, we chose and purchased the seeds and plants, taking into account the conditions of our region, our climate, planting, maintenance and harvest. We were able to obtain

Image 2. Following transhumance. Photo: Marie Corbino.

from the town hall the a rainwater collector installation. The vegetables produced were used as ingredients in some meals served in the school canteen. We discussed the water cycle and the need to save water.

- Life in the pond. The pond is a vast and concrete subject of study. Its discovery made it possible to grasp many notions of ecology and the relationships that humans maintain with natural environments, to collect information on the biology of animal species that inhabit the pond, and to use clues to determine fauna and flora.
- Buron du Cassaïre. We participated in the development of a restoration project with the help of the Heritage Foundation. This allowed us to study the built heritage of the Auvergne Volcanoes Regional Natural Park with the help of an architect, a geologist and a mountain guide. During the centuries of seasonal occupation, burons have been built and have left traces on the summer mountains of Cantal. The burons that

Image 3. School children planting vegetables. Photo: Marie Corbino.

dot the summer pastures show the various architectural transformations linked to the changes in the methods of occupation of the Cantal mountains by human beings. With the geologist, we were able to study the volcanic stones used for the construction. The trip to the site led us to deepen our skills of landscape reading, taking into account the impact of human beings on nature through construction, pathways or activities related to animal husbandry and agriculture.

- We built birdhouses, which we then installed in the schoolyard and garden. During winter, we placed bird feeders and put different seeds so that we observed and studied the birds that were interested in the food offered. In spring, birdhouses served as nests.
- Students were able to participate in several horse-riding cycles. Apart from learning the discipline, we were able to study the care, the food, the morphology of the animal, the equipment necessary for the horse and the rider, etc. We studied herbivore feeding and horse teething, and compared it to other diets. Related to horse morphology, we studied the horse skeleton and its muscles, different modes of animal movement and compared them to human muscles and skeletons. We also studied the reproduction and the birth of a foal. We linked it to the reproduction and birth of other mammals including humans, but also to other species (birds and insects).
- Stick insect breeding. We set up a stick insect breeding project in class. This allowed us to approach the anatomy of insects in general, and, more particularly, that of the stick insect, mimicry, growth with successive moults, the life cycle, the diet, and a specific type of reproduction: parthenogenesis.
- We were able to observe another environment: the coast. We left for five days to be by the ocean. This allowed us to compare this new environment to our usual environment: the architectural heritage, climate, reading of landscapes, flora and fauna of the coast, fauna and flora of the marshes, human footprint on the coast, etc. Each day, there was a "class time" reserved for our "NANOL" notebook, a notebook created from the beginning of the NANOL project to report all related activities.

To conclude

The evaluation of these two years is quite positive. At each outing, I have been able to see the progress and children's acquisition of the concepts discussed. The students have been curious and have asked the teachers many questions. They have had a very active attitude towards the learning process and the workshops offered to them. They have acquired spontaneous behaviours and have been concerned about their environment. They have easily shared their personal reflections, documented and pointed out relevant facts which are important to them and which have sometimes shocked them. By the facts they have reported, I have seen that they have become aware of the role they have on their environment.

Relationship with the various partners (parents, town hall, natural park, associations, Grand Site de France Puy Mary) have been very positive and favourable to the project. For example, Syndicate Mixte du Puy Mary and Parc Naturel des Volcans have provided us with a mountain guide for our outings. They also offered us free activities in nature and we collaborated with them by testing a new activity called "La malle vagabonde" (The wandering trunk), which will be offered in all the "Grands Sites de France" (Great Sites of France).

Many of our activities have been widely reported in the local press.

The parents, who were very supportive of our project, were available and supported me during outings.

For our trip to the Atlantic coast, the three town halls to which our school is connected, the Departmental Council and the Association of Parents of Students allocated grants, which enabled us to carry out this trip. Thus, all activities have been successful thanks to the collaboration received.

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To know more

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https://www.grandsitedefrance.com/

https://www.puymary.fr

http://www.parcdesvolcans.fr/

Acknowledgements

I would like to thank the various partners who brought us their material or physical help and allowed us to carry out our project, which went far beyond our expectations:

The Cantal Departmental Council; the town halls of Lascelle, Saint Cirgues de Jordannes and Mandailles Saint Julien; Cantal Academic Inspectorate; the Auvergne Volcanoes Natural Park; the Syndicate Mixte du Puy Mary — Volcan du Cantal — Grand Site de France; the Parent Association; the Equestrian Centre CantaL'ÉquiLibre; La Plantelière Nature Centre; the CPIE of Auvergne; the correspondents for the local press "La Montagne"; the Rando 15590 hiking association; parents of students; the Aurillac Media Library; the Heritage Foundation; Germain Brunet — Architect. Marc Woitrin — Geologist; The Cantal FAL.

8. A school rooted in its territory

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Dr. Robert school

Dr. Robert is a state-funded school in Camprodon (Catalonia, Spanish eastern Pyrenees) with 224 pupils from 3 to 12 years old and 23 teachers working in different areas of education.

It has a long history working with project-based learning pedagogies related to the school surroundings and community. Since the very first years of its existence, approximately 80 years ago, the school has prioritised establishing links within the environment by getting to know it and integrating outdoor activities in the learning process. One of the main objectives of the school is rooting students into their territory. Thus, Dr. Robert school is committed to including the knowledge of the school surroundings at all levels, not only physical but also social, cultural and historical aspects, in its annual plans. The school collaborates closely with local stakeholders that help teachers to carry out the school transdisciplinary projects.

Image 1. Dr. Robert school is committed to outdoor learning from childhood education to grade 6 (all the levels of the school, from childhood to the last course of primary education). Photo: Dr. Robert School.

The school is also a certified Green School by the Government of Catalonia (*Escoles Verdes* programme, *Departament de Territori i Sostenibilitat, Generalitat de Catalunya*), meaning that it not only takes care of the environment but also people. The "ecological" concept is also understood, taking into account social and human relationships, and democratic participation in decision making at all school levels is encouraged. Other projects the school is involved in are:

- "We eat the valley", which is for increasing knowledge about km 0 food, sustainable consumption and good quality products produced in Camprodon (e.g. local potatoes, foal and lamb meat) and for learning about the social network of the productive sector by carrying out educational activities outdoors.
- "What do we make of our forests", which invites students to learn about the recovery of pastures, grazing livestock and the production of forest biomass as renewable energy sources.

Why we enrolled in the NANOL project

As noted above, the environment is one of the main characteristics of our school. One of the objectives of our "Projecte Educatiu de Centre" — PEC in Catalan (Educational Project of the School, a public document which all schools must have by law and which specifies the main values, objectives, pedagogical principles and priorities of the centre) is rooting children in their territory. Our annual centre curriculum has included the knowledge of the immediate environment, that is, the physical environment, the heritage, as well as the people and entities that have been connected to our municipality for years, among other issues. We promote an open school, understood as a real educational community, with the participation of different experts, which allows us to enrich education. The methodology used is always based on an educational project, an active pedagogy with a very special look at the environment. We want to bring the children closer to this knowledge, enhancing their values of esteem and learning through direct contact with their surroundings. That is why we are convinced

that they must personally experience their surroundings and know how to move around them to understand their value.

Because we have a long history of linking learning to the school environment, we thought that taking part in the "Nurturing Affinity to Nature through Outdoor Learning in special places" — NANOL Erasmus + project, would give us the opportunity to rethink, order, renew and improve our existing projects. For this purpose, we created the NANOL commission with the school teachers and got involved in a professional training which was officially acknowledged by the Department of Education of the Government of Catalonia.

Main objectives

The main objectives of taking part in the NANOL project have been:

- To share experiences with other centres related to projects in the environment.
- To improve and update our work in the environment by applying active methodologies to see the environment as a whole.
- To have the advice of experts to carry out the proposed work.
- To improve the application of scientific process as a transversal axis.
- To encourage the use of digital tools to update field work.

How we have made it

To organize NANOL-related work in our school, we planned four phases, which are:

- Phase 1. *Planning and organisation*. At the beginning of the project (from October 2017 to January 2018). Creation of the NANOL teaching staff commission to share project tasks according to the needs of the working phase: collaboration

in the preparation of the meeting in Camprodon, review of school-related documents of the work carried out with the surroundings, search of the material needed for the presentations of school activities for the project, etc.

- Phase 2. *Training*. Academic year 2017-2018. This has been a key point in strengthening the basis of the "Pet project" (each class in the school is named after a featured animal or place in order to study the nearby ecosystem). It has also allowed teachers to update the pedagogical aspects of the work in the environment, which has been reinforced through the network with NANOL partners. This has meant: advising by experts in the teaching staff in a participatory way; joint staff work and improvement; agreements to review and update project-based learning in the environment; exchange of experiences throughout the different meetings with NANOL partners.
- Phase 3. *Application of the first organisational modifications*. Academic year 2018-2019. After participating in the professional training course and the revision of the project, we were sure that there would be immediate structural improvements to the organisation of the school to enhance learning in the environment. Thus, we carried out the following activities:
    - Timetable modifications to carry out the projects with longer periods of time for outdoor learning.

Image 2. Field notebook. Photo: Dr. Robert school.

- Organization of 2 teachers in the classroom to carry out project-based outdoor learning related to the environment.

- Phase 4. *Direct application to teaching and learning strategies*. Academic years 2018-2019 and 2019-2020. In the last phase, after two years of reviewing and updating the project, it was necessary to transfer it to the day-to-day pedagogy at school. A new tool was also introduced to promote working in the environment:
  - Updated activities inside and outside the classroom.
  - Introduction of the field notebook for pupils from five to twelve years old.

The results

Over the last two and a half years linked to NANOL, we have been able to do the following projects and activities:

- Transversal art project "We are nature" (art and nature).
- Participation in the 2nd and 3rd editions of the Congress of Little Scientists of Catalonia, with the presentations "The quality of our river" and "Snow: hydric reserve of the heart of Ter river". At the moment, we are working on participating in the fourth edition of the congress, focusing on the theme of "Hydroelectric power stations in the Camprodon Valley."
- Participation in the National Congress of Environmental Education in Girona: "Weaving alliances to advance in environmental education".
- Carrying out revised and updated activities for the "Pets project" based on the new focus on the environment: a holistic vision of nature.
- Carrying out a training session of scientific illustration with an expert.
- Participation in the seminar for the elaboration of didactic materials for the pedagogical programme of "Parc Natural de les Capçaleres del Ter i del Freser — PNCTF" (Headwaters of Ter and Freser rivers Natural Park).

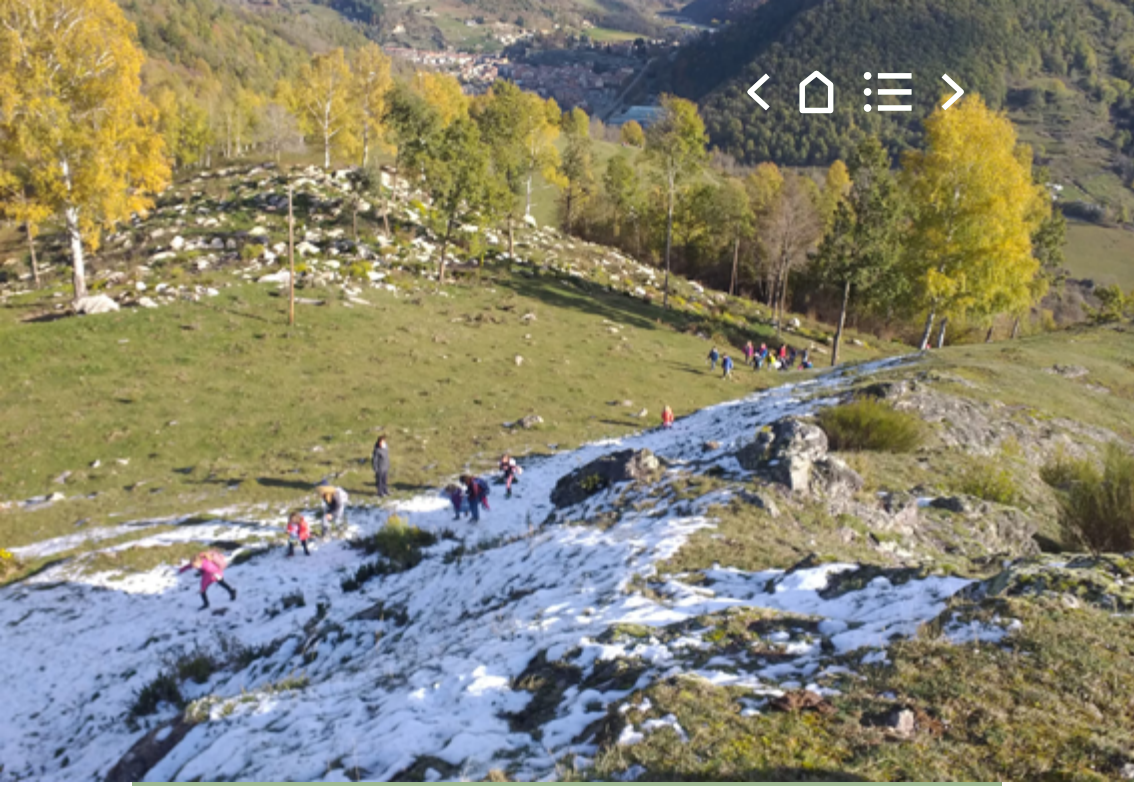

Image 3. Outing near the school. Photo: Dr Robert School.

Final products and reflections

The participation of these alliances has served as an opportunity to update and enrich the work that was already carried out at school, discover new links and promote networking.

It has allowed us to promote the coherence of work to continue with the philosophy of the school and reiterate the established nature of these projects, which were already reinforced in the centre.

At the same time, we have been able to integrate experiences from other participating countries.

We reiterate that the purpose of this work is rootedness and respect for the immediate environment to achieve an integral education for the students of our school.

After doing all this work, final products have been produced:

- A new school document titled "A new vision towards nature. From nature to landscape" related to the updated version of the

"Pet project" and the renaming of classes after the elements of the nearby landscape.

- Introduction of the field notebook for pupils from five to twelve years' old, establishing it as a school work tool.
- Compilation of the collection of activities to do in the environment in a document, based on the exchange of experiences with the other participants of the NANOL project during various meetings.

Our proposals for the future are clear. The first one is that this work on the environment, which we strongly favour, continues in the same manner, strictly following our philosophy of active pedagogy. The second one is that we are able to keep it alive with the same quality. The third is that people who work in the centre are committed to believing and defending education and the love for the environment. And the last one is that we want the students of our school to appreciate their territory as active agents and participants in their learning.

Acknowledgments

We would like to thank Joan Vila for making us aware of the NANOL project (when it was only a thought!) and motivating us to participate in it, and for the time shared at school and outside. We would like to thank Teresa for her support and patience with us, Raquel Heras for inspiring us and making it so easy, Ingrid Mulà for her help and logistical support, Miquel Macias for being with us from the first day and helping us keep the work in nature alive with his unique perspective. We would like to thank the NANOL commission at school for being there whenever we needed them, all the Catalan partners and partners from Slovenia, Finland, France and the United Kingdom for sharing the passion for working in nature with students and for the encounters which have marked us forever. We would like to thank the experts who have come to our school to contribute to the project with their experience and technical vision and all the members of the teaching staff from the last four years for letting us act and believe in this active pedagogy of learning in the environment.

And we would especially like to thank our school children, who have been the reason for, the driving force behind and the meaning in all these efforts.

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9. TwinSpace: Exchanging opportunities and connections in a global context

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eTwinning and TwinSpace

eTwinning is a European educational platform; a digital educational community that responds to global educational challenges. This platform provides educational teams with tools to learn, communicate, collaborate and develop projects together. School collaboration is therefore encouraged, using information and communication technologies, and the platform also supports schools by providing the tools they need to develop joint projects. In addition, eTwinning also offers free online professional development opportunities for teachers.

Since 2014, eTwinning has been part of the Erasmus + program, the European Union program in education, training, youth and sports. eTwinning offers TwinSpace, the workplace for project centres and partners. This is a safe and appropriate platform where the planned activities take place. Students and teachers are the main users of TwinSpace, and they access it with a profile of individual access, since it is a private space only accessible to the people who have been registered by the administrators. We also intend to include people who are not registered on the eTwinning platform, which allows students, parents or other teachers to work on or follow up on the project.

In order for students to take part in networking from the beginning, they need to have a good organisation and planning system for tasks as well as creative and imaginative activities.

The content of TwinSpace can be made public, in whole or in part, if the people in charge choose to do so.

TwinSpace and the "Nurturing Affinity to Nature through Outdoor Learning in Special Places" – NANOL project

One of the goals of the "Nurturing Affinity to Nature through Outdoor Learning in Special Places" (NANOL) project is to share educational experiences with the partners. Therefore, it has been considered appropriate to use this platform to invite students from the three schools participating in the project (Kintaus school in Finland,

Lascelle school in France and Dr. Robert school in Catalunya, Spain) to have a connection with each other and work online. The idea is to share the different educational proposals which have been carried out in each school and which are related to the NANOL project. So, the "Creating learning outdoor experiences" project was started by using this tool so that the students of the three schools get to know each other, work on common proposals and feel that they are part of the NANOL project.

In line with what is being promoted as part of the project, the proposed activities combine work outside the classroom, in contact with the immediate environment of the school, with online work via connection and exchanges through the digital platform.

All the proposals of the project have the following objectives:

- Giving added value to meaningful outdoor learning experiences in spaces of special natural, cultural and landscape value.
- Exchanging experiences and points of view with other students taking part in the project through common proposals.
- Establishing connections and learning about other learning experiences and contexts in the different participating countries.

Given that we are in the digital era and our students are native to this era, it has been thought that an important motivational element is the use of this digital framework to learn through exchange and reflection and as a reinforcement of the practical work. According to Arroyo and Jubany (2018), "Networking can and should be done to learn from others and with others, with appropriate co-operative strategies". This way, children also develop multiple intelligences, emotional education and global competence.

Through this networking project, our students learn to communicate effectively and respectfully with people from different cultural backgrounds, and to learn to express themselves in a clear and confident manner, even when fundamental disagreement is expressed. This type of

work can encourage motivation, effective communication and respect for others if the following conditions are met:

- Communication includes the expectations and perspectives of others.
- There must be activities that generate a real-time digital dialogue so that the dialogue provides opportunities for dynamic interaction.

This interaction, which is generated at specific moments in a relocated, peer-to-peer manner, is the basis for sharing experiences and learning, building a community and identifying with the global society. It is a process for developing the capacity to identify and take diverse points of views, to put oneself in the shoes of the other, which is what we understand as acknowledging a perspective. This ability goes beyond imagining other people's views and allows one to understand how different perspectives relate to one another. Therefore, it is very important to take this opportunity for our students to have relevant interactions with peers in other countries they would not otherwise know. This kind of shared projects bring students closer to discussions and issues that might otherwise never arise. We also want to foster intercultural awareness and respect. Taking part in these experiences within the framework of the NANOL project should also help children to value the diversity of languages and cultures in different countries.

eTwinning and global competence

These educational proposals for students from the different schools participating in the NANOL project, using the TwinSpace platform offered by eTwinning, also aim to develop global competence.

In the PISA 2018 Global Competence Framework document "Preparing our Youth for an Inclusive and Sustainable World", we find the following definition of Global Competence (p. 7):

> Global competence is the capacity to examine local, global and intercultural issues, to understand and appreciate the perspectives

and world views of others, to engage in open, appropriate and effective interactions with people from different cultures, and to act for collective well-being and sustainable development.

Global competence has four dimensions that globally competent people should successfully apply in everyday life (Generalitat de Catalunya, 2018, p. 10):

1. The ability to examine issues and situations of local, global and cultural relevance (for example, poverty, economic interdependence, migration, inequality, environmental risks, conflicts, cultural differences and stereotypes).
2. The ability to understand and appreciate different perspectives and worldviews.
3. The ability to establish positive interactions with people of different national, ethnic, religious, social or cultural backgrounds, or of another gender.
4. The capacity and willingness to take constructive measures aimed at sustainable development and collective well-being.

The main goal of global competence is to connect students from all over the world to have relevant interactions. This exchange reveals commonalities and similar problems. The idea is for students to move slowly to observe the world more closely, to ask new questions, to reflect on how their lives connect with those of other people in other cultures.

In short, this platform and the exchange proposals are a complementary tool or a way of collecting and sharing what is done outside the classroom, in contact with the environment in the different schools participating in the European project NANOL. On the other hand, technology and its easy access make it possible to work with students from other countries by establishing connections and interactions.

Links

eTwinning: https://www.etwinning.net

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10. Simple Activities and Suggestions to Nurture Affinity to Nature

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During meetings with the participating partners of the "Nurturing Affinity to Nature through Outdoor Learning in Special Places" (NANOL) project, we shared resources that were very useful for our educational practice. Through different workshops and dynamics, we reflected on the importance of these activities for primary school children and shared the elements that, through practice, promote learning in connection with nature.

In the first part of this chapter, we will describe some of the resources that can be adapted or used as a source of inspiration to create other resources suited to each school context. At the end of each activity you can find between parenthesis the name of the partner that shared the resource and the centre to which they belong.

In the second part, based on the experience of the partners of this project we provide some tips that may be useful and which may motivate educators to promote outdoor activities in connection with nature and within the primary school age group (around 6 to 12 years old).

Simple Activities to Nurture Affinity to Nature

Out of all the shared activities, we have selected a few. These are the characteristics that they share:

- They are simple and brief.
- The instructions are very clear.
- The timeframes to carry them out are limited and clearly defined.
- The work groups/pairs often change, or the teams can be formed randomly.
- The participants are allowed to make decisions.
- Educators use a tone of voice appropriate to the environment in which they are located and may also use soft acoustic sounds to regroup the participants (for example bells, bird calls or whistles).

- The materials used are simple, yet well thought out and prepared. There are not many elements, since they are only considered a support. There are sufficient materials for all participants and, often, they are shared. Although the material is not essential (as we can use natural resources), it does help to carry out the activities.
- Both children and educators enjoy the activities.

We have classified them in five groups based on their goals:

- Creating groups
- Providing autonomy
- Exploring with senses other than sight
- Carefully observing
- Assessing

Creation of work groups

An easy way to create groups is to distribute image fragments (as pieces of a puzzle) so that the participants may try to find and match them in order to create the whole image. The participants that create a specific image are part of the same group. Based on the desired group size, we can cut the images in three, four, five or more pieces. Each piece belongs to a participant. The images can be related to the theme of the activity (Anna Haukka, from the Nature Centre in Haltia, Finland).

Providing autonomy

1. When we are in nature, we show more enthusiasm, motivation and a disposition to interact with the environment. One way to freely explore the environment is to provide the participants with a map of the area and to decide, in different groups, which of the marked routes to follow. Therefore, each group is given a map, a string on the map that represents 2 km (the route can

Image 1. Forming a random group by matching fragments of an image related to the activity theme. Photo: Mireia Vilalta.

Image 2. Each group chooses the itinerary on the map. Photo: Mireia Vilalta.

be made longer or shorter based on the age) and a compass for guidance. Each group decides with route to take. Time is also limited, so the students are given a specific amount of time to get back based on the age (Anna Haukka, Nature Centre in Haltia, Finland).

2. At the beginning of the trip we make sure that all participants have a device capable of taking photos (camera, smartphone, tablet...). They are asked to choose one to three elements that catch their attention and to photograph them during the trip. Afterwards, they share their findings and explain why they chose them. Based on the images taken by the students, the educators, classmates or the students themselves can raise some questions (what is it, how old is it, why does it happen, etc.). If there are similar photos, the authors can work together to find more information (Anna Haukka and Elina Pilke, Nature Centre in Haltia, Finland).

Exploring with senses other than sight

In this subsection we introduce three versions of the same activity. The idea is to use a blindfold to cover the eyes, as they are our main sense, and let the other senses focus on the environment where we are. In doing so, we can experience the location in a different way and we can better focus on these senses and the information we get through them.

1. Working in pairs, one of the participants uses a blindfold (a scarf or handkerchief, for instance) while the other must guide them by holding their arm and, if necessary, giving the necessary instructions (for instance, by telling them to duck if passing below a lower branch or to take a longer or higher step if avoiding an obstacle such as a fallen trunk or a large rock). The aim is to follow a small route through the place and, once back at the starting point, to do it again so that the person that was blindfolded earlier may do it again with their eyes opened. The roles may be changed and the activity can be repeated so that all participants have the chance to do the activity blindfolded. At the end, each participant can share their perceptions and the elements in the environment they used to find guidance, such as the inclination and the type of terrain, the sound of water if there was a stream close by, the smell of wet fallen leaves, darker and colder spots or warmer and brighter ones, if they touched the surface of a tree, lichen or moss, etc. (M. Teresa Guillaumes, Dr. Robert school of Camprodon). This activity is based on Joseph Cornell's "Blind walk" and "Meet a tree" (Sharing Nature).
2. Instead of doing it in couples, the participants form a line where all the participants are blindfolded. The first person is the guide, who has the eyes opened. They must be very slow and silent. Each participant places their right hand on the shoulder of the participant in front of them and with their left one holds a rope long enough for all of them. They follow a route of 5 to 15 minutes (based on their age) and at the end they share their impressions (how long they think they were walking, the noises they heard, etc.) (Dejan Putrle, CŠOD Rak Centre, Slovenia).

3. Just like the previous case, the blindfolded participants form a line (except the first one, who acts as a guide), if necessary, a shorter one, and place both hands on the shoulders of the participant in front of them. They proceed as above and at the end they share their impressions and try to guess the route that was taken (Anna Haukka and Elina Pilke, Nature Centre in Haltia, Finland).

Carefully observing

In nature, we find elements and situations that need to be observed slowly in order to perceive characteristics and behaviours that we would otherwise miss. The activities suggested below encourage the participants to observe and share their impressions in a fun way.

1. The colours of nature. We ask the children to work in pairs to find an element of nature, without pulling it out or tearing it off, of the same colour as the chosen colour palette (image 3). Once they find it, they come back and they are given a new colour (Elina Pilke, Nature Centre in Haltia, Finland).
2. My work of art. Working in pairs, children are given a cardboard (in the shape of a photo frame) and a clothes peg. They must find and observe a forest space where the frame might be placed and from which they can create a composition with the elements of nature they find, just like a work of art (image 4). Once ready, they might ask another pair to look at their composition and to describe what they see, or the "artists" might explain what they did or what it means. Afterwards, the children can see the creations of all the participants (Elina Pilke, Nature Centre in Haltia, Finland).
3. Features of plants. This activity can be carried out individually or in pairs. The participants must choose a plant, and with the help of a template (see image 5), must write down its features. With leaves, for instance, they can write down the shape, the type of edge, the position, the type of stem, the shape, colour and number of petals on the flowers or the colour of a fruit. They can also take a photo. The idea is that, after completing

Image 3. Colour palette to find elements of nature of the same colour.
Photo: Mireia Vilalta.

Image 4. Cardboard that frames the work of art of the participants.
Photo: Raquel Heras.

the sheet, they can exchange it with another participant or pair and, with the information on the sheet, they can search for the plant, identify it and take a photo to check if it is of the same species (Anna Haukka, Nature Centre in Haltia, Finland).

Image 5. Sheet with guidelines to describe a plant species. Photo: Raquel Heras.

4. From the perspective of a giant. This is an individual activity to work on the senses. We tell the participants that this activity is a present from nature so that they feel good. We give a pencil and a "small ID of our senses" to each participant, which is a piece of paper folded four times. Each square contains the following: the drawn symbol for sight (one eye), smell (a nose), hearing (an ear), touch (a hand), the drawing of a pen or pencil (to write whatever words they like to describe

the feeling during the activity) and a piece of tape that sticks on both sides. We tell them to imagine that they are giants and that, within the space that they are in, they must find a place where they feel comfortable. They also need to write down 2 or 3 things that they see, hear or smell and to imagine which things a giant could touch with their hands and how they would be. They should also write down some words or feelings about that moment. Each of them finds a space and does this introspective work. The children can then choose to share their experiences and must respect those that choose not to do so. Finally, there is a small art activity. They must find leaves, rocks and other elements of nature of different colours and textures and must create a composition on the sticky tape of the ID (Carme Ruset, Association Accueil et Découverte en Conflent, France).

5. Search what I found. This is a game to develop observation skills regarding elements in nature. It also asks questions about plant features, traces or remains of animals and rocks or minerals that we may find. For instance, if we find a leave, the participants must observe the colour, the shape, the nerve arrangement, the edge, the petiole, etc. in order to find another just like that one. How do we do this:

- We work in groups and define an area.
- Each group must find 4 elements in nature (the educator can choose this number based on the age of the participants and the location where they are in) and must take them to the designated place. It is advisable that the group has a blank sheet, located at the designated place, where they might place the objects they find (see image 6).
- Each group stands in front of the findings of another group.
- They must observe and memorise the features of the elements that their classmates found in order to find the same ones (they may not take them to use them as a reference but they can come back to the starting point to look at them). They must find and take those elements to the designated place (they idea is for them to be the same, they must be very similar) and place them next to those found by their classmates. Therefore, they must memorise the clues or features that would allow

them to find the exact element.

- After a certain time, when everybody has finished, we all check and comment whether the elements coincide.
- Each group justifies what they found and the other groups validate their findings. Each equal element is a point. The group with more points wins (Marie Corbino, Lascelle school, France).

6. Instruments to observe in detail. A magnifying glass allows us to see details in nature that we would otherwise miss. In images 7 and 8 we see the magnifying glass used in the Nature School in Haltia. We found this model to be ideal thanks to its shape, which allows us to focus our attention on a specific point.

Image 6. Shows one of the results of the "Search what I found" activity.
Photo: Anna Haukka.

Assessing

In general, the following dynamics are suggested to do the first assessment of the different activities carried out during a trip and to get feedback from the participating children.

1. With their eyes closed. In a circle, either sitting or standing, the educator asks questions that the children need to answer with their arms. If they completely raise their arm, the answer is positive (yes). If they completely lower their arm, the answer is negative (no). If they place the arm at the level of the chest or the waist, the answer is something in between. Some of the questions could be: ¿Did you learn what you wanted to learn? ¿Do want to learn more? ¿Did you enjoy it? ¿Would you like

Images 7 & 8. Monocular magnifier ideal for students and details that can be seen. Photos: Mireia Vilalta.

to do it again? And other relevant questions based on the information you would like to obtain in regards to the activity that took place (Dejan Putrle, CŠOD Rak Centre, Slovenia).

2. With a piece of clothing. For this activity we need a big piece of clothing (maybe a sheet or a fragment of it) with two holes in it (image 9). They each need to have a different shape (for instance one square and one circle). We decide which shape is "yes" and which one is "no". We also need a ball of adequate size to go through them (for instance, a tennis ball). In groups of 4 people, each participant grabs the piece by one corner and they are asked a question about the previous activity. For instance, ¿are flying squirrels mammals? They cannot answer out loud and they need to agree on the answer without talking by moving the ball to the appropriate hole (Matti Eskelinen, Kintaus school, Finland).

3. A rope with two knots. For this activity we need a thick rope, arranged in a circle, with two different knots, one bigger than the other (image 10). It must be long enough so that all participants can take it with one hand. It should not be too rough (something similar to the smooth ropes used in sailing boats) as the children will be moving it. The biggest knot reflects what they learned (knowledge) and the smallest one what they felt (feeling). All participants keep turning the rope until someone wants to give an opinion and reaches one of the knots. They must grab the knot so that the rope stops turning and then they may talk. Only the person grabbing the knot can talk. This allows them to express their opinion at any time. There should be enough time for everyone to participate (Anna Haukka, Nature Centre in Haltia, Finland).

Suggestions to Nurture Affinity to Nature

Below we share an overview of the best practices of the partners of this project (recommendations based on the successful initiatives that are described in detail in the chapters of this publication) so that they may be useful to other educators both in schools and environmental

Image 9. Reinforcing the content that the participants worked on during the activity. Photo: Anna Haukka.

Image 10. Sharing what we learned and how we felt after an activity in nature with the "Rope with two knots". Photo: Dejan Putrle.

education centres and, finally, we reflect on the elements that the activities in nature must include.

- **Establishing good relationships with other entities in the immediate environment.** We agree on the fact that establishing synergies with other entities in the territory has helped us carry out our educational practice in the environment. Although it takes time in the beginning, the idea is to establish ongoing and stable long-term relationships. These collaborations, be they from the municipality or other bodies, the managers of the protected area, families or local businesses, allow us to enjoy certain benefits such as: free or subsidised transport and activities for the students; support staff to maintain child supervision ratios (if necessary, based on the country) during school trips; concession of spaces; participation in projects; collaborative work with other professionals based on the school and syllabus needs in the design of customised activities suited to different contexts; keeping up to date with the actions carried out for the improvement of the territory and engaging, as much as possible, educational centres in these actions; thinking of new educational programs and engaging educational centres in their design; making innovative materials and tools available; and establishing networks with these entities and other professionals who are helping to improve educational practices in nature.
- **Considering children as active agents of the territory where they live**. Children are ambassadors of their local environment and hold the power to decide and act. Taking into account children in the design of activities and making them responsible for their decisions and actions are elements with a great educational potential. When students are involved in the administration of a space, they develop a global vision of the protection of nature. Working in a group, either with experts or with classmates of the same age or different ages (as in the case of rural schools), allows for a wider and richer collaborative framework for learning. For instance, listening to different opinions and points of view and reaching agreements translate into agreed actions for the improvement

of the environment. If children choose what to study, they feel empowered, and teachers feel better as they see students more motivated and willing to learn. Besides learning about their interests, it is important to gather their feedback to improve different educational programs.

- **A good organisation.** We would like to frame a few practical issues. In order to establish an ongoing attachment with nature, it is better to design a long-term program with regular and frequent trips to the environment and not just occasional and sporadic trips, as discussed in chapter 1. Therefore, it is advised to plan outdoor experiences during the entire school year and to establish a period of time in the school schedule for this purpose. These programs may be cross-disciplinary and may include different educational areas or disciplines. Schools need motivated teachers who lead these programs and engage the rest of the educational community. It is a good idea for the coordinator of the program to be a very dynamic person, willing to advance this project despite the lack of time and the syllabus overload that schools experience. It is a good practice to take notes of all the activities carried out in order to repeat them the following year or in the near future. It is also important to consider the ongoing training of teachers by subject matter experts.

  As for doing trips in bad weather, we would like to share the example of Finland: they have adequate clothing and materials to be able to do outdoor activities all year, regardless of the weather. If any of the children are not sufficiently equipped, the school has clothing available (either from lost items, from the recycling centre or from families who donated them). The Finnish syllabus encourages the practice of outdoor activities and it is up to the teacher to decide whether the activity takes place or not, based on the weather.

- **Integrating the "hands-mind-heart" triangle in the design of activities.** When we asked ourselves, "What elements must activities in nature include?", the partners agreed, based on their expertise and after sharing the different initiatives that were carried out in the framework of the NANOL project, that when considering the organisation of a syllabus-related educational activity in nature, we must make sure that the

activity includes the following elements:

- *Direct contact with the object of study through manipulation and by engaging all senses* ("Hands-on leaning"). There are different types of students with different learning styles. Some are more interested in physical (outdoor) learning with activities involving manipulation. This idea is related to the Theory of multiple intelligences. In any case, manipulative activities are, in general, very important for the development of concrete thought. Concepts are easier to understand, better remembered and more entrenched if there is physical engagement – "If you do it yourself, you will learn it better" – as the learning happens through the senses: touching, smelling, observing, hearing, etc. It is important to consider the use of different tools that promote and facilitate this manipulation (not just IT devices). Participation, motivation and creativity increase when we are actively engaged, which is what happens when doing manipulative outdoor activities. These activities also encourage team work and connecting with others, and each participant plays a role that may differ from the one they have in class. We need to take into consideration that for some children these are the only activities they do in nature.
- *Intellectual reasoning and thinking and raising doubts and questions that arise from a given situation* ("Minds-on learning"). Activities in nature increase scientific culture and literacy, the acquisition of concepts concerning the natural world and the lure to science. Procedural knowledge is encouraged (how science works through pattern recognition, classification, inference, correlation, consequences or implications, hypothesis justification, working with evidence, etc.) and higher order cognitive processes are achieved. There are chances to develop individual thought but also social thought or collaborative learning. It is an ideal context to apply active methodologies such as phenomenon-based learning or problem-based learning that may be action-oriented for the improvement of the environment. Another advantage of learning in nature is the capacity to easily work on soft-skills such

as the ability to work in a team, to lead, flexibility and adaptability, communication skills, ethics, problem-solving ability, etc.

- *The emotional part* ("Hearts-on learning") *allows the students to really feel nature*. Without having to ask for it, students experience certain feelings during nature trips, such as freedom, satisfaction, joy, relaxation, awe, surprise, doubt, fear, pride, etc. Trips are usually enjoyed and students seem to want more of them. The attitude of the educators makes a difference. If they show passion, motivation and dynamism, students feel more encouraged. Taking into account this emotional aspect in the design of activities and expressing and sharing feelings in a safe space, strengthens the connection with nature and with the rest of classmates.

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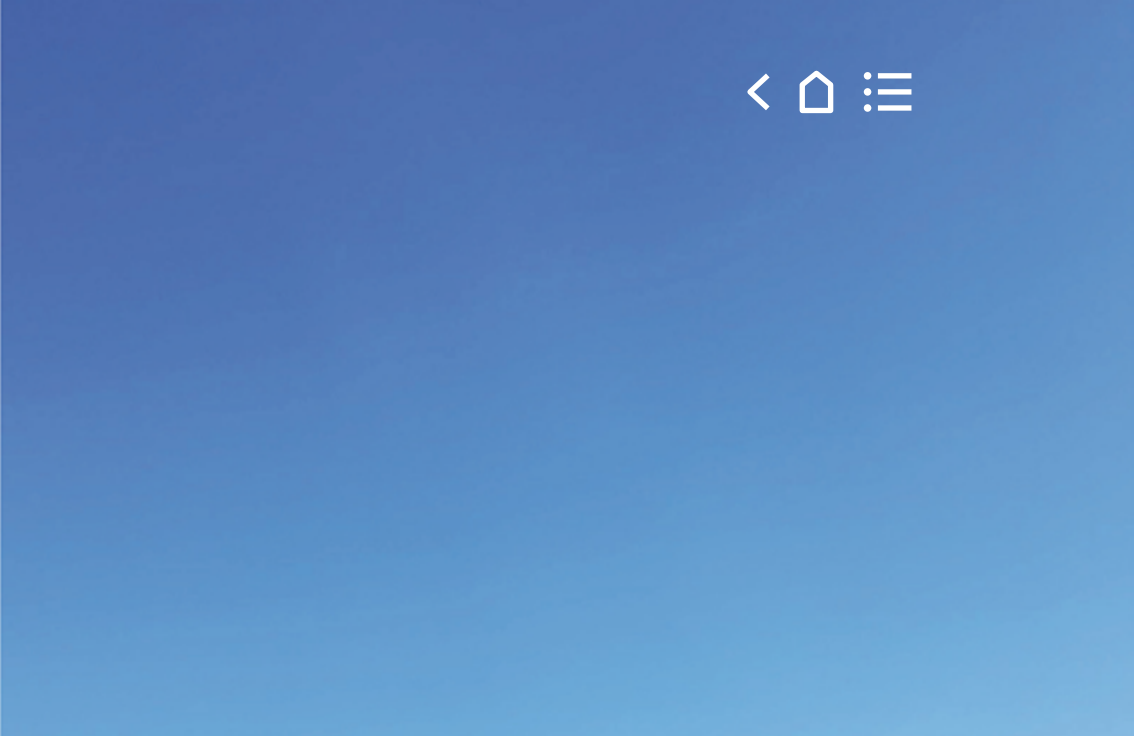

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Nurturing Affinity to Nature through Outdoor Learning in Special Places

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THE FINNISH NATURE CENTRE

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