

Nature Stimulates the Learning and Development of Children with Special Educational Needs



Title: Nature Stimulates the Learning and Development of Children with Special Educational Needs

Acronym: Green Learning Environments (GLE)

Editor: M. Sc. Natalija Györek

Photos:

Design: Alenka Planinc Kuhar, www.JAdesign.si

English translation: Ensitra translation, Brigita Vogrinec s.p.

Dutch translation:

Price: free of charge

Publication: electronic publication

Electronic copy:

Co-funding:

This publication has been created under the project **Green Learning Environments – Taking Advantage of the Stimulants in Green Environments for Non-Formal Learning with Children with Mental Disabilities and Learning Disorders**, which was made possible with financial assistance from the European Union through the ERASMUS+ programme.

The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Project number:

ERASMUS-2016-1-BE02-KA201-017373

CIP - Kataložni zapis o publikaciji
Narodna in univerzitetna knjižnica, Ljubljana

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**Nature Stimulates the Learning
and Development of Children with
Special Educational Needs / XX**

ISBN XX

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*There is a place,
where children who have never walked, find freedom,
where children who have never talked, find words,
and more often than not,
where every child finds a smile.*

Unknown author

Nevladne organizacije



Šole za otroke s posebnimi potrebami



WHICH CHILD OR ADULT CAN RESIST NOT TO BE STIMULATED IN THE EVER CHANGING WORLD OF THE OUTDOORS, WITH IT'S MOVABLE PARTS, EACH A DIFFERENT EXPERIENCE, THE SWISH OF FEET THROUGH DEEP AUTUMN LEAVES, BREAKING ICE ON A FROZEN PUDDLE, THE CRAZINESS OF A WINDY DAY, THE DAPPLED LIGHT OF THE FOREST, THE COMPLEXITY OF NATURAL DETAIL. IN TWENTY YEARS I CAN HONESTLY SAY WE HAVE NEVER COME AWAY FROM A SESSION IN THE OUTDOORS WHICH HASN'T RAISED OUR SPIRITS IN SOME WAY.

JO SAYERS, THE MERSEY FOREST, UNITED KINGDOM

THIS PUBLICATION IS INTENDED FOR ALL CHILDREN WITH SPECIAL NEEDS, AS WELL AS THEIR PARENTS, TEACHERS AND CARERS.

THANK YOU FOR HELPING US TO UNDERSTAND LIFE.





NATURE AS THERAPEUTIC ENVIRONMENT AND TOOL



Ph. D. Urša Vilhar, Slovenian Forestry Institute

Throughout evolution, human development took place in nature, to which the structure and functioning of the human brain have been adapted. All those millions of years human learning took place through experience and mostly through play. A child's development takes place spontaneously in nature at the highest possible level. And this in all areas: cognitive, social, emotional, speech and motoric. Through free play, movement, experiential and situated learning. In recent decades, neuroscience has proved that nature is a priceless therapeutic and developmental environment, which promotes brain development and consequently strengthens a child's abilities. In addition: children who regularly play in a natural environment have better developed motoric skills and become ill less often.

Research on the impact of nature on the non-formal knowledge, competences, and skills of children with special educational needs is rare. In the light of having to provide a large enough sample of comparable children, such research is very demanding and the effects of interaction with nature are difficult to measure. Nevertheless, by means of a pilot study under this project, teachers and carers have shown that regular activities in nature help to improve the general well-being of children, their independence, self-confidence, cooperation with one another, prolong their attention spans, etc. (Jan Čibej; Ljubo Šerčer Primary School Kočevje, Slovenia).

Under this project, carers, preschool teachers, school teachers and forest pedagogues from Belgium, Great Britain and Slovenia have joined forces. Based on practical experiences with education in natural environments with all children, we wish to contribute to a more systematic development of (non-)formal learning in natural environments for children with special education needs (SEN). During the project children were enabled contact with nature in various forms, depending on the possibilities and accessibility: forests near the schools, town parks, meadows, school grounds and gardens. With support from the parents and at the request of the children themselves.

Parents and carers are often in doubt regarding the safety of children with SEN during activities

in nature; access is a common problem. Children with SEN are often not prone to discovery and research. They have attention and/or socio-emotional problems. Children with more severe developmental disorders usually have underdeveloped spatial orientation; when they enter nature (e.g. a forest), it is always a new situation for them; sometimes nature does not calm them, and they may become aggressive. However, practical experience has shown that activities in nature can be adapted to their abilities and skills, with their safety being paramount.

Work under the project has established that all children should be provided with diverse sensory impressions and active experiences in nature, including children with more severe developmental disorders, with mobility impairments or with multiple disabilities. In the process these children need different forms of help, guidance or additional encouragement based on their abilities and skills. Nature offers tranquillity and time for them to discover things at their own pace. Moreover, the fresh air and playing with everything nature has to offer, fills them with extra energy. It can encourage them to explore, to take risks, to play, to learn and to do so much more. Based on their concrete work with children, teachers have often reported an utterly unexpected leap in a child's development during an activity in nature, which they most likely would never have achieved or noticed in a classroom. At the same time, teachers and carers have realised that while preparing activities in nature for the children and looking for adjustments and solutions, taking into account the abilities and skills of the children in the group, they have also begun to experience and observe nature more deeply.

Encouragement and motivation for further work

It is our wish that future activities would involve doctors, psychologists, psychiatrists, neurologists, and physical therapists. Activities in nature should become a part of the (non-)formal learning of all children in the broader European area. Because nature is an excellent therapeutic and developmental environment, both for children with or without special educational needs. It encourages abilities and skills that are an important part of lifelong learning and of the inclusion or social integration of children into society.

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NATURE STIMULATES THE LEARNING AND DEVELOPMENT OF CHILDREN WITH SPECIAL EDUCATIONAL NEEDS

Green Learning Environments – Taking Advantage of the Stimulants in Green Environments for Non-formal Learning of Children with Special Educational Needs

M. Sc. Natalija Györek,
Institute for Forest Pedagogics



A child who has been diagnosed with an attention deficit disorder, an autistic child, a child with learning disorders, or simply a **CHILD (WITH SPECIAL EDUCATIONAL NEEDS)**. Learning a song, writing letters, exercising, communicating, colouring within the lines, spelling and reading, spatial orientation, calculating, cooperating, problem solving, experiencing, or simply **LEARNING**. Trees, mud, sun, fresh air, uneven paths, cold, the heat of a sultry summer day, rocks, walking uphill, or simply **NATURE**. If we connect all three key words **CHILDREN, LEARNING, NATURE** can be written: **“THE LEARNING AND DEVELOPMENT OF CHILDREN WITH SPECIAL EDUCATIONAL NEEDS WHO SPEND TIME IN NATURE AND OUTSIDE CLASSROOMS IS MORE MEANINGFUL.”**

»In the last ten years our educational system has become more inclusive with many children that would previously have been in special schools now in mainstream. It is therefore fairly common for children to have a child with mild/moderate SEN in their class and so children with SEN are much more familiar to all. For some parents of children with SEN it is still to have some negative experiences.«

Lynne Ledgard; Green Lane Community Special School; United Kingdom

We know. The title of this project, Green Learning Environments – ..., which you can read above, is officially long and somewhat intimidating. The individual words in the title are perhaps too professional; our maybe understanding of them is superficial. Moreover, the title includes the words **children with special needs**. Unless you are a parent of a child with special educational needs, a special education teacher, a doctor, psychologist, psychiatrist, physical therapist or professional assistant to such children, it is safe to say that you do not know these children, even though you occasionally encounter them. It is precisely because their stories do not reach the lives of healthy children or our lives, that our opinions are often imbued with prejudice, stereotypes,

ignorance and a lack of knowledge, perhaps even fear. Many get a bad feeling just by being in their presence. This is still not discussed aloud in society, because it creates unease, which largely stems from the social norms that are alien to us. Yes, this is another reason why this project is important to provide help and try to change the opinions about children with special educational needs, who were and still are a taboo.

The project title also mentions **green learning environments**, which do not always refer to primary nature, which is defined as: »The material world independent of human beings and the forces (energy) at work within it« (Lah, 1995), or as: »The phenomena of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth, as opposed to humans or human creations,« (Oxford Dictionaries, 2017). Whereas the environment – »The natural world, as a whole or in a particular geographical area, especially as affected by human activity,« (Oxford Dictionaries, 2017).

Despite the professional definitions as to what nature really is, how we understand nature depends on the observer's viewpoint. Nature extends all the way from a garden to a tropical rainforest; from a single square metre of ruderal vegetation in the gaps of buildings, all the way to the endless desert. Nature takes place in the mind. Nature is not that which actually exists, but an interpreted image created by a person (H. Schneld, 1997).

Van den Berg (2012) defines nature as all the green environments, also those that were created by humans: »Any place or area where natural elements (vegetation and water) are dominantly present. Not only real nature, like forests and swamps, but also agricultural landscapes and urban green space.«

The project results were not created solely in protected nature, but also in more human influenced green environments that contain natural elements: e.g. tree-lined avenues, botanical gardens and other ecosystems that are important from the aspect of biotic



diversity, urban parks, green playgrounds and school grounds, gardens, and farms. There are several reasons for that.

1. This project was carried out in countries with a different percentage of forest areas and conserved nature. Slovenia is covered by as much as 62.8 percent of forest areas, which is a lot in comparison to England (12 percent) and Belgium and Belgium with 22 percent or Flanders with only 12 percent. Slovenian culture is also closely connected with the forest and the natural environment; the forest is an item of natural and cultural heritage, which is why much of the project work was carried out in forests near schools. Schools in Belgium and United Kingdom often lack this option, as they are located in large cities and/or there is less forest available. For everyday learning they need to use the urban parks, green school grounds, gardens, nearby meadows or forest remnants.
2. When introducing children with special educational needs to natural environments, we often had to take into account their ability and capability of engaging in the outside world, because the project covered practically all groups of children with special education needs, including children with severe disabilities, children with mobility impairments or with several concurrent disabilities. For children with more severe disorders, simply coming into contact with soil in a green school ground, or working in a garden can be beneficial; the majority of children with behavioural and emotional problems need freedom to move and low noise, which is provided by the nearby park; autistic children can be soothed by the play of light and shadow in the forest; and all of them need movement in natural environments and its beneficent effect.

In any case, green learning environments are not only about the green colour of grass, but they have to smell like grass and give that incredible feeling of joy when walking on grass barefoot. They refer to fresh air, the sun, the taste of the seasons, the forests, the trees, nature, and above

*So there is no more dilemma;
learning goals or life goals?
Let there be both!*



all to learning through experience, and experiencing. To everything that awakens our senses and gives us a real taste of life.

The third phrase you can read in the title is non-formal learning. Lately, **non-formal learning** is being given a more suitable place in educational policies. What is non-formal learning really? You do not get a mark, a school-leaving certificate, record or diploma for non-formal learning. It sounds good, because it carries a hint of non-compulsion, of freedom. That is not entirely the case. Non-formal learning plays an important role in lifelong learning and can also be an important basis for attaining formal recognition. This is probably even truer of children with special educational needs than of other children. Through this project we were therefore attempting to evaluate and strengthen the (non-)formal knowledge, competences and abilities of children with special educational needs (children with SEN).

Under this project we took our line of thinking a step further, searching for an answer to the question: **«Can non-formal learning in natural learning environments enable children with special educational needs to learn the abilities and skills that will make their lives in the modern world accessible, in addition to facilitating their comprehension of school subjects?»**

We believe that we can make progress by employing a different approach to education. By means of lessons, programmes and activities taking place in natural environments. Such a work method has already proved effective in regular kindergartens and schools in Slovenia and in forest schools in United Kingdom, which are already implementing this work method.

As a result of this method, children develop more independence, self-reliance, self-confidence, mutual cooperation, and easier



adaptation in this rapidly changing world. These environments in themselves enable a better development of personal and social skills. In the case of such skills, the quality of what has been learnt cannot be evaluated with a mark, but can be determined when reused in similar life situations. **So there is no more dilemma; learning goals or life goals? Let there be both!**

The long official title of the project therefore embodies fresh air, forests, parks, gardens, pebbles, streams, branches and children with special educational needs, who are seeking new and better paths to attaining their goals and to more successful inclusion in society together with their teachers in nature and with

nature. That is why this is not only a story about children and nature, but about all of us and our perception of their world. Let this be another pebble in the mosaic of inclusion.

Under this project, the United Kingdom, Belgium and Slovenia joined forces as partners, specifically four green non-governmental organisations: BOS+, The Mersey Forest, Slovenian Forestry Institute and Institute for Forest Pedagogics, and six schools for children with special educational needs: Bluebell Park School and Green Lane Community Special School England, MPIGO Heemschool 1 and Sint-Gregorius Buitengewoon Basisonderwijs (BuBaO) from Belgium, and Jelo Janežič Primary School Škofja Loka and Ljubo Šercer Primary School Kočevje from Slovenia.



A Glimpse from the Forest



Standing before me are seven ten-year-olds, so different from one another that the diversity and colourfulness of life can hardly keep up with them. Ana, Katja, Jaka, Ervin, Boris, Danilo and Denis are not just names; there are faces behind them now. Writing a formal lesson plan for carrying out a day of learning in the forest is not a problem for a teacher. However, all of the knowledge standards that we might be able to implement in the regular education system, lose their true power here. Children need help the most with improving their behaviour, experiencing emotions, strengthening their

independence, increasing their attention span, being motivated to learn, or in all areas covered by the field of non-formal learning.

Natalija, the assistant, is carrying Katja in a carrier. Despite a severe mobility impairment, this little girl is communicative and knows how to assert herself. Besides, when she is in the carrier she is higher up than the others and has more than an excellent view of what is going on. I should mention that so far none of the escorts to children with mobility impairments in the schools that are currently collaborating with us have said that the forest is too far. It is not always easy. Believe me when I say that the kilograms are the least of our problems.

Some of the boys are individualists and like to head out on their own. I can understand that, after all they are ten-year-olds, who need their time and space to develop their own identity. It is also easiest to explore the forest that way. We look for frost, ice, conifers, deciduous trees and talk about forest animals.

Ana is currently the most delicate flower in the forest. She is a gentle little girl, who is having problems with sensing the world around her. Her reactions remind me of a mimosa, from which small leaves fall like dominoes when touched or shaken, or when light and temperature changes. They always straighten back up, as does Ana. It would undoubtedly be sensible to set goals which would reduce her sensitivity.

In the forest, I sometimes get the impression that I cannot access their thoughts, that they are shutting me out of their world. At the same time I get the feeling that they have read me completely. They are not always willing to cooperate; they withdraw. Their worlds are a challenge in the positive sense. The more I get to know them, the more convinced I am that we can improve the lives of these children with help from nature.

CHILDREN WITH SPECIAL EDUCATIONAL NEEDS, LET'S GET TO KNOW THEM!



Thinking

Sometimes the term children with special educational needs is quite a kind one, since it is impossible to find other, softer expressions for an autism spectrum disorder, a severe mobility impairment, sensory processing disorders, attention deficit hyperactivity disorders or perhaps even cognitive impairments. Children with special educational needs are among us, attending school in their home town on a daily basis. Their bags, pencil cases and notebooks are just as colourful as those of other children. Their clothes bear their childhood heroes: dinosaurs, princesses, Hello Kitty, Winx, and Spiderman. Their day in school does not differ from the everyday routine in all schools; even their lunch is the same.

Sometimes they enjoy it more, sometimes less. Just as all other children, they do not like homework all that much.

Their lives are always sheets of paper that have been written all over. They often run out of paper and that is when we begin to wonder what more we could do for them. Offer them the latest therapy, additional lessons, obtain a second medical diagnosis which would enable us to better understand their problems and offer them (i.e. us) a more rational and scientific explanation and assistance. With everything that is going on around them, we simply never think of nature, of the forest. What if we took them to the forest, to nature more often?

In all three participating countries, the project involved children attending special schools with an adapted programme and curricula. We socialize with children with various diagnoses; it is very hard to focus only on the specific groups of children. Most of the children have several problems (several disorders) and consequently the groups in individual classes

are very diverse. For professional and practical reasons we decided to include younger and older children, from 3 years of age all the way to 26, since we are talking about young people. One professional reason is that the chronological and mental age of children often differs, while another reason is the rather different regulation of the education

of children with SEN in the countries involved. Despite the fact that schools strive to have rather homogeneous age groups in classes, they are often heterogeneous as regards age, for various reasons.

Browsing through technical literature, in which the difficult and unintelligible vocabulary expresses all of the personality and physical traits and conditions of children with special educational needs. However, all of these children also have positive personality traits, which can serve as an important starting point for shaping and more easily attaining non-formal goals.

In the case of all other groups of children with special educational needs, the blind and visually impaired, those with mobility impairments, the deaf and hard-of-hearing, and students with specific learning disabilities we can likewise quickly find positive personality traits and skills, which open up the world around them from other perspectives. When I try to follow the protruding dots in Braille, I can only marvel at the reading knowledge and skill of blind children. A child who is deaf and hard-of-hearing is great at reading your lips. **Children with Down syndrome** can be pleasant, sociable, active, caring and have a sense of humour, but also have certain personality



traits which might not be defined as positive, but which can sometimes serve him well. They are stubborn; no one can pressure them out of doing something they intend to do. They have no regard for time and prefer to occupy themselves with persons rather than objects (Cunningham, 2016). Children with an attention deficit hyperactivity disorder (ADHD) are very active and there always has to be a lot of activity around them. Their thoughts quickly wander elsewhere. They like talking and have a hard time sitting still at a school desk; they have much more fun outside school walls. They are the driving force behind teachers, both physically and professionally. Children with an autism spectrum disorder (ASD) are sometimes seen by the people around them as a lonely island amidst an ocean. The sea waves, storms and winds crashing against them do not move them, even though they can hear and feel them. They may have exceptional memory and be gifted with good cognitive abilities. They pay attention to details, and see many links and patterns in things. During certain tasks, they can be remarkably focused and capable of staying attentive.

We can learn a lot from these children and can provide effective help to them if we are only open to their worlds and do not try to cram them into our world of standards and norms.

Make no mistake, we have also come to know the world and life of children with more severe disorders. All of the activities of forest pedagogy and forest schools, and those we have developed together with the schools, are probably not suitable for all groups; nevertheless, in such cases natural environments are above all a form of therapeutic help and social rehabilitation.



WHY NATURAL LEARNING ENVIRONMENTS?

»In natural environments children undoubtedly attain the objectives of formal education more easily, both children without special needs and those with special needs. It also builds social relationships, children's independence, their self-confidence, etc.«

*Ph. D. Darja Skribe Dimic, 2017;
Faculty of Education University
of Ljubljana, Slovenia*

We are currently living in an age of great contrasts. All of the world's information is at our fingertips, medicine has made tremendous progress, we are achieving great success in the field of science, but on the other hand we are paying a high price for such a lifestyle. We are faced with a great number of children who do not know how to and are incapable of fully functioning in such a world. The throb of life is extremely fast but does not take place in natural environments, as it had with our ancestors, but mostly indoors. We are unknowingly passing on this lifestyle to children. Nowadays, there is already talk of an epidemic of children with an attention deficit hyperactivity disorder, autism spectrum disorder, and behavioural and learning disorders. Studies conducted on all world continents indicate a noticeable increase in autism, ADHD and specific learning disabilities (Grandjean and Landrigan, 2014). Stephanie Seneff (2017) predicts: »Judging by the current increase in autism rates in the U.S., by 2032 every other child in the U.S. will be autistic.« In Slovenia, an expert in



orthomolecular medicine, mag. Karin Rižner, has established that the autism epidemic is on the rise and predicts that by 2035 every other child in the developed world will be autistic (Pretnar, 2017). A group of researchers (Delwiche and Hertz-Picciotto, 2009) from the University of California – Davis has identified an 800 percent increase in autism at the level of the child population over a period of sixteen years, which it is calling the biggest medical and educational concern.

In Great Britain, a drastic rise has been detected in mental disorders, suicides and self-harm at the level of the adolescent population. »The latest catastrophic data on the mental health of children in England reflects a global crisis. There is a number of reasons for that, but the main one is undoubtedly the fact that people as ultra-social beings, whose brains were made for responding to other people, are no longer connected with one another,« wrote George Monbiot in the Guardian (Kocbek, 2016).

The expert and lay public most often contributes the causes for the statistical rise in the above-mentioned developmental specifics to improved detection and diagnosis. Such an increase in the number of children with special educational needs cannot be entirely attributed to genetic disorders, a chemical imbalance in the brain, or better

diagnostics. There are probably several potential reasons for this situation and it is difficult to define or isolate a specific factor. Two world-renowned studies by Yale University and the University of California – Davis, conducted on a multi-million child population sample, have attributed roughly 50 percent of the cause for a rise in autism diagnoses in recent years to the changes in diagnostic criteria, the inclusion of milder forms of illnesses, and early detection (Melillo, 2015), while the remaining share has been attributed to other causes. Different studies (Blomberg, 2015; Blomberg, 2016; Grandjean, 2013; Grandjean and Landrigan, 2014; Landrigan et al., 2012; Samsel and Seneff, 2017; Zheng et al., 2003) have defined various factors: industrial chemical compounds; environmental pollution (presence of heavy metals, use of pesticides); radiation from wireless technology; a diet of sugars and other sweeteners; higher parental age at childbirth; risk factors at childbirth (premature birth, caesarean section, hypoxia, low birth weight, etc.); and in vitro fertilisation. Recently, experts have been pointing out, among other things, the correlation between early motor development and problems which are influencing the rise in children with learning and behavioural disorders, attention deficit disorders (ADD), attention deficit hyperactivity disorders (ADHD), and sensory processing disorders. We are born with many nerve cells,

the technical name for which is neurons, which are not yet interlinked at birth. Even in babies, movement is of utmost importance for establishing links and consequently for brain development. Early childhood is characterised by sensory and motor development, which are interdependent. Namely, 90 percent of all sensory nerves terminate in muscles and detect movement. Every baby and toddler needs unrestricted movement and the repetition of these movements to develop his/her brain optimally. What is the problem with today's world? Babies who spend most of their first year in loungers, infant car seats, unsuitable pushchairs, bouncers, and playpens; toddlers who, at two years of age, spend most of their time in front of TV screens and whose parents offer them smartphones and tablet computers to play with early on. Consequently, there is less and less movement, experiencing, learning through experience, and talking, which are the drivers of development in a child. This lifestyle is passed on to kindergartens, not to mention schools, where six-year-old children are literally told to sit still. There are quite a few people who believe that ADHD is a highly overly-diagnosed disorder and that children are often prescribed drugs just for behaving like a normal child, as is characteristic of an individual development stage. A hundred years ago a child would

have been expected to be able to do physical work, but in recent decades these expectations have become focused on mental abilities. Behaviour that allegedly hinders the attainment of academic excellence has become undesirable (Smith, 2012). There will be more on the topic in the following chapters.

We do not have much scientific proof that natural environments can help with the non-formal learning of children with special educational needs; the greater part of the research mentioned below does not apply to children with special needs, but all of the research supports areas such as cognition, perception, social interaction, reduction of aggressive behaviour and improved ability to concentrate, with which children with special needs often have problems.

However, we do have much practical experience with educating all children in a natural environment, the healthy ones and those with special educational needs alike. We are convinced that these findings can help us to more systematically develop non-formal learning for children with SEN in natural environments. One example, which describes how we can successfully stimulate the development of social skills in natural environments, is presented in the text below.



Anton Medved Kindergarten Kamnik, teachers: Alenka Jevšnik and Lili Šarec

A NATURAL LEARNING ENVIRONMENT AND FREE PLAY INFLUENCE THE DEVELOPMENT OF A CHILD'S SOCIAL SKILLS



Description of the Case of Boy A and His Problems

Boy A has been attending kindergarten since he was two. He was diagnosed with inharmonious development at the psychological evaluation at age three. The boy has difficulty staying attentive, especially with regard to auditory processing and understanding instructions. He has demonstrated difficulties with regulating and maintaining attention and in the speech and language area, where he does not understand complex instructions that well and answers questions poorly. The psychologist has stated that she did not observe all of the behavioural characteristics of the autism spectrum disorder. He exhibits special characteristics in the following areas: communication, reciprocal social interactions (lack of establishing eye contact, slightly poorer recognition of the characteristics of interpersonal relationships, and poorer recognition of the emotions of others), and the presence of stereotypical behaviour or focused interests.

Social Behaviour in Kindergarten, in a Playground and in the Forest when Joining a Group

Kindergarten. The boy has difficulty with joining a group, is apathetic, and uninterested in most activities. He likes to withdraw into his own world. When

arriving in kindergarten, he most often sits down on a pillow and turns away from the children. He often plays by himself and does not join the games other children are playing. Every day, he needs some time before joining the other children. He does not take part in activities. He prefers to play with the toys he brought to kindergarten (dinosaurs) and with one or two children at the most. When playing this way, his attention is focused, but only on the game of his choosing. If he cannot assert his own will, he gets very angry (he shouts and sometimes even hits someone).

He is very aggressive when **playing in the playground**. He mostly plays by chasing the children, pushing them, »locking them away in prison«, pulling and throwing them. If he is not doing that, he circles the playground by himself.

He is quite lost in the forest and has no idea what to do there. He has a very static posture and gives the impression of utter helplessness. If something does not suit him, he "withdraws" into his own world, wanders around, tells on other children, and is bored. We carried out various activities to encourage him to participate. Above all, we let him decide to want to play with the children.

Teacher's Observations after Regular Visits to the Forest

In the forest, in comparison with the indoor environment, it took him a very short

time to abandon his own stereotypical notions of how he should play. He gradually began to join the games of other children, mostly the building of houses out of sticks, playing with branches, and was even trying to climb a tree. Playing with sticks, pulling branches, searching for "forest treasures", dwarves and goblins, unusual forest animals, children's forest games and other curiosities intrigued him to such an extent that he slowly began to join other children. In the forest, he is already taking initiative and actively participating. Through various games we are slowly succeeding in moving him away from his own world and making him cooperate with other children more. This is most obvious when playing outdoors – in the forest or meadow; in the playground it is still difficult to "pull" him out of his offensive, aggressive way of playing. When playing in a natural environment, he responds to invitations from peers and cooperates much better with them. There is no more snitching. He enjoys communicating with the children, tells many stories, and talks about things.

Our approach shows that playing in a natural environment has had a positive impact on his attitude towards children, socialising and playing, and that certain improvements are evident. The problem is that this boy is often absent from kindergarten and we lack the desired continuity.



Playing in a natural environment has demonstrated the following results:

His progress is most noticeable as regards social relationships and peer cooperation. The boy is playing much more now; he plays by himself less and joins the games of his peers more often; he plays in a more cooperative way; and looks forward to visiting the forest, even though it still happens occasionally that he moves around in circles and does not participate. He prefers playing with sticks and building houses, and enjoys climbing less. He helps children more and is less introverted. There is less aggression in the forest than in the playground. There has been a noticeable improvement in his gross motor skills; he is moving more and becoming more skilful. So far there has not been a more prominent improvement in his fine motor skills, but we are continuing various activities that will develop these skills.

In the past, and most likely in much of the existing education system, schools (also those for children with special educational needs) were focused on the class (as a generic learning space), the text (in the form of transferable knowledge), the teacher (as a connoisseur) and the carefully planned school timetable (as a sequence of selected and important knowledge) (Bentsen et al., 2012). This is the present-day education system, which is persistently battling the changes in the rapidly changing world. Pedagogical experts claim that it is pointless to cling to a curriculum that was perhaps suitable for social groups in the 19th and 20th century, but has lost its credibility in the 21st century (Naji, 2013). Children with special educational needs have also somehow got stuck in a similar education system as all others, even though they need many different and explicit stimulants to develop. The experiences they gain from experiencing and observing the natural environment are an invaluable source of learning in all areas of a child's development (Cerar et al. 2004). From the point of view of learning, nature is one of the most innovative learning environments. However, such a work method requires a more active role of the teaching staff. Nature turns a member of the teaching staff into a creative and adaptable seeker of clues in the environment, into an educator who is not concerned with safety alone, but is also a researcher, listener, observer, and shaper of ideas.

Research that was conducted in different parts of the world has shown many positive effects of spending time in a natural environment on the social, emotional, intellectual and physical development of children (Kahn and Kellert, 2002; Dillon et al., 2005).

- Children who regularly play in a natural environment have better developed motor skills, which include coordination, flexibility and balance, and are ill less often (Fjortoft and Sageie, 2000). In the case of most children with SEN, the development of motor skills (gross and fine motor skills) is the area on which we should focus the most. Carrying out activities in natural

In fact, movement is intended for the brain and not the body.



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environments undoubtedly strengthens children's motor skills, while movement on natural terrain indirectly stimulates the development of new brain links and sets up the foundations of learnability. Motor functions enable the child to gain a lot of experience through his own activity, outward response, initiative, researching – everything that facilitates the development. The study encompassing 80 neuroscientific research studies of the brain demonstrates that movement is of vital importance for the development of the brain and cognition in childhood (Rarick, 2014, as cited in Brandes, 2015).

- Nature's spatial language is rich. When children play in the forest, their games are more diverse and creative; the forest stimulates their curiosity and imagination (Moore and Wong, 1997). It also strengthens their observation skills (Crain, 2001). Nature is life that moves, grows, and consequently creates a positive learning situation.
- Nature mitigates the negative effects of everyday stressful situations and helps to overcome them. The more time children spend in nature, the more they benefit (Wells and Evans, 2003).
- The attention deficit hyperactivity disorder (ADHD) has become one of the most common neurological disorders among children (Center for Health, ..., 2001). In the USA ADHD affects more than two million school-age children (Faber Taylor et al., 2001); between 2000 and 2003 the use of ADHD medicine for preschool children has increased by 369% (Louv, 2005). In the case of children with ADD syndrome (Attention

Deficit Disorder) and ADHD syndrome (Attention Deficit Hyperactivity Disorder), spending time in a natural environment improves their ability to concentrate (Taylor et al., 2001). Research has shown that children with ADHD symptoms are better able to concentrate, finish their tasks and follow instructions after playing in natural environments, than after playing in close quarters or built environments (Faber Taylor et al., 2001; Kuo & Faber Taylor, 2004; van Den Berg, 2012). This is probably connected with the fact that the mental efficiency of such children is associated with attention deficit disorders, hyperactivity disorders and impulse control disorders, and is not primarily lower. It is well known that natural environments have a positive impact on attention restoration (Kaplan, 1995). Dejan Sotirov (2017) has mentioned similar findings: "The results among children with ADHD and ADD are positive. We worked with a child in the office for three months and afterwards took him outside and achieved the same effect in just one weekend. Nature has a positive impact on people in itself; it neutralises many things. It most certainly affects their interrelationships, their interaction."

- Regular visits to nature also make them more independent (Cullen, 1993).
- Learning outdoors provides different experiences to a child than learning in closed rooms, such as classrooms. It can encompass a wide range of children in its educational process, including those with behavioural disorders, learning disorders, or autism (Kahne, 1999; O'Brien, 2005, Borradaile, 2006). Nature evokes interest in the future, which is important in the case of persons with emotional and behavioural problems. The forest is a space to which we keep returning and which we always leave with a smile and the feeling that the world is alive, interesting and important (Györek, 2014). Sebba (1991) states that for a child nature is an inexhaustible source of emotional stimulation. It stimulates many diverse emotional responses. Activities in nature can easily be shaped

so that each child with special educational needs can achieve success: climbing over a hill, planting a plant, jumping over a stream are simple activities which fill the children with a positive self-image.

- It has been proved that in a natural environment children cooperate with one another more and that there is less violence and quarrels between them (Wilson, 1995). Active and physical activities in nature enable us to release aggression in a socially appropriate way and improve our self-control. Similar findings have been mentioned in the research studies conducted by the organisation Learning through Landscape, which have established that teachers value natural environments, precisely because they make it easier to control violence and aggressive behaviour (Hussein, 2010).
- Spending time in a natural environment improves children's cognitive development, namely by improving their attention, reasoning, and observation skills (Pyle, 2002). A beneficial correlation between exposure to natural environments and cognitive development among schoolchildren between the ages of 7

»Jack had ADHD and didn't cope well within the classroom, initially at Forest School he seemed introverted, probably due to his isolation from other children who thought he was disruptive and didn't know how to deal with his symptoms, yet in the Forest he was soon welcomed into the social groups when the other children saw he was great at collecting the best branches and other forest resources to make dens.«

Jo Sayers, The Mersey Forest, UK

»I think nature is important as it is part of our world. So many children sit in watching television or playing on iPads. I think children of all abilities need to reconnect with what is out there. Children need the fresh air. There are lots of learning opportunities, for more formal subjects like maths and literacy, but also learning about the world around us and how it has changed and will change, both in the short and long term. It allows for quality time spent with parents and carers.«

Alyson Boothroyd; Bluebell Park School, United Kingdom

»Nature is important for everybody, but especially for children. Children with special needs often lack the attitude of discovering and exploring. They have problems with school-specific lessons, but they also have socio-emotional problems. We think nature (fauna and flora) can have a positive effect on all those components. Nature offers tranquillity and time to discover at their own pace. In addition, they can get extra energy from fresh air and playing with everything that nature has to offer. It can encourage them to explore, take chances, play, learn and so much more. It is a challenge for us as a school to find the balance between freedom in nature and determining boundaries.«

Veerle Claeys; Sint Gregorius Buitengewoon Basisonderwijs, Belgium

and 10 has also been demonstrated by the research conducted by Dadvand et al. (2015). Not many areas offer young people so many opportunities for critical thinking, creativity, problem solving and intellectual development (Chawla, 1988; Kaplan&Kaplan, 1989; Kellert, 1997; Pyle, 1993; Sobel, 1993). In nature we observe natural processes such as the changing of the seasons; humidity changes daily and by the minute, as do temperature, smell, light, shadow, colours, structures and textures (Györek, 2014). What is especially important for children with SEN is that in natural environments learning takes place in a multisensory way, with all the senses, which enables holistic receiving of information. As sensory perception increases, the ability to observe and perceive details strengthens.

- Outdoor experiences and a regular contact with nature increase children's empathy toward nature and their subsequent care for the environment. Namely, children who regularly play in natural environments preserve a positive attitude towards nature even as adults (Palmer, 1993; Kals et al. 1999, 2003).
- It has also been established that ordinary activities, such as planting trees, tending small gardens and walking through the forest only marginally affect the development of a positive attitude towards nature, whereas regularly spending time in natural environments contributes significantly to greater empathy toward nature (Ward et al., 2008).
- The natural environment stimulates social interactions among children (Bixler et al., 2002). The Russian developmental psychologist Vygotsky wrote that the social environment is an important source of development for children with SEN ("food" for the development of higher-order mental functions) and where else could the effects of a social environment be realised best than during the free play of children in a natural environment. In an outdoor environment we enable children

activities with a common task and goal, which influences the learning of social skills and abilities. We thus strengthen the development of speech, the establishing of contact with others, mutual cooperation, and the sense of belonging to a group.

The positive effects of working and staying in natural environments have been observed in the green social welfare programmes intended for persons with cognitive impairments. They are mostly implemented at farms as horticultural therapy and animal-assisted therapy, whereas at social enterprises and institutes emphasis is placed mostly on inclusion in society and on employability. The contents of these programmes refer to three areas: social rehabilitation, education, and therapy. In Norway, Sweden, Austria and Switzerland children with special educational needs are also included in these green programmes. According to the results of a survey in Slovenia (Vadnal, 2007) more than half the parents stated that being occupied with plants has had a good influence on their children who are suffering from disorders. The most frequently mentioned positive effects were movement outdoors, greater independence and self-confidence, and gaining new experiences and skills.



»Regular contact with nature has positive effects on the wellbeing of children, including better psychological wellbeing, superior cognitive functioning, fewer physical ailments, and speedier recovery from illness.«

Sofie Swalens; MPIGO Heemschool, Belgium

WHAT ARE THE CHALLENGES OF INTRODUCING CHILDREN WITH SPECIAL NEEDS INTO NATURAL ENVIRONMENTS?

»Challenges include access – wheelchairs getting through trees/mud, etc. Children that abscond/run off – keeping them safe and enclosed in open spaces. Children with conditions such as pica – eating everything – can eat things that are harmful, such as mushrooms. Weather and making sure children have the right clothing.«

Alyson Boothroyd; Bluebell Park School, United Kingdom





»All pupils regardless of ability, disability, medical and supervisory needs can take part fully in all sessions, i.e. they're accessible to all. Finally, if managed correctly (e.g. risk assessed properly) overall I don't believe there are challenges in connecting SEN children to nature, e.g. risk can be taught, delicacy can be learnt.«

Sefton Booth; Bluebell Park School, United Kingdom

»Space can be a factor as access to nature needs to be inclusive and accessible for all, including those children with mobility issues. The type of SEN can also provide barriers. For example, some children with ASD might find it difficult to be dirty or wet, pupils using walkers or wheelchairs may find some environments difficult to access and some pupils will put anything and everything into their mouths.«

»Some pupils might have a lack of experience of nature and can find it scary or overwhelming. Their underdeveloped reasoning skills regarding fear and safety might make some environments a scary place.«

»It can be challenging to supervise a group well that may have a poor understanding of safety, and the staffing levels involved to ensure minimal risk might exclude some activities from taking place or some groups of pupils from taking part.«

Lynne Ledgard; Green Lane Community Special School, United Kingdom

»Challenges can include having accessible natural space close by, as transport costs can create an additional barrier plus the distance in getting to site reducing learning time. Staff new to taking learning outdoors may lack confidence in this unfamiliar environment, good training and mentor support helps.«

Jo Sayers, The Mersey Forest, United Kingdom

»Many children need a clear structure to feel safe. Safety is a prerequisite in order to learn.«

Veerle Claeys; Sint Gregorius Buitengewoon Basisonderwijs, Belgium

»Yes, that will be the biggest challenge – to get the children to cooperate with one another.«

Jan Čibej; Ljubo Šercer Primary School Kočevje, Slovenia

»Children surprise us in the forest. Their facial expression changes and becomes more relaxed, their eyes light up; all of a sudden, a pupil transforms from a quiet boy, who has great problems and always stays in the background, to a leader who marches through the forest with confidence, seeking all kinds of treasures. They teach us, adults, how to experience the forest more accurately and comprehensively, because they always discover, find and hear more than the moulded adult mind is capable of.«

Nika Košmelj; Jelo Janežič Primary School Škofja Loka, Slovenia

»We drove to the woods, it had a steep slope and although the children had no physical disabilities it was a challenge motivating them to exercise, the group hadn't expected to walk far. In the first few weeks they were getting very tired, but by the end they had a mile to do and were very motivated.«

Lily Rowe Horseman, Kindling Play, Cumbria, United Kingdom

»There isn't always a good understanding of safety rules by the children, for example where we might sit around the fire, there are children who might jump up unpredictably, so a wide layout with safe distances are really important here and getting to know how the children might react is too.«

Jo Sayers, The Mersey Forest, United Kingdom

»I was employed at a school for boys with emotional and behavioural difficulties. Some staff weren't totally supportive because they couldn't see the benefits. Some people did, in time, change their mind when they saw a particular pupil benefitting. It made them change their attitude to the horticultural therapy. The pupils themselves could sometimes be a barrier. The therapy team would put a plan together for pupils and I would sometimes have the first session and tell that it wasn't going to work and the pupil didn't have that interest. Sometimes they came for a few weeks and decided it wasn't for them and you'd just have to bring it to a close.«

Sue Calverley, (Horticultural Therapist), Ecolibrium, United Kingdom



THE RIGHT CHOICE



»In this pressurised environment of academic progress nature allows pupils to take part in more vocational tasks and gives them freedom from the academic activities. It also allows a break from the formal learning environment and provides more freedom to express themselves, explore, reason and investigate. Pupils with SEN often find it difficult to make healthy choices and be active and fit. Being outdoors promotes health and general wellbeing, and may influence choices made in the wider world. Exposure to nature and the outdoors can also strengthen understanding and bring to life topics such as seasons, weather, lifecycles, and habitats. This can provide more meaning and relevance to topics that can be dry to teach in the classroom.«

Lynne Ledgard; Green Lane Community Special School, United Kingdom

»In the case of children with special needs, nature has a detectable beneficial influence on their wellbeing; greater wellbeing is usually evidenced by the children's positive behaviour. Children are calmer in nature; their attention span increases; during the various activities being implemented in nature we noticed that in the case of certain children with mild or severe emotional disorders, those disorders would completely die away in the natural environment or be reduced to an extremely low level.«

Jan Čibej; Ljubo Šercer Primary School, Slovenia

How did the primary schools involved in the project are visiting the forest? They transformed the learning objectives into trackers of children's development. They prepared individual objectives

for each child in the area in which they want the child to achieve them through implementing the activities and lessons in the forest. They observe the children in the classroom even after visiting the natural environment.

Currently, the biggest challenge for their teachers is how to achieve cooperation

among the children through forest activities; perhaps to entrust them with the role of group leader; and test them using problem-solving tasks. How to teach them symmetry in nature, or shapes, spatial quantities, angles, patterns, numbers; make up stories, or simply read beneath the trees; learn letters; listen and speak outdoors; perform a story dramatization; fantasise about travelling through time and space; learn the art of the forest; use a Carroll diagram; try out the life of the forest, the power of the stream; and run along forest paths.

An even bigger challenge is nature as a therapeutic environment for children with special needs. There is something that all of us feel as a beneficial effect after returning from a nature walk after a rough day at work, but this effect is difficult to measure. Many children with special needs have difficulties with sensory processing. Why not use natural environments to gain and develop various sensory experiences? Next, we should be asking ourselves whether natural environments can function as a space for implementing Snoezelen therapy? We can almost without a doubt answer the two above-mentioned questions affirmatively.

In nature, children can be offered diverse opportunities for proprioceptive stimulation: let them hug tree trunks; tightly press their arms/legs against trunks or stumps for a few seconds; give them the opportunity to perform acrobatics – invite the children to twist, jump, stretch, roll around on the forest floor, do stretching exercises, massage themselves, do yoga, pull, push and carry heavy objects in the forest (Jakovljević, 2014).

Blowing dandelion clocks affects the development of speech; the many options for using natural materials, such as pebbles, sand, soil, muddy puddles, streams, and different tree trunk textures are excellent tactile aids, whereas balancing while walking on trunks, uneven terrains, and walking among tree branches can serve as unique aids for developing the vestibular system.

Nature can also be an excellent therapeutic environment for gaining fine motor and motor skills, and for a child with ADHD it represents endless possibilities for movement. For children with autism it is a medium for establishing communication skills, and for children with cognitive impairments enables an easier and more concrete understanding of the world around them.

It will become important to breathe with nature, to finally take the time to get to know the children in a different way. In time, the persistence of teachers will be reflected in perhaps unimportant

things, such as the children's calm behaviour, willingness to participate, a longer attention

»Anna joined in Forest School sessions at a local woodland, and having Cerebral palsy she would have struggled walking the 20 minute journey to the site, so was driven to site by car with a buddy to still feel part of the group. On site, she was able to develop her balance across the uneven forest floor, and despite a few tumbles, the forest floor was still more forgiving than a classroom floor. She and the other children loved to put up and use the hammock, helping her to develop proprioception and vestibular stimulation, and to become part of the group through co-operative play.«

Jo Sayers, The Mersey Forest, United Kingdom

span, reduced restlessness and sensitivity. These objectives are not tangible and scientists say they are difficult to measure with tests; they are almost unachievable in our education system. For children with special needs they can denote a "basic package" for inclusion in society.

If the existing practical experience and research confirms that healthy children need nature, it is safe to say that children with special needs need it that much more.

»Interaction with nature can also be therapeutic and improve the general emotional wellbeing of pupils whose behaviour can at times be challenging. The hands on practical tasks involved can strengthen concentration as well as provide sensory experiences that are difficult to recreate in the classroom.«

Lynne Ledgard; Green Lane Community Special School, United Kingdom



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PEDAGOGICAL APPROACH

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Generally speaking, the pedagogical approach to teaching children with special educational needs in natural environments can be defined similarly as for all other children. The same goes for its effects, only that they tend to be reflected differently in specific groups and individuals.

THE PEDAGOGICAL APPROACH FOR CHILDREN WITH SEN IS BASED ON THREE BASIC PREMISES:

Playing and learning in natural environments is suitable for all children, regardless of ability.

Natural environments are an excellent therapeutic and developmental environment.

Natural environments are a source and place of learning for all curriculum areas.

»There are basically no differences between children without developmental disorders and children with developmental disorders. Both are people; both are children; the development of both is subjected to the same laws. The only difference lies in the way they are developing.«

Lev Vygotsky, 1987

Nature has always been the primary environment in which humans learn and develop. It has taken us millions of years for humans to become humans and during that period of evolution, we spent 99.99 percent of the time developing and learning in a natural environment. This learning style has been preserved in our genes, which has been confirmed by many of the research studies mentioned in previous chapters, and recently also by the discoveries of neuroscience (Selhub and Logan, 2012). Throughout the period of evolution, learning was taking place through experience, and in the case of



children mostly through play (Gray, 2013). In the process, humans recognised and shaped emotions, honed social skills, and spontaneously gained knowledge of deeper mental processes. The fact that we still prefer to learn outdoors is corroborated by the structure and functioning of our brains. In the 21st century, our nervous system is still behaving the same way it had in the past.

CHILDREN'S ALIENATION FROM NATURE IN PRESENT TIMES

We know that a preserved natural environment affects the quality of our lives, especially with regard to health. The report published by the World Health Organization (The World..., 2006) states that on a global scale a third of all children's diseases stems from changed environmental

factors, such as air and soil pollution, or lack of access to clean water (Györek, 2014).

Because we have spent the entire period of evolution developing in nature, our senses are still adapted more to stimuli from the natural environment and our brains respond to these stimuli positively, which has been proved by many physiological measurements of physical parameters (Ulrich et al., 1991; Hartig et al., 2003; Park et al., 2007; Van den Berg et al., 2010). In nature, our pulse slows down, our blood pressure and stress hormone levels drop, as does our blood sugar. In the fast-changing modern world, our senses are exposed to many unsuitable stimuli; our body receives and processes many pieces of information that are required just to survive an ordinary day in this urban environment. The situation is the same in all aspects of the modern lifestyle: at work, in kindergartens, schools and in everyday life.

In addition to the effects of such a lifestyle having a negative impact on health, in the case of children they may also transform into

developmental disorders. Experts assume that the changed environmental factors (environmental pollution) are one of the factors that influence the rise in the number of children with special educational needs in modern times (Strife and Downey, 2009).

In the children of today the biological foundations of learning remain the same as in the past, however, in contrast to the past, most of the learning in kindergartens and schools takes place indoors. It is no longer experiential and authentic. Children do not know the names of the trees they are watching through the window every day; they do not know the names of the birds singing in the trees; they do not know whether the moon is waning or waxing. The world outside is unknown and alien (Györek, 2015). The school setting and curriculum is the only source of learning, whereas natural environments have changed into an unnatural, unknown world, which school has to teach them about. It is assumed that the mental and physical health of children is closely connected with the reduced amount of time for free play (Gray, 2013). A prolonged period of inquiry-based learning through free play, as practised in Finland, has an active impact on the proper development of the brain and on a child's thirst for knowledge; on the other hand, it has been established that children who were unable to play in school have developed hyperactivity and attention deficit disorders (Pellegrini et al., 1996). Even socialising, which enables healthy emotional and social development, is diminishing in modern schools and society, and is being replaced by a world of digital technology. Another proof that today's social environment most likely affects the cognitive abilities of children is the research study (Shayer, 2006) whose sample encompassed 10,000 children and which has shown beyond doubt that the cognitive development of today's 11- and 12-year-old children is lagging behind that of their peers from fifteen years ago by two to three years. These are potentially the children with specific learning disabilities in school. The cause is assumed to be precisely the lack of play and experiential learning, and the rise in the use of digital technology.

The latest discoveries in neuroscience have further confirmed these cognitive changes (Hannaford, 2005). **In any case, it can be confirmed that the number of specific groups of children with special educational needs is increasing precisely due to changes in the environment, the modern way of living and learning, and our alienation from nature.**

»With children's access to the outdoors and the natural world becoming increasingly limited or nonexistent, the school may be the last opportunity for our pupils to reconnect with the natural world and create a future generation that values and preserves nature.

We believe the window of opportunity for the formation of bonding with and positive attitudes towards the natural environment for children with SEN develops sometime during early and middle childhood and requires regular interaction with nearby nature. We also believe that the interaction with nature can positively influence pupils with SEN, they do not experience as much boundaries when they are playing outdoors, their curiosity is encouraged with the natural world in a unique way and they learn to discover an explore the outdoors.«

Sofie Swalens, MPIGO Heemschool, Belgium



CAN NATURAL LEARNING ENVIRONMENTS BE A SOURCE OF DEVELOPMENT AND LEARNING FOR CHILDREN WITH SEN?

The environment appears in child development, namely in the development of personality and specific human qualities, in the role of the source of development. Hence the environment here plays the role not of the situation of development, but of its source.

Lev Vygotsky, 1934


We began by defining green learning environments, but we have not yet substantiated why are among the most innovative and stimulating ones. Green learning environments possess many characteristics which are suitable for the development and formal and non-formal learning of children with special needs. This is education "for real", in which education and life are closely combined (Kranjc, 2002) and which gives meaning to learning.

And all psychological orthopaedics with sensory education, consisting of nonsense such as writing full stops with increasing speed, carrying containers full of water, etc., is similar foolishness. Such sensory education can become something else entirely if carried out through play and suitable social relations.

Lev Vygotsky, 1966

Natural environments have already been mentioned as a stimulating learning environment by the founders of modern pedagogy Friederich Froebel, John Dewey and Jean Piaget. Unfortunately, in the present-day school system these findings are not sufficiently heeded.

Froebel gave children their own garden and encouraged them to establish the harmony of a natural environment by observing



natural life, exercising in nature, and playing in it (Garrick, 2009). Froebel's advice from the 19th century should still be heeded today: the learning environment should be safe and intellectually challenging; we should encourage curiosity, research, discovery, multisensory perception, a sense of aesthetics, etc.; combine outdoor and classroom learning, learning about culture and nature, etc.; use diverse materials and sources of learning, etc.; enable free play and learning, and opportunities to create; participate in and develop a partnership, and encourage freedom and independence.

Dewey (1955) mentioned environments and activities which enable learning through experience as an example of a stimulating learning environment. He developed the theory of lifelong and useful knowledge by connecting humans as biological, psychological and spiritual beings. Piaget (1971) stated that a teacher should aim towards stimulating the environment which is enriching the

»The setting was at a local woods, at first, one boy was very resistant to going away from the school and didn't like change; he's on the autistic spectrum. We persuaded him to come along, after the session –according to his parents , he came back full of enthusiasm, we'd being showing him the plants there and the horsetails- which are a prehistoric plant and he'd seen things he'd been reading about.«

*Lily Rowe Horseman,
Kindling Play, Cumbria, UK*

mental and intellectual development of pupils, be prepared for unexpected situations, and have a knack for preparing didactic materials. Good teaching must foresee confronting a pupil with different situations.

A very important area, which we have not yet mentioned specifically, is the gaining of sensory experiences in natural environments.

Why is the gaining of sensory experiences important? We are multisensory beings living in a multisensory world. At any given moment our body receives many pieces of information, which our brains detect, process and respond to; they store the important ones and discard the unimportant ones. Information is received in different ways and, if processed effectively, provides us with an exceptionally rich and sophisticated understanding of the world. All of the experiences we gain depend on our ability to use our senses, that is called sensory integration. Our senses connect our brains and body to the world around us; their smooth functioning enables our survival. All of the experiences we gain depend on our ability to use our senses; abnormalities at various levels of the nervous system may cause movement, learning, socio - emotional, speech and language disorders, or attention deficit disorders.

If appropriate sensory stimuli and gaining of sensory experiences have not been enabled in the period up to seven years of age, learning and behavioural disorders may appear. (Gričar, 2008). Just by thinking about the number and intensity of the stimuli children are exposed to daily, we can realise that a great deal of the behaviour of children with sensory processing disorders is often the result of the overabundance and too high intensity of stimuli or, on the other hand, of a lack of different sensory stimuli. Sensory

impairments are often demonstrated as poor perception of touch, pressure, position of the body or its individual parts (proprioception), movement (vestibular system), and balance. It is most often a case of tactile hypersensitivity (oversensitivity) and tactile hyposensitivity (diminished perceptual skills). In a school setting this refers to the children who jump and throw things at anything in front of them; who cannot assemble a puzzle; who have poor writing skills; who cannot ride a bicycle well; who often cry or cover their ears when there is too much noise around them; who do not want to be touched; who wear specific clothing; who want to eat only one type of food (often only one colour of food); who cannot calm down or fall asleep; who are sensitive to sand or dirty fingers (Gričar, 2012). Incidence of sensory integration disorders is higher in children with special needs than in children who have not been diagnosed with special needs. According to research (Gričar, 2012), almost half of the children with special needs indicate the presence of a sensory dysfunction.

Sensory stimulation is the potential of environmental characteristics to provide sensorial stimulation through various colours, shapes, patterns, structure, size and activity. Sensory stimulation has the ability to change the brain, which is called neuroplasticity. Children with severe and multiple impairments need sensory experiences to develop their cognitive and social skills (Gallaher and Balson, 1994).

Interestingly, special education teachers and therapists have only recently begun to discover the value of natural environments for the development and learning of children with special needs.

The history of creating artificial multisensory environments began with the so-called

“sensory cafés” (Cleveland and Clark, 1996). This development continued with Snoezelen rooms which are today mostly used for special rehabilitation therapies and learning. They have several purposes: they provide an opportunity for affective/emotional development, stimulation for all the senses, relaxation, facilitation of treatment, improvement of communication, reduction in inappropriate behavioural forms, development of self-determination, and the chance to socially interact with children (Pagliani, 1999). A Snoezelen room is in fact an artificially created supportive environment with a broad range of sensory experiences and is today a registered trademark. Using a planned multisensory environment, we enable persons with severe and profound developmental disorders to gain diverse experiences and sensory impressions, and to appropriately respond to them. Multisensory environments have become popular among schools for pupils with multiple disorders in Great Britain, the United States of America and Australia, even though there are no conclusive studies of their positive effects on learning and behaviour (Stephenson and Carter, 2011).

In Snoezelen rooms or multisensory environments we individually plan and dose individual sensory stimuli or a combination of them. However, natural environments provide all of the purposes and advantages of artificial sensory environments mentioned in the above paragraph. In nature, all of the stimuli we receive are balanced. Nature encourages sensory curiosity; it attracts us with unusual sounds, new smells; it never runs out of physical challenges for improving one's balance. The nature (and not necessarily a Snoezelen room) is the one that invites a child with SEN to touch and explore, and promotes motor functions; it has been proved to

contribute to greater relaxation and attention, to reducing stress and aggressive behaviour, self-harm and stereotypical behaviour, and provides the child with emotional support as he/she experiences pleasant sensations and relaxation. Moreover, sensory experiences form an important connection with all other areas of development (emotional, motor and cognitive). **The forest is an excellent learning and therapeutic environment for gaining sensory experiences (Jakovljević, 2014).**

Let us compare the “sensory equipment” of a Snoezelen room and the “equipment of a nature”. The more you provide the child with diverse experiences, the more you stimulate his/her development. Here are a few examples of how to stimulate a child’s development in natural learning environments as opposed to indoor environments:



- **Playing in a pool full of balls** - The rippling of a stream over stones, which is constantly changing acoustically and visually, and enables play and the gaining of numerous sensory experiences, practise proprioception while crossing a stream.
- **Artificial tubes full of liquid and flowing bubbles** - The rippling of a stream over stones, which is constantly changing acoustically and visually, and enables play and the gaining of numerous sensory experiences, practise proprioception while crossing a stream.
- **Balance beam with obstacles, intended for balance (vestibular) activities.** - Walking on a mossy log and feeling with every touch of the foot the different textures, variations in temperature, the cracking of a branch, silence, and sounds, stepping and climbing over stumps and rocks; by walking on a log with closed eyes and standing on one leg on a stump, we practise proprioception; regular walking across uneven forest terrain provides many sensory stimuli.
- **Tactile walls** - Different bark structures of the many tree species in the forest; or in the case of a child with mobility impairments, crawling on the ground. In nature we feel the various textures of the bark of different tree species; we touch and weigh small stones; we daub with mud; we caress moss; we are pricked by the touch of sharp needles; in the case of motor activities we assess the size and hardness of objects we are holding in our hands; we crawl on the ground.
- **Swings indoors** - Swings outdoors, where we are not only developing the vestibular sense, but experience birds singing, the caressing of the wind, the warmth of the sun, and natural light.
- **Water bed** - for the development of the vestibular system - The forest terrain on which our brains have evolved. Climbing trees, swinging from branches, rolling downhill.
- **Beams of multi-coloured artificial light** - Observing the play of light and shadow between leaves, which soothes many a child.
- **Aroma of candles with essential oils** - we train our senses of smell and taste in the forest by smelling and tasting with our eyes closed. We smell crushed needles; the top decayed layer of leaves; mushrooms; wild strawberries and blueberries, which we also taste.
- **Audio accompaniment** - walking in the forest when it rains, or perhaps we place pots in the school yard and listen to the raindrops hitting the metal; the singing of birds; the cracking of branches under our feet; the rustling of leaves; the sounds of animals in nature - we can imitate the animals and grumble like bears, hoot like owls, howl like wolves or murmur like a stream.

In Denmark there are hardly any children with ADD, ADHD and learning disabilities. Why? Because more than half of the children are attending forest kindergartens, where they climb, move around on uneven terrain, jump, etc. The result - a well-developed vestibular system (balance system), which is responsible for such disorders when underdeveloped. They do not send a child with dyslexia to read on a bench, holding a book, but instead use movement as therapy (Hannaford, 2005).

The research conducted by Maler and Townsend (2005/2006) has proved that school yards can stimulate mental development and improve health, emotional growth and social integration through sensory stimulation (e.g. sensory gardens). Furthermore, they increase the pupil’s motivation to learn, especially if coming into contact with animals and plants. Children with autism look for sensory stimulation in an environment in order to more easily calm and self-regulate their nervous system. The forest has a calming effect on certain pupils with an autism spectrum disorder (Sever, 2014). **It is important that through his/her own activity the child gains positive experiences with the sensing of various stimuli. Snoezelen rooms mostly emphasise the static and passive aspect of use (Jakovljević, 2014).** Children with SEN need a rich and stimulating early environment, learning that is more active than passive, and an environment that greatly highlights experience (Sprinthall, 1990).

Research conducted on adults with mental disorders has likewise shown that stereotypic behaviour is reduced much more after outdoor activities than after visiting a Snoezelen room (Cuvo et al., 2001).



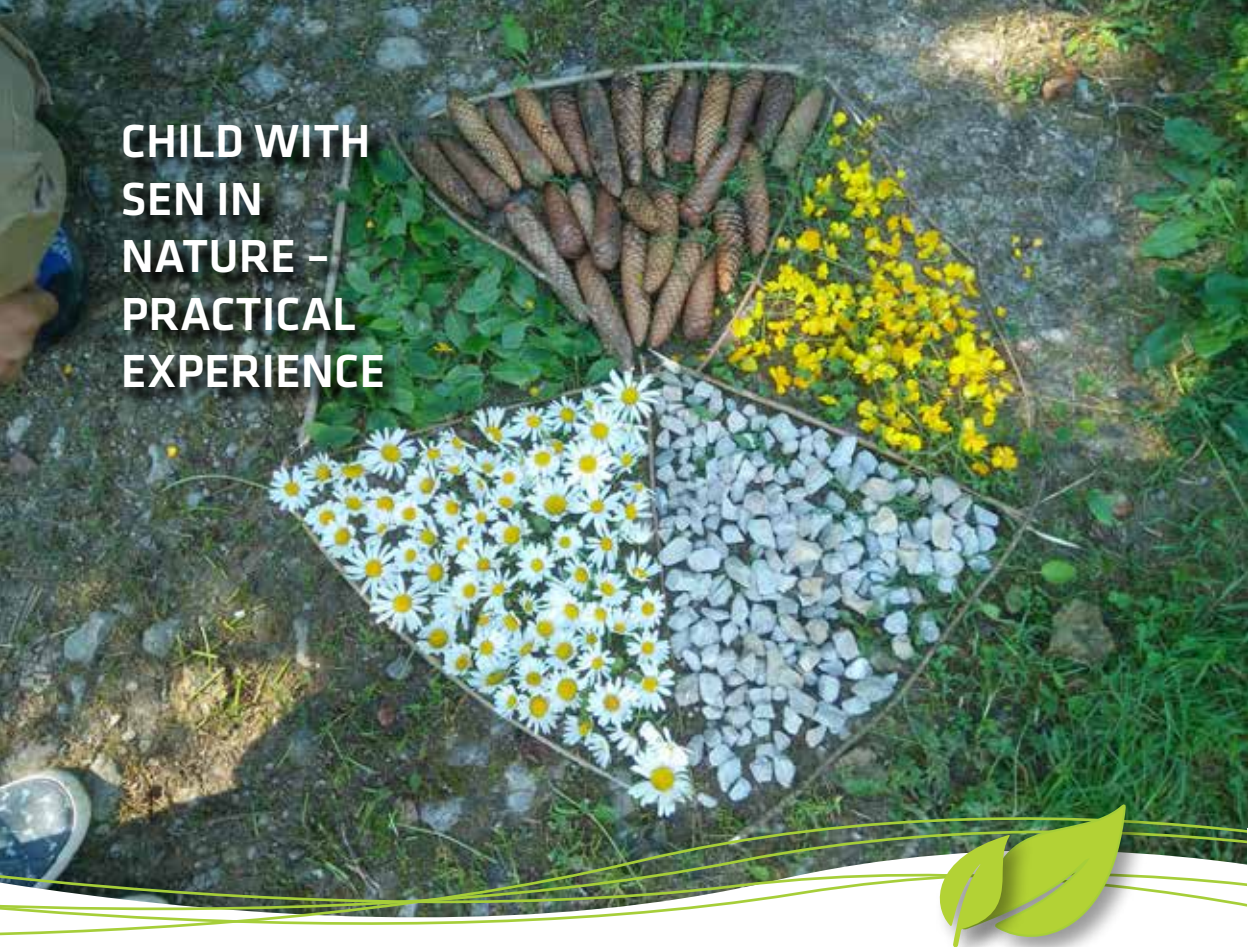
»Nature is important for children with special needs as it is an exciting and very sensory high quality place to learn. The environment provides a very clear educational journey that maximises potential, stimulation and fun. Outdoors offers an alternative to the majority of the SEN children’s learning environments, flooding their senses with wonder and pushes our students to the limit in understanding risk taking. Success is often very clear within their learning e.g. cold, so produce heat - success. The experiences are often lasting due to its impact on all the senses.«

Sefton Booth; Bluebell Park School, 2017

»It is important for pupils with SEN to be part of the natural world and experience a wider variety of play experiences. It can stimulate imagination and creativity within play as SEN children may find it hard to role play and imagine scenes or scenarios other than the ones in which they directly find themselves. It will also allow them to take part in team building exercises as well as experience an aspect of life skills that they might not be involved in anywhere else.«

Lynne Ledgard; Green Lane Community Special School, United Kingdom

CHILD WITH SEN IN NATURE – PRACTICAL EXPERIENCE



Children with special educational needs receive and respond to information and sensations differently, but still in the same “childlike way”. Children judge the natural setting not by its aesthetics but by how they interact with the environment (Sebba, 1991).

The concept of affordances was introduced by the psychologist Gibson in 1979 (Gibson, 1979). The theory of affordances states that the world is perceived not only as a multitude of shapes and spatial relationships, but also in terms of which functional possibilities elements of the environment can offer. These are said to be all of the action possibilities provided by the space. If we incorporate the activities of children in a natural environment into this concept, we see that the perception of the functional possibilities of the elements of the environment is highly individual, personal and usually unpredictable in the case of each child or group of children. The possibilities for use in

natural environments are extremely diverse – various shapes, elements and materials provide different possibilities for playing, learning and therapy, which influences the development of new ideas and possibilities. The concept of affordances of the natural environment is usually positive, but in certain groups of children, such as children with cognitive impairments or autism spectrum disorders, it is not necessarily so.

Children with severe and profound multiple disabilities may be unable to learn from general teaching methods because the children were insufficiently aware of the world around them (Pagliano, 1999). They have a diminished ability to learn in everyday situations, as well as to learn in structured school situations. Nevertheless, we must enable children with a severe and profound mental disability and children with mobility impairments, who mostly perceive the natural environment

Various questions arise:

- *How familiar and friendly are “different” natural environments to children with special educational needs?*
- *What can they do depending on their type of impairment?*
- *How safe are specific natural environments, e.g. the natural forest, for children with SEN?*
- *How can natural environments influence their impairments and support learning?*



through experiencing, to experience and observe nature (Cerar et al. 2004).

Each pupil with a developmental disorder perceives the forest differently and responds to it differently due to his/her special characteristics. A child with a mental disability will go to the forest if externally encouraged. Despite several visits, the forest is still a new, unknown environment to the child. Upon arrival such children follow the group and the teacher. A child with a moderate disorder will notice mostly the trunks and surroundings at eye level. A child with coordination and balance disorders will focus a great deal of attention on walking safely and will not notice any other details. A hyperactive child will use the forest to run in an unknown direction. Due to balance disorders, he/she will often fall down in the process. The children do not engage in independent play or their play is limited to a minimum and repetitive. A great majority of the children has no experience whatsoever with walking uphill or on uneven terrain, crisscrossed with roots or covered with leaves (Sever, 2014).

Similar findings have been mentioned by teachers from the Ljubo Šercer Primary School Kočevje. During the formal monitoring of children in natural environments under the project it was discovered that children with SEN, who are attending a special education programme in Slovenia, need a great deal of guidance and external encouragement when carrying out activities; that they grow tired quickly, find it hard to cooperate with one another, and constantly seek help from the teacher. Their motor skills in natural environments are poor, their attention span is diminished, and they do not express the wish to visit a natural environment. On the other hand, certain positive effects of spending time in natural environments have been observed among the children in a programme with a lower educational standard: they help one another and cooperate; exchange experiences; are in better physical shape; their motor skills are better developed; they enjoy being in natural environments; they perform their tasks independently and without the help of a teacher; the knowledge they gain this way is retained longer, as is their attention; however, deviations have been noticed in pupils with behavioural and emotional disorders (Formal and Informal Monitoring of Activities in the Natural Environment - ERASMUS +, 2017).

Pupils in the special programme need much more motivation for any activity, hence also for forest activities. In the case of children attending the special programme, the forest is suitable for developing their basic functions, while forest activities are more complex under the programme with a lower educational standard; in addition to movement, they are mostly intended for learning at higher levels (higher-order mental processes). It has been observed that the forest is a perfect environment for stimulating the development of exploration, because pupils automatically start exploring new parts of the forest. We are not only talking about the location itself, but about each element of the forest, be it rocks, trunks, water, etc., because nature always changes a bit with each visit (Šmid, Formal and Informal Monitoring of Activities in the Natural Environment - ERASMUS +, 2017).

DIFFERENT APPROACHES TO THE LEARNING AND DEVELOPMENT OF CHILDREN WITH SEN IN NATURAL LEARNING ENVIRONMENTS



The schools participating in the project are carrying out the educational process in different natural learning environments: forests, parks, meadows, as horticultural activities, the cultivation of garden crops, or spending several days in nature. These activities are being implemented during regular lessons or as activities outside the school timetable. Schools have the possibility to participate in different programmes with rather similar concepts: forest schools are widespread in Great Britain, outdoor learning is being implemented

in all three countries, and the concept of forest pedagogy is well established in Slovenia. All of these approaches are well established and in use in said countries.

All three concepts are suitable for all groups of children with special educational needs. What these three concepts have in common is learning through movement, active experiential learning, and prioritising the child's development, with emphasis on the strengthening of non-formal skills.

FOREST SCHOOLS IN UNITED KINGDOM

Forest School is an innovative, self-led learning approach adaptable for all age groups in a woodland setting, supported by a trained Forest School Leader. Forest School is based on a concept imported from Scandinavia and other areas of Europe. Within Denmark, it started as good teaching practice to use the outdoor environment with children, giving them freedom to play and discover nature. Forest School first came to the UK in 1993 when a group of British teachers returned from Denmark with an enthusiasm for a new approach to education – one that put individuals and the different ways they learn at its centre.

How does it work?

Within a school setting, children might participate in a regular two-hour, weekly session over the course of a minimum of six weeks. The sessions, which include activities such as building dens, cooking over fires, knot-tying and making art with natural materials, help to combat children's increasing isolation from the natural world, arising from greatly reduced freedom to roam and society's increased fear of risk.

Classes are taught outdoors in a wooded area, either within the school grounds or at a local woodland, and help children build their confidence, improve their teamwork and practical skills, and learn about natural environments. Forest School isn't just about delivering the national curriculum at a primary school level, however. It has a range of applications and can be used to teach all ages.

Principles of Forest School

These principles were first articulated by the Forest School Community in 2002. They were reviewed in 2011 and sent out for a 5-month consultation to Forest School networks and practitioners in all UK nations.



- FS is a long-term process of regular sessions, rather than a one-off or infrequent visits; the cycle of planning, observation, adaptation and review links each session.
- FS takes place in a woodland or natural environment to support the development of a relationship between the learner and the natural world.
- FS uses a range of learner-centred processes to create a community for being, development and learning.
- FS aims to promote the holistic development of all those involved, fostering resilient, confident, independent and creative learners.
- FS offers learners the opportunity to take supported risks appropriate to the environment and to themselves.
- FS is run by qualified Forest School practitioners who continuously maintain and develop their professional practice.

The combination of the Forest School programme and the regular school programme together offer great potential for the educational development of children with significant learning difficulties and disabilities. The analysis of change showed that children's greatest relative strengths at the start and end of the programme appeared to be in areas concerned with kinesthetic skills. Improvements seemed to have been made in a number of additional areas including those concerned with auditory and visual skills, social and interactive skills, and concentration (Pavey, 2006).

FOREST PEDAGOGY IN SLOVENIA

»We are striving towards making the forest a natural part of daily activities and not just one of the many options occasionally made available to children.«

Natalija Györek, Institute for Forest Pedagogics

Forest pedagogy is a method of environmental upbringing and education, which offers not only learning about the forest or nature as an ecosystem, but also has a significant impact on the upbringing and holistic development of children and adults. It is a recipe for a healthy, calm and optimal development of children and of all of us. Through forest pedagogy we are enabling children and adults to explore nature in a safe and relaxed way, identify their own feelings and needs, and properly respond to them, all in the richest learning environment – Slovenian forests, which cover as much as 60 percent of the country's surface area.

Since 2012, Slovenian kindergartens and schools which have incorporated forest pedagogy into their programme have been formally united in the Network of Forest Kindergartens and Schools of Slovenia. Today, over 100 educational institutions are united in the Network. The methods of incorporating forest pedagogy into the regular programmes of Slovenian kindergartens and schools are diverse and unique, as are our forests and children. Thus, with its own development path, Slovenia is increasingly becoming an example of good practice in the broader European area as well.

Forest pedagogy addresses parents, preschool teachers, teachers and therapists, and through them the children. It is intended for all children, including children with special educational needs, regardless of character, habits, medical diagnoses and problems. In the forest, each child will find something

that suits him/her. In the process we need to consider the children's developmental characteristics, their reasoning and attention skills, and the differences between genders.

We are active in three complementary fields:

- Developing work methods of natural sciences with emphasis on learning about and promoting Slovenian forests and sustainable management, and with the desire to bring natural sciences and scientific and research activities closer to the children and youth.
- The forest as a classroom and a source of ideas for all subjects or curriculum areas, with emphasis on various didactic approaches, striving towards the development of active and modern teaching methods in nature and with nature.
- The impact of nature on the health and holistic development of children, and its impact on the development of their values.

Spending free and school time in the forest has many positive effects on children:

- Children establish a genuine contact with nature and understand it better because of that.
- Children develop a sense of responsibility towards nature, and appreciate and protect it more.
- Children are more creative in nature, think more freely, and are less burdened.
- In the forest children learn to move freely, which has a positive impact on the development of their motor skills and of their brains.
- In the forest children calm down more easily, are more relaxed, and build interrelationships more easily.
- Children gain diverse skills, learn through play, and gain experience for everyday life.

- Spending time in nature in any weather has a beneficial impact on children's health.

The competences of a forest pedagogue are:

- knowledge of the forest;
- helping with learning, and using various work methods;
- ability to lead the learning process in nature;
- ability to make pupils enthusiastic and to recognise enthusiasm;
- building knowledge on experiences;
- making use of situated learning;
- being able to give basic first aid.



OUTDOOR LEARNING

Jordet (1998) has defined Outdoor Learning like this:

Outdoor learning is a way of working with the school curriculum where parts of everyday life in school is moved out of the classroom – into the local environment. Outdoor learning implies frequent and purpose driven activities outside the classroom. Outdoor learning gives the pupils the opportunity to use their bodies and senses in learning activities in the real world in order to obtain personal and concrete experiences. It allows room for academic activities, communication, social interaction, experience, spontaneity, play, curiosity and fantasy. Outdoor learning is about activating all the school subjects in an integrated training where activities out-of-doors and indoors are closely linked together. The pupils learn in an authentic context – that is: they learn about nature in nature, about society in the society and about the local environment in the local environment.

This means that outdoor learning gives the pupils personal and concrete first hand experiences based upon authentic real life-situations. Outdoor learning implies that pupils and teachers sometimes have to leave the classroom and the textbooks in their search for knowledge. They have to walk to the forest to learn about plants, animals and the interaction in nature, they visit art galleries and handicraftsmen to learn about and to be inspired to work with arts and crafts, they move out and make observations and surveys in order to have information which they can use in the social sciences and maths lessons, in projects etc. They seek out the sources in their local environment and community and bring this knowledge back to school for further preparation – for reflection, communication, reading, writing, dramatizing, creating etc. In this way theoretical, practical and aesthetic approaches walk hand in hand in the training process (Jordet 2007).

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KEY MESSAGES



»Children learn in the forest if they have a sense of security; if the contents have meaning; if they have the possibility to choose methods, and a time for work and reflection, for rest, free play and creative work. Schools should take into account that children cannot be without spontaneous moments, physical activity and creative work.«

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The learning and development of children with special educational needs is hard to define uniformly. Their problems differ greatly; what is more, one child may be diagnosed with multiple issues, which together give a highly complex picture. Research studies have shown that children's contact with nature has a positive impact on all areas of a child's development. Numerous pedagogues, therapists and parents have listed the positive effects of spending time in nature on children with SEN based on their experience.

WE SHOULD ALWAYS PROCEED FROM THE CHILD'S PRESERVED ABILITIES AND NOT FROM THE IMPAIRMENT.

During all activities in nature the children should be active and learning should be carried out based on experiences and situated learning, which we should connect with knowledge and understanding (not with retention!). Contents should be presented in a way that keeps the children active; they should look for and collect material on their own. We should provide help only when they really need it; let them develop their independence and in the process, if possible, see to and encourage mutual help and cooperation.

THE POSSIBILITIES FOR USING NATURAL ENVIRONMENTS FOR DEVELOPMENT AND LEARNING DIFFER AMONG DIFFERENT GROUPS OF CHILDREN WITH SEN.

However, practical experience has shown that all of them have to be provided with diverse sensory impressions and active experiences. We are often unable to judge their interest because the children do not provide proper feedback, which leads us to unknowingly give and demand less, which is probably not the best decision. Sometimes all they need is additional encouragement, guidance and motivation. Such a learning method also helps the teacher to develop a subtler feeling for nature, since by helping a child to feel sensory perceptions, we too notice details that we often overlook.

THE OPTIMAL DEVELOPMENT AND LEARNING OF CHILDREN WITH SPECIAL EDUCATIONAL NEEDS IS INFLUENCED SIGNIFICANTLY BY SPENDING TIME IN NATURAL ENVIRONMENTS. IN THE CASE OF ALL CHILDREN WITH SPECIAL NEEDS WE ARE TRYING TO DEVELOP NATURAL FORMS OF MOVEMENT AS MUCH AS POSSIBLE, AND INFLUENCE THEIR MOTOR DYSFUNCTIONS

THROUGH FREE PLAY AND BEING CREATIVE IN A NATURAL ENVIRONMENT.

Raising the awareness of children, the profession and people about the importance of movement in nature should be the first objective to be incorporated into educational institutions. A human being is nature, which is why it is important that we develop as many non-formal skills as possible in nature, where it is easier to connect movement, thinking, touch and sentience, and express ourselves in a primal way. We recommend as many physical exercises in nature as possible, which imitate natural forms of movement, such as walking, standing, running, swinging, creeping, crawling, climbing, rolling and sliding (Jelen, 2017).

IN PRESENT TIMES THE LATEST DISCOVERIES IN THE FIELD OF NEUROSCIENCE CAN BECOME AN IMPORTANT PART OF THE PEDAGOGICAL WORK METHOD.

Judging from experience, this leads to better results and work carried out in natural environments (meadows, ponds, forests, near brooks, with animals – horses, dogs, etc.) always makes a bigger impression on the children and on their sensory integrity when compared with physical and educational work within four walls – in close quarters (Jelen, 2017). The existing school programmes, also those for children with SEN, are based primarily on cognitive development, which is taking place behind school desks and by means of workbooks and textbooks, and are as such often ineffective. The active gaining of sensory experiences is important.



IN THE CASE OF CHILDREN WITH DEVELOPMENTAL DISORDERS THE SAFETY OF THE CHILDREN IN AN OPEN SPACE IS OF TOP PRIORITY.

Children with developmental disorders usually have underdeveloped spatial orientation. Then there is the danger of them running away. Pavey (2006) has mentioned similar problems when evaluating the forest school programme in Great Britain. These included occasions where children experienced fatigue, particularly in the early stages of the programme, and also overexcitement, occasional overactivity or aggression (Pavey, 2006). Teachers also often point out the possibility of pupils ingesting poisonous plants and fruits. Children like to taste all of the objects in nature with their mouths, which is normal; as pedagogues and physical therapists we are aware that this process activates the primary nuclear centres of the brain and of the limbic system (Jelen, 2017). It is important that we provide the child with a space to which he/she can retreat when in nature.



CHILDREN WITH MOBILITY IMPAIRMENTS SHOULD NOT BE A BARRIER TO VISITING NATURAL ENVIRONMENTS.

It would nevertheless be sensible to ensure wheelchair access to the nearby natural environment, which may be an issue for the broader social segment and perhaps even for decision makers. Highly positive feature and the one that was the most popular among the users, was a wide pathway that gave access to the facilities that were readily accessible (Moore and Cosco, 2007).

A TEACHER OF CHILDREN WITH SPECIAL EDUCATIONAL NEEDS SHOULD ABOVE ALL HAVE THE ROLE OF MODERATOR, WHO EMPLOYS A MULTISENSORY AND EXPERIENTIAL APPROACH TO ENCOURAGE CHILDREN TO INCORPORATE EMOTIONAL, PHYSICAL, AESTHETIC, SPIRITUAL AND COGNITIVE EXPERIENCES AS PART OF THEIR LEARNING.

Through activities in nature we should help a child to overcome his/her physical, intellectual and emotional problems that are hindering his/her development and learning. There is no uniform prescription for these children; their reactions are sometimes unpredictable

and they can easily turn many a theory upside down, which calls for ongoing adjustments. Namely, the teacher determines academic achievement much more than the programme (Galeša, 1993). In nature you are not just a pedagogue, but an actively participating explorer, a listener and observer of children, who enjoys nature just as much as they do, and who learns together with the children, and, of course, looks after their safety. The best teachers (I am referring to people who know how to help others learn, not merely the qualified experts) are patient and make barely noticeable suggestions, which are neither critical nor judgemental (Cunningham, 2016).

FOREST SCHOOLS, FOREST PEDAGOGY, OUTDOOR LEARNING ARE CONCEPTS WHICH COULD SIGNIFICANTLY DIVERSIFY THE EDUCATIONAL PROGRAMMES FOR CHILDREN WITH SPECIAL EDUCATIONAL NEEDS, AND, IF NON-FORMAL OBJECTIVES ARE PURSUED, COULD FURTHER INDIVIDUALISE AND STRENGTHEN SAID PROGRAMMES.

Activities in natural environments are suitable for all groups of children with SEN, regardless of the highly heterogeneous differences within specific groups.

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Bluebell Park School, a special school from England is divided into three departments: a lower and upper school and a department for children post 16 years of age, and teaches children and young people between the ages of 3 and 22; the same goes for the **Green Lane Community Special School**, which is attended by children between the ages of 4 and 16. At the Belgian **Heemschoole**, which is part of a medical and educational institute, 50 percent of children, in addition to the children attending school, are under constant supervision, as many as 30 percent of whom have been enrolled in the school because of unruly behaviour and by a decision of the juvenile court. The second Belgian school, **Sint Gregorius Buitengewoon Basisonderwijs** (BuBaO), likewise comprises three departments: a medical and educational one, and a lower and higher primary school. In Slovenia, the education of children with special educational needs takes place in primary schools with an adapted programme, namely they implement the **Special Educational Programme and the Adapted Nine-Year Primary School Programme with a Lower Educational Standard**. These schools enrol children ages 6 and up. Certain Slovenian kindergartens have set up child development departments, since early professional intervention for children with special educational needs is crucial for them to develop more successfully. Some of these kindergartens are already incorporating natural environments as important therapeutic environments for children with developmental disorders, and can be viewed as examples of good practices. Furthermore, certain **occupational activity centres** in Slovenia have also joined us as examples of good practices; in addition to the Ministry of Education, the activities performed by these centres also fall under the jurisdiction of the Ministry of Labour, Family, Social Affairs and Equal Opportunities and of the Ministry of Health. To a great degree, these centres also incorporate spending time in natural environments into the lives of their protégés.

