



CHILDREN IN
PERMACULTURE

Case Studies

Sharing permaculture with children

January 2016

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Children in Permaculture (CiP) is an Erasmus+ project in which seven European organisations are working together to improve the education of children in formal, informal and non-formal settings through the development of resources such as case studies, curricula, session plans, films and other resources. These resources will enable kindergarten and school teachers, permaculture practitioners, parents and other educators to engage in holistic, sustainable education with children based on permaculture ethics and principles.

Project Partner Organisations



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CHILDREN IN
PERMACULTURE

Case Studies

Introduction

This set of eight case studies are inspirational stories describing activities that the Children in Permaculture partner organisations and their members have been carrying out over the past years. Some have been sharing permaculture with children for many years, whilst others are new to working with children (but have experience working with adults) and others have been working with children for a long time (but are new to permaculture).

The case studies are diverse - they come from six different countries across Europe (Scotland, Romania, Finland, Slovenia, Czech Republic and Italy); are in very different settings, including informal (parenting), non-formal (e.g. after-school groups) and formal (in schools and kindergartens); include children of different age groups (from 0-12 years); and describe very different activities (from gardening to free play).

Each case study describes the children, organisation, style, location, and process of using permaculture in their particular setting. They emphasise the permaculture principles and ethics used in their activities, enabling the reader to learn from real life examples of engaging children in permaculture. Highlights give an insight into what the experience was like, and top tips enable the reader to learn from the wisdom gained, as it's great to learn from other people's mistakes and successes.

These case studies will serve as an inspiration for parents, teachers, and other educators; giving them ideas, hints and tips which they can use to vision their own journey engaging children in permaculture.



Glossary

Children in Permaculture (CiP) – European project funded by Erasmus+ to explore best practice for sharing permaculture with children.

Educators – adults who educate others. In this document, educators of children in formal, non-formal and informal settings. Educators can include school/ kindergarten teachers, classroom assistants, nursery assistants, head teachers, parents, home-schoolers, childminders, scout/guide leaders, tutors, Forest School practitioners etc.

Formal education – education within a school setting.

Guild - the permaculture principle "Value diversity including guilds" refers to an observation from nature that different species of plant grow well together and support each other in different ways. For example in a garden, the guild called the Three Sisters is maize, beans and squash in which the maize grows tall (giving the beans something to grow up), the squash grows along covering the ground (preventing weeds) and the beans fix nitrogen (which is available to the other plants). The term "guild" can also be applied to people where different people support each other in different ways.

Informal education – education at home, whether the child is also at school or not, can be done by parents, grandparents, guardians, carers, or other members of their family or community.

Non-formal education – education in an out-of-school group such as Scouts, Guides, Woodcraft Folk, after-school clubs etc.

Pedagogy – the method of teaching, the 'how' rather than the content of what is being taught.

Permaculture – the philosophy and practice of creating a "permanent culture", as defined by Mollison and Holmgren (1978). Permaculture has become a worldwide movement encompassing practices for sustainable living.

Principles - Permaculture is based upon principles which have been learnt from indigenous people and through studying nature. Five attitudinal principles were initially described in Bill Mollison's "*Permaculture a Designer's Manual*" (1988), and expanded upon by Bill Mollison and Reny Mia Slay in their "Introduction to Permaculture" (1994). Later, David Holmgren in "*Permaculture Principles and Pathways beyond Sustainability*" (2002) described 12 principles which are now the most widely cited permaculture principles. In the case studies, both Mollison's and Holmgren's principles are used, whichever the author felt was most appropriate.

Outdoor classroom - a physical structure built for children to learn outdoors. It usually includes seating and often has a roof without walls.

Outdoor learning space - any outdoor space designed for children to be learning, including raised beds, polytunnels, composting systems, log piles etc.



Educational programmes about nature and sustainable living in Cassiopeia

A Czech nonprofit NGO, Centrum ekologické a globální výchovy Cassiopeia (Centre of Ecological and Global Education, Cassiopeia), based in České Budějovice in south Bohemia is the focus of this case study.

(1) Learning how rain starts and creating an example in class.

The NGO has 20 years of experience working in the area of environmental education with school children of all ages. Over this time, large numbers of educational programmes for classes about nature and how to live in harmony with nature were evolved in Cassiopeia, whilst indirectly bringing awareness of permaculture ethics, principles and teaching methods to many schools. A national network connecting centres of environmental education in the Czech Republic was founded in 1996. Nowadays it includes 44 organisations from different regions of the Czech Republic and their educational programmes reach 317,000 children and 100,000 adults every year. This creates real potential for the dissemination of

permaculture principles and ethics to schools. The activities about water and recycling introduced in this case study are examples of Cassiopeia's approach and their way of sharing permaculture with children.

CEGV Cassiopeia and cooperation with schools

The main focus of Cassiopeia is cooperation with schools about environmental, multicultural and social education (sharing the permaculture ethics of Earth care, People care and Fair share). Cassiopeia offers programmes via websites and booklets sent to all schools in the region before the beginning of the school year. Environmental education is a mandatory part of the school

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curriculum in the Czech Republic. Teachers often do not have enough time and resources to prepare this thoroughly and therefore externally taught educational programmes during the school year are a good solution. Teachers employ educators from Cassiopeia to lead 1-2 hour long indoor programmes (taking place in school or in the centre) or outdoor programmes of 4 hours to 3 days in length, based on active learning methods. The employment contract is made via an internet based booking system. The programmes are paid services, but are supported from public sources (occasionally also from private donors). Cassiopeia also spreads the idea of conscious consumption through seminars and conferences for educators, creating methodical materials and teaching aids and organising public events with the support of their nature garden with its permaculture elements. The nature garden next to the centre helps visitors to understand concepts such as redistributing surpluses, by offering flowers, fruits, a space for activities and a play space for the visitors to enjoy.

Children, schools and programmes

Some educators, classes and schools have a long history of cooperation with Cassiopeia, whilst



(2) The best opportunity to teach children in Cassiopeia is in a three-day programme in nature.



(3) Children explain how to save water and act out being a washing machine - the programme 'Water cycles'.

others just occasionally use our services. Approximately 15,000 children per year attend Cassiopeia's educational programmes. The programmes most thematically connected with permaculture are those about environmentally friendly households, waste and recycling, food, wool-felting, pond-dipping, gardening and the life of a tree.

There are 29 programmes for kindergartens in Cassiopeia (21 indoor, 8 outdoor); 60 programmes for primary school (42 indoor, 18 outdoor); 39 programmes for secondary school (28 indoor, 11 outdoor); and 9 programmes for high school (6 indoor, 3 outdoor). The best opportunity to teach children is in a three-day programme in nature led by the educators from Cassiopeia in the beautiful countryside of South Bohemia, in late spring and early autumn. Schools can choose from five potential locations for these stays.

The following examples of activities from three educational programmes demonstrate mostly indoor activities with primary school classes, but also outdoor activities with kindergarten children.

Activities

The aim of every session is to let children

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experience the topic and allow them to create a stronger relationship with nature (or people), not just to offer the information. The session usually begins by introducing the educator and the children, and then begins to motivate the children through story, theatre, a question or a riddle. The programme consists of different connected activities connected, awakening and training the children's imagination, using moments of surprise and simple inspirational visual aids. Mostly they are connected by some kind of story or theme, sometimes the children make something with their own hands.

Water cycles

The programme 'Water cycles' is created for children aged 6-11 years, and is a good example of an indoor programme that aims to build responsibility and consciousness about nature. Children learn in a playful way to explore their own relationship to water. They think about what water does for them and what they can do for water protection. They explore how to apply the permaculture ethic of Earth care by reducing unnecessary consumption and by keeping water clean. We use methods such as small group work, mime, drama, and peer learning to learn about the



(5) Children using a model to show what happens to water in the built environment.

ethics of Earth care, People care and Fair share, as well as the permaculture principles of *Apply self regulation and accept feedback* and *Creatively use and respond to change*.

Top tips

For group activities to work smoothly there is a need for clear rules for the children, set up at the beginning of the session (e.g. only one child speaks at once, we put our hands up when we want to say something, during the games we are free to make more noise, etc.) and also clear instructions at the beginning of every activity.

Highlights

A real highlight is when children learn experientially through play and suddenly 'get it'. For example when we create a model pipe network and children see the effects of a ruptured pipe or damaged wastewater treatment plant, then suddenly realise how important it is to look after precious resources like water.

An interesting moment came in one class when we spoke about the bad mood that was created in class when some people were blamed for mistakes by others, and how this did not make our work better, but worse. We agreed that we have to support each other to complete the task



(4) Children showing where you can find water in nature.

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well. We imagined that the water going through the pipes became 'dirty' due to the fact we were arguing (making a dirty atmosphere) and that it is pointless to bring it to the house in this state. We agreed that we had to clean up our behavior with each other first to make the water 'clean' again. The children tried and when the water was 'clean', then they could carry on.

Where do you dwell?

The programme 'Where do you dwell?' is created for children aged 5-6 and is a demonstration of a beautiful way to use urban greenery - marginal biotopes such as parks - for education. The programme is mainly the story of a small egg. The class finds it and is searching for the egg's parents throughout the park. The group of children ask trees with cavities for inhabitants living within them, they speak with felted animal toys hidden inside and they help them with their daily tasks. Children meet a worm, ant, mouse, spider and bird. The educator helps them to experience earth care through consciousness that we care for other beings, even for the smallest bird. They experience People care through teaching them to greet the tree and ask politely for help, and also by setting the rules for the



(7) Children find a nuthatch pair in the park and return the egg to them.

programme to take care of ourselves. Lastly they experience Fair share by voluntarily giving their time to find the parents of the egg. Children are learn to observe by searching for and identifying trees after their photos and are also learning to interact by speaking with animals who redirect them along the way.

Top tips

Use the permaculture principle of *One element supports multiple functions* through using activities which have been written for other programmes (e.g. creating a longer programme composed of activities from shorter ones). Also you can look at all the functions of your sessions such as having fun, learning about water, developing cooperation skills, understanding the need for Earth care, and building a connection to nature.

Living on landfill

The programme 'Living on landfill' is a programme created for children aged 6-8 years. The activities are also simplified for 4-5 year olds. The programme is aimed primarily at exploring ways to reduce waste. One of the best activities is 'The story of four yoghurt pot brothers' which uses drama to develop empathy and problem solving, as



(6) Kindergarten children with a *Cassiopeia* educator searching in the city park - the programme "Where do you dwell"?

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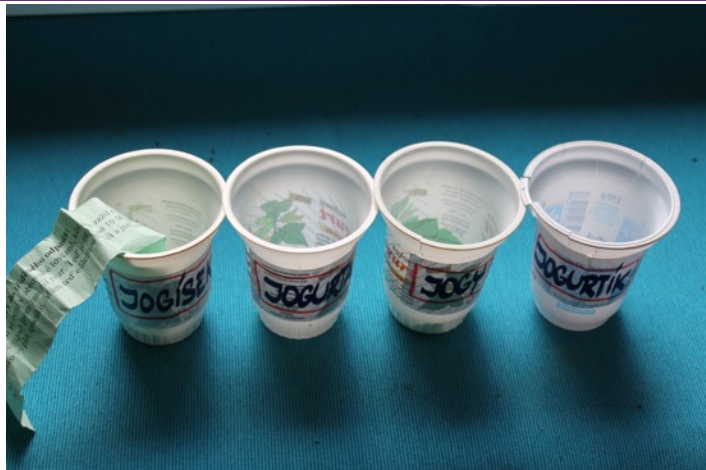


children search for new uses for old yoghurt pots. Children experience how reusing and reducing waste is more important than just sorting it for the recycling bin, which creates new problems to solve. This programme touches all three of the permaculture ethics directly, and children learn to apply them all: Earth care by trying to reduce consumption by reusing waste instead of buying new products, People care by thinking together and Fair share by using their empathy to think about fairness.

Highlights

A highlight is when children show how they have absorbed ideas which can positively impact their family, for example after one programme a girl said: “From now on I will always tell my mum not to throw things away into the landfill”.

A parent of another child told me that after her daughter came home from a Cassiopeia camp last year they stopped buying products that cannot be recycled.



(8) The four yoghurt pot brothers - 'Living on the landfill'.



Permaculture in Gatehouse Primary School, Scotland

Gatehouse School is a small rural school in Galloway in South-West Scotland which has gradually been increasing the understanding and implementation of permaculture.

(1) Children celebrating their harvest from the polytunnel.

Various projects have been implemented over the last four years (2012-2016) including children designing and creating an orchard, garden, outdoor classroom, peace garden, raised beds, fire pit, composting systems, and wormery, as well as activities such as forest schools, campfire cooking, photography and film-making.

Gatehouse Primary School

The school has approximately 100 pupils in primary classes 1-7 (aged 4.5 to 12 years) and approximately 30 in the nursery school (aged 3-5 years), almost all are native English speakers. The permaculture projects have been mainly with primary classes 1-7. There are five classes in the primary school, all of which are composite classes

(multi-age classes, e.g. p1/2) with approximately 24 children in each.

The school follows the National Curriculum for Excellence which fits well with permaculture in that it emphasises sustainability, outdoor learning, growing food and cross-curricular activities.

The headteacher of the school is highly supportive of permaculture education with children and has experience growing food with his own children as well as in other schools. Three parents of children in the school are permaculture practitioners (and are on the parent council). When a practitioner has an idea for a project, the parents generally meet directly with the headteacher, discuss how it can work best, and set

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dates and times. Practitioners are then free to lead the project without much further input. Below we describe 5 projects.

1. Designing the front of the school

The “eco-group” (two children from each of the 5 classes and two permaculturists) designed the garden area at the front of the school. They started with observations - inviting all children in the school to draw their ideas, consulting neighbours, parents and teachers, and mapping the site. The eco-group creatively designed the front of the school and won a competition to receive fruit trees. This enabled them to plant an orchard with the whole school present. The fruit trees were edged and under-planted with herbs and other perennials.

A travelling theatre group performed a play about orchards which helped the children to learn about the varieties of apples and their importance in our culture.

Highlights

Engaging the whole community in the consultation, and changing the entrance to the school from a short grass plain to a diverse orchard / mini forest garden is a real statement to all visitors.



(2) All the children and teachers in the school came out together to plant fruit trees at the front of the school.



(3) Children sawing hazel to make edging for the mini-forest gardens.

2. Gardening

There have been gardening sessions with children led by volunteer parents every week since around 2011. The format of these sessions has varied over the years from having only one parent volunteer with 6 children, to having the full class with their teacher. Sometimes individual children/classes are responsible for ongoing tasks (e.g. watering the polytunnel).

Top tip

Getting the whole class out with the teacher and two permaculturists improves behaviour, gives good ratios of adults to children, and enables the teacher to make links with their class work.

Highlights

When we harvested enough food for every child in the school to take one bag of mixed produce home and still have two huge pumpkins for Halloween! Also children's faces when they see the fruits of their labour and eat vegetables and fruit which they have grown themselves.

3. Forest Schools

On Friday afternoons there were activities for the whole school to choose from, enabling

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children of different ages to mix together and learn new skills. One of the most popular was the “forest school”, in which 17 children, 1 school teacher and a permaculture practitioner would walk to the local woods to play games to develop their nature connection, social and group working skills.

Highlight

When the headteacher saw a child with ADD (Attention Deficit Disorder) who was working alone building a home for a little clay creature he'd made and said “That is the first time I have ever seen him concentrate like that.”

4. Food for Thought

The school's successful bid for £5,000 from Education Scotland's “Food for Thought” fund enabled us to build an outdoor classroom, polytunnel, wormery, hot composter, compost bays, and fire pit. Permaculture practitioners worked with a film-maker and 12 children of mixed age groups over several sessions. The children enjoyed foraging in the woods, creating a fire pit and benches in the school grounds, cooking on an open fire, creating songs and music, and the crew edited the shots into a short film¹. Many recipes were trialled for campfire cooking and a recipe book was created and sold to parents and visitors.



(4) Campfire cooking in the school grounds.



(5) Children in the outdoor classroom after a gardening session.

Teachers were engaged in a full day learning about outdoor education, its importance, relevance to the curriculum and activities which they could lead.

Highlights

The feedback from children who all said that it had made them start to think about where their food comes from, and what impact their food choices have on themselves and the environment.

The outdoor classroom structure is a reciprocal turf roof on 8 supporting columns with trees planted in a thin hedge around the edge (no walls). We use this every week at the end of gardening to settle the children and talk about what they did and learnt that day.

5. Peace Garden

This exemplary project funded by the Ernest Cook Trust created a biodiverse, sensory, edible Peace Garden. It is designed to help children to be at peace with themselves and each other; to connect with the need for peace in the world; and to be at peace with other beings, such as birds, insects, flowers, and trees.

Over one year, 16 workshops of 3 hours were led by 2 permaculture practitioners. Twelve children with various additional support needs

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(approximately 2 from each class) were led through a permaculture design process:

- Surveying – asking all the children, teachers, and non-teaching staff for their ideas, mapping the school playground and noticing what species were already there.
- Analysing – Grouping ideas into plants, animals, structures, and events (PASE) and then working out which ones were feasible given our soil, climate, time and skills. Finding out what other resources we have in our community, particularly as we were not awarded any funding for materials (plants, wood, screws etc).
- Designing – Discussing and designing for zones 5 (wildlife) and 4 (some foraging) because of the distance from the school building. Using Lego and other toys, string and cardboard, children worked out a design for the peace garden.
- Implementing – creating the garden by digging a bog garden, building benches from pallets, planting trees donated from the Woodland Trust and elsewhere.
- Maintaining – low maintenance design through planting perennials and self-seeders and using plentiful, free resources such as woodchip for



(7) The initial design of the peace garden created by the children.

paths.

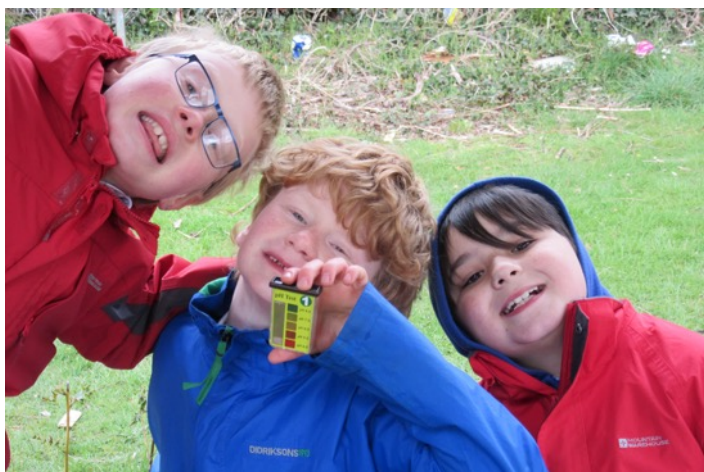
Some of the many skills practiced included: sitting quietly to find peace in oneself, writing poetry, sign-writing, measuring, plant identification, growing, harvesting and preparing food; sowing seeds, planting, sawing, painting, researching, cooking on an open fire, global citizenship, collecting seeds, evaluation, making music, filming, film editing and public speaking.

An opening ceremony for the whole school community was held, during which the children planted a peace pole on which is written “May peace prevail on Earth” in four languages, connecting us to the global network of peace gardens. We captured this on film².

This whole project beautifully illustrates the ethics of Earth care, People care and Fair share. The Peace Garden will be something for the children to be proud of and remember for the rest of their lives!

Top tip

Involve the whole school in the garden, gardening is for everyone (not just for misbehaving or very young children)! Healthy soil contains microorganisms which increase serotonin levels in the human brain – thus gardening makes children



(6) Children learn how to test soil.

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happy³. Happy children learn easily!

Highlights

Whole community involvement - 25 different people/organisations helped to create the peace garden: tree surgeons (logs & woodchip), gardeners (grass clippings, plants), horse owners (manure), businesses (money), parents (time) and more.

When a child said “I like the peace garden because it means we all work together well as a team and learn to cooperate well, even if we didn't get on well before.”



(8) Planting a peace pole during the opening ceremony of the peace garden with international guests and the whole school community.

Footnotes

¹ <https://vimeo.com/81087926>

² <http://gatehouse.dumgal.sch.uk/index.php/videos>

³ <http://gardeningknowhow.com/garden-how-to/soil-fertilizers/antidepressant-microbes-soil.htm>



Ecological Adventure at the AMURTEL organic farm

Asociatia Educatiei Neoumanista (AEN) develops content and monitors the Neohumanist Education (NHE) projects run by its sister organisation, AMURTEL Romania.

(1) Creating an adventure game out of exploring an organic garden and its surroundings.

Organisation

AEN also ensures training and coaching in NHE for staff and volunteers. In the following example, Didi Deshaies, AEN's expert in NHE, mentored and supported a team to come up with an ecological adventure for children from the primary school in the rural village of Panatau. The team included:

- a group of 5 of AMURTEL's European Voluntary Service (EVS) volunteers who had previously received a basic introductory course in Permaculture within the EVS project;
- 2 staff from the "Fountain of Hope After School Center"; and
- a volunteer from Romania in Transition.

AMURTEL has a partnership with the Panatau school and local community, as it runs the Fountain of Hope After-School Center in this village, so the team already knew most of the children.

The Children

About 30 children aged 13-14 participated in the activity, which was 2.5 hours long, during a special week dedicated to non-formal learning. The children were divided into three groups of approximately 10 children each. One of the children got to have the map - but if needed an adult could become a "GPS" character to help them figure out where they were. The adult also could become a "Google" character and give clues

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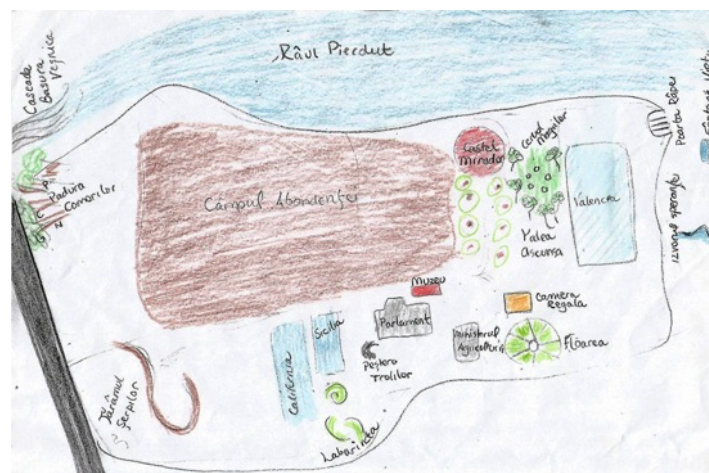
if the team got stuck on one of the questions. The terms “GPS” and “Google” were chosen for these roles in order to appeal to the technologically savvy children.

As they have all grown up in a rural environment, most of the children are quite familiar with farming chores, know how to identify wild plants, etc. However they were not familiar with ecological farming principles.

Activities

1. Mapping and naming the areas

The team of volunteers created a colourful map of the garden and came up with evocative names for each of the areas of the garden, that reflected the languages of the international team. The greenhouses were named "Valencia, Sicilia and California". There was a Field of Abundance, the Land of Serpents, Treasure Forest, the Lost River, Hidden Valley, the Circle of the Magicians, Mirador Castle, Basura Waterfall, the Troll's Cave, the Labyrinth, the Fountain of Life, Cliff Gate, and the Flower Mandala. The process of naming the areas was an important step, which in and of itself started to stir up greater creativity and imagination in the adults. Names transform the space into one that invites the children to enter



(2) Evocative names transformed the garden into a magical, inviting space.



(3) The children from the school listen attentively to the introduction about permaculture and find out how mulching helps make less work weeding!

with curiosity and sense of adventure. The simple process of naming creates a more personal and magical relationship with places and things for both children and adults.

2. Introductory activity at the school

Neither the teachers nor the children were particularly enthusiastic about visiting a farm, as most of them have their own family farms and it was hard for them to imagine anything special or extraordinary in a trip to a farm. To stimulate greater inspiration, we organised a short presentation at the school the day before the proposed event.

The AEN team gathered two classes of children, together with their teachers, and introduced permaculture as a way to work with nature, designing systems that take less effort to maintain. In particular, they described the importance of soil, and had them think about the difference between forest soil and soil in a ploughed field. Some key concepts:

- Nature doesn't like to be naked - if left uncovered, the nutrients will wash away - so the earth quickly covers itself with the fast-growing plants that some people call “weeds”

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but that actually play a very important role in protecting soil and helping nature to return to balance.

- The earth in a forest is covered with a layer of leaves that decompose, creating a black, rich, moist earth. If we similarly cover the garden with a layer of biodegradable matter we will not only add nutrients to the soil but also help to suppress weeds and keep the soil moist - making it easier to weed. This protective layer is known as “mulch”.

This information was presented by using questions to get the children to think and then illustrating on the black board the process of making a mulch to cover and protect the soil.

The AEN educators also asked the children what they knew about organic agriculture, and explained to them how a Community Supported Agriculture system eliminates the "middleman" so that all of the income goes directly to the producer.

3. Activities at the farm

The next day, the children came by minibus with their teachers to the farm.

Making teams

The children were randomly divided into 3 teams. They then came up with names for their



(4) The children toured the garden in teams, solving puzzles and tasks at each location.



(5) The children powder down soil so that it can be mixed with water and then settle to show different layers of soil components.

teams and were assigned an adult team leader. Each team was given a list of tasks / questions and the leader recorded points for the whole team as they completed the various tasks successfully. At the end we would see which team had gathered the most points.

a. Making Soil Samples: Earth care

The first task was for each team to make soil samples, by powdering down the soil collected in the different boxes by rubbing it between their hands. The powdery soil was then mixed with water in a glass jar and shaken up. Each team labelled their soil sample with the name of the team and the area of the garden it originated from. The samples were set aside to allow the sediments to separate and to reanalyse them at the end of the day, comparing the soil in different areas of the garden. They were also asked to identify the different layers (such as sand, clay, humus) and to guess the reasons for the different proportions between the samples. For example, why did the sample from the forested area of the property have a greater amount of humus, or why was there more sand in the sample from the field?

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2. Visiting the greenhouses: Obtaining yields and valuing biodiversity

The two farm workers led the activity in this area, first showing the greenhouses to the students and then asking them questions about how much food it could produce, for how many people, and asking what they knew about the differences between organic and conventional agriculture. They got extra points for how many different types of wild plants they could correctly identify on the property. It was interesting to note that most of the children were easily able to identify many wild herbs and plants. During this activity, the permaculture principle of valuing diversity was discussed, especially related to the importance of leaving certain zones uncultivated so that they will have a good variety of wild species to help protect the cultivated plants from pests and disease.

c. Treasure Forest: Observe and Interact

Here they explored the soil, to notice how it compared to the soil in the open field. Also they learned to recognise mycellium, the fine, white thread-like fungus that creates a vast underground network in the soil to transport nutrients from one location to another. The idea of Earth care was explored, as when we take care to protect and



(6) Searching for "hidden treasures": walnut hulls, snail shells etc.



(7) Part of the game was to see which team could pick up the most plastic that had been careless thrown directly on the land.

nourish the quality of the soil, it is more productive.

The children then had to find objects hidden in the ground. The adult supervising the area was given the role of "Google". Children could ask questions to this "Google" character who would then give clues. The clue they received was the first letter of the word, and then a word that sounds similar to the object. The items were a snail shell, a legume from an acacia tree, a walnut shell, examples of fungus or mycellium. They earned points according to the number of items that they found.

d. Trash Museum: Produce No Waste

When initially exploring the area, the team discovered that neighbours were throwing lots of trash into a steep ravine alongside the property. They collected various samples of trash - a metal can, plastic bottles, even a boot and a semi-decomposed shirt. A Museum of Trash was then created with these artefacts on display. The children had to put the items in order from the fastest to the slowest to decompose, and got points if they got it right. They had to guess how long it takes plastic to decompose, think about how animals are affected and discover what plastic

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is actually made from. They got points for correct answers. Points were also awarded for each bag of trash found when they explored the 'lost river' and found the 'waterfall' (see the next section on erosion).

This was an opportunity to reflect on the amount of waste we produce, and the permaculture principle of *Produce no waste* was discussed, as well as the importance of recycling and using renewable resources.

e. Erosion Experiment: Earth care

The person leading this area had filled two boxes with earth: one was plain sand, and the other was a clump of sod with grass and roots. The boxes were tilted at an angle to make a slope. The children firstly guessed what would happen if water flowed down each slope. They then used a watering can to simulate it raining over both slopes. Naturally, the sand in the sandbox washed away and formed gullies, whereas the sod remained intact.

The children were then invited to explore the environment around them and get points for each example of erosion from water that they could identify. They explored the area named "Circle of the Magicians", a small, deep ravine



(9) The children explore the "Lost River" looking for evidence of erosion.

wilderness that was named after the circle of tree stumps arranged in the center of the clearing at the bottom of the ravine so the children could sit on them. Soil erosion was evident there, and the children had a chance learn to read the signs in the environment that indicate that strong flowing water has passed through, such as branches and vegetation that are all bent in the same direction. The children also had the chance to collect trash that had washed down the sides of the ravine from other parts of the property and accumulated there. Next, they went looking for the "Lost River" another example of erosion, as it is a valley formed by running water, though there is no longer a stream there. They went searching for a "waterfall" at the end of the "Lost River" - which turned out to be a waterfall of plastic trash, thrown from the roadside by less ecologically-conscious neighbours.

f. Labyrinth and Land of Serpents: Valuing Edge

The land of serpents referred to garden beds made with curves to maximise edge, which is related to the permaculture principle of *Maximise edge and value the marginal*. The idea of how with the same surface area, you can create much more edge if you make a curving serpentine shape rather than a



(8) Sitting in the "Circle of Magicians" to observe the signs that flowing water leaves behind.

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square or rectangular shape was discussed. To demonstrate this concept, the children made a curving shape on the ground with a piece of rope, and then they were surprised at how long the same rope was when it was stretched out in a straight line. Also, the team demonstrated how to sheet mulch and make a garden bed without digging. The children enjoyed helping to make the layers of the new garden.

g. Celebrating and adding up the points:

At the end of the adventure each team added up points to see who was the winner. The element of competition was not particularly emphasized; it just gave a context to make all of the activities part of a fun game. The only prize the winning team received was applause, as did each team when they announced their points. We celebrated with some snacks at the end, and the children got to revisit their soil samples.



(11) It was a day of exploration and adventure - turning ordinary spaces into magical ones.

Summary of Top Tips

- Taking the time to name the areas was a fundamental step in creating an adventurous atmosphere;
- It was important for the team to really think through the logistics carefully. Having people stationed at each activity area as well as guides that led the different groups between the activities worked well, as it kept things moving in a structured way.
- The preparation visit to school the day before was important to the success of the event, as it generated the necessary enthusiasm and motivation.



(10) Rewarding points for different tasks created a lively engaged atmosphere.

Highlights

It was very rewarding to see how enthusiastically the children responded to all of the planned activities, and how it allowed them to experience something which they ordinarily take for granted in a fresh, new way. It also allowed them to appreciate the specialist knowledge that they already have about agriculture, whilst learning new perspectives.



Permaculture parenting by Lusi Alderslowe

Parents have a huge influence on how children think, act, and learn, which is why Children in Permaculture felt it was so important to include a case study about informal education.

(1) From the left: Luis, Lusi, Danny and Robin Alderslowe.

Informal education is the main way in which children learn: it's how we learn to walk, talk and eat. Thus all parents educate their children, whether it's a conscious decision or not. That's why the biggest indicator for how a child will do at school is what their parents do and say at home¹. This case study describes how permaculture has influenced our family's parenting.

The family

Our oldest son is Robin, youngest son is Luis, Danny is their father and I'm their mother (Lusi). Currently (2016), Robin is 11 and Luis is 9 years old. We have a family membership of the Permaculture Association (Britain; PA), and I teach permaculture (including Permaculture Design

Courses) and coordinate the Children in Permaculture project. This is one example of permaculture parenting which PA is aware of (there are many others).

When our children were very young we lived in the city of Glasgow, Scotland. When the children were 6 and 4 years old we moved to a small town in rural south-west Scotland as a conscious decision to enable them to have greater access to nature and more freedom than I would feel safe to give them in the city. We want them to grow up with a connection to a beautiful place, other species and a nurturing community, as the African proverb says "it takes a village to raise a child". We chose a town with a strong sense of community.

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Activities - The Early Years

As babies are very portable, when Robin was a few months old we took him on a permaculture design course – one weekend per month for 6 months. This course, along with the ecopsychology course I studied as part of my Human Ecology Masters the year before, vastly informed our early years education at home. I had mild postnatal depression after Robin was born. For the first 9 months baby yoga was my lifeline – breathing, stretching and then a cup of tea and a conversation with other like-minded mums. That's where I realised that if I wanted to be doing something that was for my son, it was not to spend the time in a church hall, drinking coffee, playing with plastic toys (which we omitted from our household), but to be outside, enjoying nature. That's why I co-founded a group called “Nurturin' Nature” to nurture children in a natural environment in a more natural way and to nurture nature through permaculture activities. So we spent two days every week with other families in a park or natural place in or near Glasgow engaging children in activities when they wanted to such as growing food, foraging, eating together, climbing trees, making campfires, sharing stories, singing



(3) Nurturin' nature families eating together in the woods.

songs, building dens and playing.

Nurturin' Nature is a great example of Earth care as there are no man-made toys or need to heat a hall, and parents discuss more eco-friendly ways of parenting such as washable nappies; People care as parents and children look out for each other and develop their sense of connection with nature; and Fair share as we would share everything together, even parenting roles such as helping children to perform activities or learn what is appropriate behaviour.

Nurturin' Nature was the first of my permaculture diploma designs, and was unusual for a playgroup in a number of ways – it's entirely free, it's entirely based around public transport connections, and many fathers attend. It still continues to exist and be successful four years after I left (10 years after it started)².

After we moved to rural Galloway, Robin asked if he could go to school. We agreed that he could attend initially three days per week and proposed this to the headteacher who agreed to allow us to trial it. Now Luis and Robin attend school 4 days (and are with us for 3 days) per week in term time.



(2) Parents cycling together to Nurturin' Nature.

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Activities - Primary School Years

Some ways we have applied permaculture principles to parenting:

The yield is theoretically unlimited – Danny and I have led various activities with our local school, including Forest Schools and gardening (see other case study on Gatehouse School). When we work with a group of children the yields are greater and can be experienced by more people. Yields include happiness, fun, laughter, education, food, wisdom and connections.

Another way we obtain yields is through growing vegetables and engaging the children in it (when they are interested). Choosing vegetarian and organic foods enables us to obtain a yield for ourselves whilst keeping our environmental impact low (Earth care).

Work with nature – I learnt to work with the nature of the child. When I didn't work with the nature of my child I regretted it! For example, I heard that children do X at Y age, so I was disappointed when he wasn't. Afterwards I realised it would be better for me and my child for me to be completely relaxed about what age he does what (if at all).

Value Diversity: including guilds. We



(5) Harvesting sweetcorn in the allotment with our friends.

created guilds of friends who are interested in sustainability near where we live (some with children and some without), and I have supported them to learn more about permaculture (e.g. easy swaps for a course I was teaching). My friend and I set up and lead an after-school group which is outdoors throughout the year, whatever the weather, even in the dark (in winter). This forms a guild of children who support each other in enjoying being outdoors. We also nurture friendships the children have developed, including others who don't have a TV or an Xbox (e.g. visiting friends locally and further afield).

Eating, dancing, playing, laughing, singing and making things together as a family strengthens our connections and helps us to be a more supportive and cooperative guild.

Use edges and value the marginal – find the edge of knowledge/understanding and help the children move one step forward (don't skip from 1 to 20 as no-one can leap that far, each step can be celebrated!). Learn together – if a child can learn something so can I - I don't have to be an expert! Demonstrate that learning is fun by enjoying learning things and sharing them with the children.

Travelling together – where is the edge of



(4) Will you marrow me and have my courgettes?

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what is familiar? Expand horizons. Talk about the world and how we see it; discuss the news, and politics over dinner. Invite fun and interesting friends over for dinner, and visit them, and encourage adults to include the children in conversations.

The edge of school education can be supplemented with whatever you think is missing: we value more time in nature, another language, music, and kinaesthetic learning.

Another edge is the edge between people – we love to have one-on-one time (1 parent: 1 child) as well as time as a family; sometimes the children need a break from each other.

Use and value renewable resources and services – travel by foot, bicycle and train. We don't own a car, which is unusual in this part of rural Scotland but enables us to get much more exercise without having to plan it; spot more wildlife; and meet interesting people on public transport. This means we have a significantly lower eco-footprint than otherwise (Earth care). A wildlife group (e.g. RSPB, WWF) is a renewable resource which is well-worth supporting, so we became members and enjoy reading their magazine together and doing activities described



(6) Mark Williams demonstrating how to tap birch trees for their sap during Fun Outdoors.



(7) Our wooden box bike enables us to travel short distances with lots of children/tools/furniture etc. Gala day 2013.

within.

Appreciate food – we sing a song (sometimes a silly one, sometimes a language learning one, or a genuinely appreciative song) before every meal.

Share our love of the world (“wow, isn't that beautiful?!”), value our own culture, language, and connection to place – what lovely biological resources can you think of?!

Design from pattern to detail – Design holidays together. We enjoyed having a mind map of all the things we wanted to do over the summer holidays, reviewing it during weekly check-ins, and ticking what we have done. It led to a more fulfilling summer holiday, as the precious six weeks can sometimes just disappear without knowing what you've done and feeling at the end 'oh I wanted to do x and y'.

Observe and interact – Children need plenty of time to observe themselves – to hang out and entertain themselves, evenings when they do not have a club or activity, when they aren't watching TV or playing computer games – they are just hanging out listening to stories, drawing, or playing outside.

Observing children is really important to

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notice when they are unwell or unhappy and to support them to follow their passions. When a child shows an interest in something, support them to find out more and experience it, whatever it is (yes, even something you think isn't interesting or permaculture. This nurtures your relationship and allows them to find out who they are. This could be as simple as searching the internet or a library, and if the interest continues it could involve meeting someone or visiting somewhere. Follow it until the natural conclusion (don't push it too far - sometimes kids will only be interested for 5 minutes, while at other times an obsession can last for months or years and they can learn so much through these connections).

Top tips

My main top tip is "Never force a child to do something you want them to enjoy in later years; let them come to it when they are good and ready". For example, when Robin was little I gave him a patch of garden for him to grow plants in. One day he said "I don't want to look after it".

I said "If you don't look after it, it can't be yours".

Robin replied "Well fine, I don't want it." That was the end of his short-lived gardening career! Only



(9) Children love getting muddy at Fun Outdoors!

six years later did he begin to take a minor interest (he'll plant 1 seed but no more!). In retrospect, I could have helped him to look after his garden (even when he wasn't looking, so he got the idea that he had done it himself and got the pleasure from it).

I'd say the most important benefit of children gardening and being in nature is that they feel happy and relaxed. Feelings give more pervasive memories than facts.

Second top tip: If you think something should happen, just do it! Don't wait for someone else to do it. I found it easy to set up groups with parents who are like-minded, as many people these days value children spending time in nature.

Highlights

Cycling holidays have been a real highlight - all four of us have cycled with our camping gear each year since Luis was 6 years old. We have had great adventures both locally and further away (in 2015 we took the bikes on the train and cycled a long-distance path over four days). It's a wonderful feeling of adventure and independence when you have everything you need with you, and what a wonderful (and eco) way to see our beautiful country!



(8) Lusi and Luis looking at sheep.



Footnotes

- ¹ http://literacytrust.org.uk/assets/0001/0656/1Why_parents_are_key.pdf
- ² <https://permaculture.co.uk/issue/autumn-2012>



Forest Troll School and Permaculture by Gaye Amus

The Finnish Early Childhood Education and Care (ECEC) is based on an integrated approach to care, education and teaching, also known as the “educare” model.

(1) A forest excursion in late autumn 2012. Children searching for long sticks and short sticks to show to the Forest Troll.

ECEC is primarily organised in daycare centres and learning through play is considered essential¹.

Organisation

The Finnish Public Daycare centre Auringonkukka (Sunflower) is located in an ecological housing area of (the Finnish capital city of) Helsinki, close to fields, forests and rocky cliffs. The kindergarten is designed to incorporate spaces which can be used for multiple functions, exemplifying the permaculture principle “One element supports many functions”.

Children

Daycare Centre Auringonkukka has 110 children, aged 1-7 years. It is a Finnish speaking centre with children from different social backgrounds. Like in

every daycare centre in Finland, here children go outdoors to play rain or shine and are outdoors at least 2 hours per day. Children visit the forest 1-3 times per week. There are five groups of children and each group has a room of their own as well as access to other rooms such as a winter garden, wood workshop, library, common dining hall, and space for free play (also used as bedrooms) which are available for them to use. The facilities are well suited for workshop-type activities, in which children can participate. The playground, backyard (where they do gardening) and nearby forests are outdoor areas which provide children with play and learning experiences.

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Forest Troll School

Forest Troll School (known as Metsämörrikoulu in Finnish), Finland's nature and environmental education program which originated in Sweden (where it is called Skogsmulle)², is carried out in Auringonkukka. Forest Troll School³ is led by trained instructors with the aim of supporting children to enjoy nature and outdoor activities, to play in any weather all year round, and to learn to care for the environment. The Forest Troll activities are run with children aged 5-7 years. The Forest Troll is a fictional character who lives in the forest and a hand puppet is commonly used to represent it, to enhance and support activities and engage children.

Auringonkukka gives importance to outdoor learning and growing food; and thus supports the visits to the forest where children have first hand experience of nature. It is a wonderful example of the permaculture principle *Observe and interact* - enabling children to be in nature, supporting their wellbeing and the development of their social, cognitive, emotional, language and motor skills.



(3) Gaye Amus with the Forest Troll.

Activities

The main aim of the visits to the forest was to get children outdoors, into the forest, supporting free play and fun with friends.

The Forest Troll activities run in this case study were with 5 year old children and they would go once a week to the forest from 9 am to 11 am. The group had 14 children and two adults. The sessions continued the whole year and the Forest Troll visited once every two weeks. Sometimes if the children had an ongoing project, game or other interest in the forest the teachers would be flexible and postpone the Troll's visit for the following week; so the Troll would visit after three weeks. Creating a balance between the frequency of the Troll visit and free play was determined by the educators' observations of the children.

Each week the trip to the forest started by meeting at the Auringonkukka's gate. Before leaving, the special Forest Troll song was sung. The children then went into the woods carrying their snacks in their rucksacks. Walking, rather than taking a bus is a way of reducing environmental impact and consumption of resources and is a good example of the permaculture principle *Use and*



(2) Sitting in a circle eating our own snacks in the forest.

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the ethic of Earth care. On arrival the children and educators would sit in a circle to eat whilst they looked around to spot changes in the forest since their last visit. If any child had forgotten to prepare and bring along a snack from home all the other children would be encouraged to offer that child something to eat, demonstrating the permaculture ethic of Fair share. After their snack the children would be able to play freely, engaging in their own games and doing things that might be more limited in the Auringonkukka's backyard: like climbing trees or building dens.

The Forest Troll was introduced once the children were accustomed to being in the forest and the educators felt the time was right for them. Later it would arrive unexpectedly on alternate weeks and suggest an idea for an activity. These guided activities, which educators learned through special training, are fun, child-friendly and age-appropriate. The Forest Troll first appeared on the fourth visit to the forest, in early autumn, through an activity called "the story of the birth of the Forest Troll". Other activities included: finding autumn colours in nature, and a game called "Is the Forest Troll home?".

The activities were usually chosen by



(4) Free play in the forest.



(5) Children looking for autumn colours.

observing childrens' interests or the season of the year. At the end of each excursion children and educators would gather again to make a circle, count before the departure and sing a farewell song to the forest. Everyone would make sure that there was no trace left behind and the organic garbage that was produced from snacks (if any) would be taken to the worm compost back in Auringonkukka, supporting the permaculture principle of *Produce no waste* and the ethic of earth care.

Top tips

Introducing a character like the Troll enables children to enjoy his company quite a lot. Marvelling together with what the children find in the forest gives a shared feeling of joy for both children and educators. Such a character is suitable for children aged 5-7 years, but not younger as they are likely to find him frightening.

Highlights

A highlight of these sessions was after the Troll's first appearance with this group of children. One child kept on saying "he's just a puppet" when we introduced him. After the activity the troll was put on a branch of a tree to watch the children from

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afar. When we went back to wave goodbye to the troll, he had completely disappeared and the child was so surprised! After that experience, the visits of the Troll in the forest were even more magical for them. The children had truly become visitors of the forest, which was the Troll's home and they were very excited to see him the next time.



*(6) The Forest Troll sitting on a branch. Photo credit:
<http://ouka.fi/oulu/saloilan-paivakoti/toiminta-ajatus>*

Footnotes

¹ http://oph.fi/english/education_system/early_childhood_education

² https://academia.edu/4520808/An_alternative_journey_into_forest_kindergartens_and_the_Reggio_Emilia_approach

³ http://owlsotland.org/images/uploads/cluster_groups/Skogsmulle_-_the_start.pdf



Permaculture in Della Rossa kindergarten

In 2010 in an urban kindergarten, in Verbania in northwest Italy, a permaculture garden was created thanks to the inspiration and collaboration of a small team of teachers, a permaculture expert, parents and the local community.

(1) Children mulching the newly created food forest.

The project evolved over five years into an example of best practice for engaging children in permaculture.

The project pioneer was Francesca Simonetti, a permaculture practitioner and teacher living and working nearby in the Alps. She also inspired members of the association Paradiso Ritrovato who wanted to learn and experience how to engage children in permaculture. Together we have designed and built a willow rainbow snake, compost system, rainwater collection, mandala vegetable garden, and food forest.

The Children

Della Rossa kindergarten has about 100 children from 3 to 5 years old and is part of a

bigger institute called Monti Stella which includes both primary and secondary schools with approximately 1000 students (aged 6 -13 years).

The kindergarten has four classes, each with approximately 25 children, 2 teachers and sometimes a special needs assistant. A session of 2 hours was carried out once a month during school hours and in cooperation with teachers.

Depending on the tasks, the kindergarten sometimes asked the primary and secondary school children to help and support them. In this way children aged from 3 to 9 years and teenagers could mix, play together and cooperate to make their outdoor space a beautiful garden.

The organisations

NatureDesigns¹, founded by Francesca Simonetti and John Button, was the partner consultant in permaculture design. They have designed and implemented projects all over the world using permaculture such as resorts, farms, reforestation, wasteland regeneration, school environments, homesites and even a houseboat.

Paradiso Ritrovato² is the organisation cooperating with NatureDesigns not only to learn more how to engage children in permaculture, but also to give visibility to this project at national and international levels.

Activities

The teachers in Della Rosa wanted to make the outdoor area alive and vibrant, a place where children could play and have experiential outdoor activities. The collaboration with Francesca started in 2010 and a lot of projects have been established and implemented since then.

1. The willow rainbow snake

In 2011 parents and children planted several young willow plants. As the willow grew, the branches were interwoven to create a tunnel, the serpent. This snake, with several entry-points, has a main, rounded, domed gathering place, from



(2) The willow rainbow snake design.



(3) Children's drawing of how to build the composting.

which the snake's body twists, forming small chambers along the way to allow children to hide, ending with its jaws on a small earth hill. Children help by mulching around the base of the plants with leaves. It took 2 years' growth to be able to start with the weaving phase. Children love to walk and run through the snake, feel protected in this special place, discover hidden spots, strengthen their confidence, face their fears and nurture their curiosity and motion. By collecting young branches, children also experienced weaving them to make baskets and other little objects.

Multiple functions for each single element: the willow tunnel can be used for play; and the cut willow can be used to weave baskets, to tie grapevines, and for creating willow water (in which you can place cuttings, the willow's hormones stimulates root formation and increases resistance to disease)³.

2. Compost

At the beginning, a big problem was the compost material from the school's kitchen waste, which was mainly animal waste and oily food, unsuitable for standard composting. To get enough compost, it was decided to involve the local community: the children's families collected fruit

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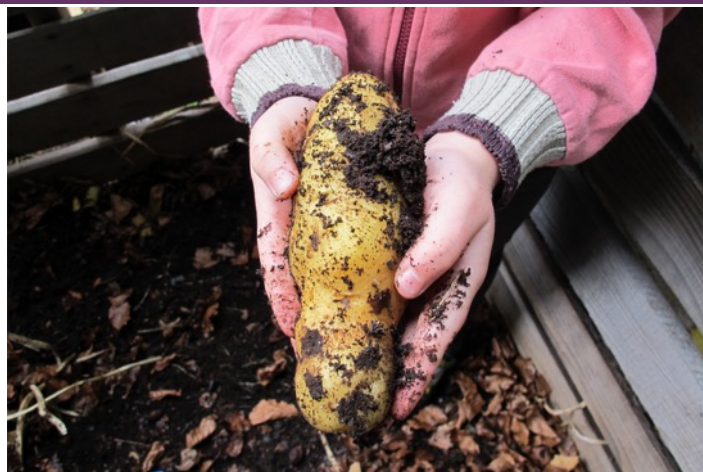
and vegetable organic waste, and a bar next door donated their coffee waste. A composting system including a wormery was built, the product of which was used in the garden and for seedlings in the small greenhouse (which was constructed by some volunteers). Children participated in the whole process of filling the container with organic matter, emptying, sifting the decomposed material and finally distributing it in the garden.

Produce no waste: The compost system was created using recycled pallets to construct a 3-chamber, open compost system, to save money and make use of energy, nutrients, and resources.

A lot of help came from the children's grandparents and parents.

3. The mandala vegetable garden

The 25m² garden was created in 2012 with a grass base: cardboard was laid, without working the soil, and then fine rich soil mixed with compost was used to create a raised bed in the shape of a big flower, with a herb spiral in the centre. The main garden maintenance activities are: applying mulch, sowing seeds, planting out seedlings, observation, weeding, harvesting, fertilising the vegetables with worm liquid, collecting seeds and selling vegetables.



(5) Obtain a yield - harvesting potatoes.

Use edges and value the marginal: Thanks to its wavy shape and raised bed, the mandala garden has lots of edge where diversity and productivity can be maximised.

Use and value diversity: Companion plants, different species and crop rotation (bio-intensive garden) increase resilience.

Use small and slow solutions: As the garden is small and compact, it is easy to manage and maintain and children feel very at ease in it.

Obtain a yield: In addition to herbs and vegetables, another important yield is the children's experience and learning. Selling herb bundles and boxes of veggies, the school raises funds to cover the garden's costs, while the children show their knowledge guiding parents and adults through their beautiful garden.

4. Rainwater collection

Grandparents and fathers created a fantastic rainwater collection system which draws rain from the roof into two barrels. Overflow from the barrels is directed into a big 'sponge' basin which is filled with organic material and planted with vegetables. The children enjoy watering the garden with watering cans filled from the barrels.

Use and value renewable resources: In the



(4) Produce no waste - worms, the recycler of organic materials

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schoolyard where there was no water to water the garden, rainwater collection was necessary. Now water is collected from two different roofs, one of them connected to the compost chambers, roof and another one to a big roof of a neighbouring house.

Catch and store energy: The rainwater from the roofs is collected and usefully reused.

5. Food forest

Francesca designed the food forest (30x8m), the parents helped with fundraising and implementation, and the children did deep observations, drawing pictures to record each step of the process. The children picked the fruits and berries, and mulched with leaves harvested with the teachers and parents in a nearby forest.

Design from pattern to detail: Food forests mimic the patterns observed in natural systems, such as having different layers which enable us to maximise the yield and minimise our effort.

Use and value diversity: Diversity relates not only to a number of species but especially the beneficial relationships among system elements. Thanks to the high biodiversity the food forest is very resilient and able to face external threats.

Work with nature, not against: A food forest is very similar to a natural woodland which



(7) Food forest and garden design.

requires much less energy than an agricultural or horticultural system.

Follow-up: Including more people in the project

Integrate rather than segregate: from autumn 2015 to spring 2016, new activities were developed to involve more children and to create more awareness about sustainability. Francesca has led several theoretical and experiential activities in the whole institute of Monti Stella. She presented permaculture using different methods of teaching and facilitation, meeting students of different ages separately in their classrooms (with their teachers), and working with mixed-age groups. Practical activities included mulching the garden, weaving baskets with natural materials, creating a pyramid to cover an in-ground disused fuel container, planting seedlings, pruning fruit trees, and restoring the tool shed. Through all the activities, we encourage the children to collaborate and think about relationships and cooperation.

Top tips

- Value and use children's experience and knowledge because they can be great teachers. Children explained to adults how to design and



(6) Catch and store energy - rainwater harvesting.

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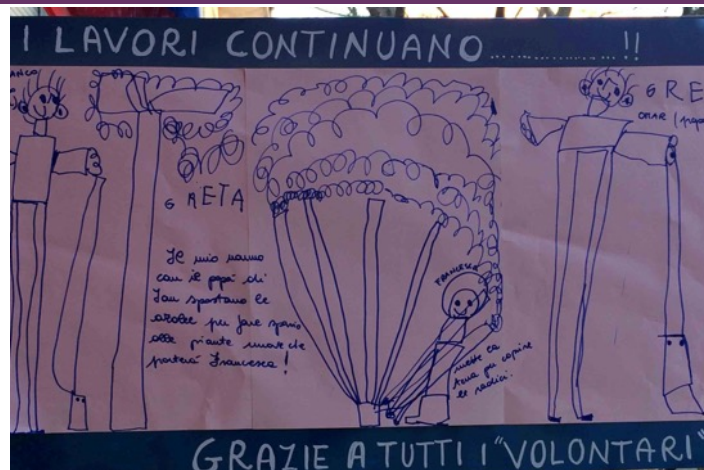


manage an integrated and sustainable outdoor area, better than the adults could!

- Be flexible and able to *creatively respond to change*, which may occur for a session, material or schedule. This can be appreciated by children but not always by adults!
- Make little working groups of (maximum 10) children with an adult to increase cooperative working and reduce the workload for teachers and educators. People care will be fully respected!
- Fully involve the whole school staff, including headteacher, teachers, janitors and external catering staff from the beginning by presenting the medium- and long-term project. This will increase cooperation and ownership, and hopefully avoid stonewalling. Lack of support can be stressful and yet stimulate many creative responses. *The problem is the solution!*
- Make an appropriate design and relevant activities plan. Underestimating external limits (such as other people's time and commitment) and overvaluing your potentials (how much you can get done) can endanger your motivation and energy level. *Use small and slow solutions.*



(8) Use small and slow solutions: "Mulch, mulch, mulch!"



(9) Children's drawing thanking all of the volunteers and showing how to plant a tree.

- Important functions, like financing, should be served by many elements, such as school funds, local grants, crowdfunding and private sponsorship in order to avoid a money shortage stopping the project. These different funding sources were essential for this project to succeed.

Highlights

The teachers and Francesca are more than enthusiastic about the transformation they have seen over the last six years in the school. There have been such unexpected yields harvested, that have made the effort so worthwhile, such as opening up to the local community, with the parents gathering together and working for the joy of doing something for themselves and their children.

The best part was observing the transformation of the children, which was like watching the springtime unfolding: the teachers declared that they saw their students blossoming while working outdoors. They have noticed a lot of self-esteem growing and a lot of love connections nurtured by the fact that the parents could be part of their children's daily life education.



Footnotes

¹ <https://naturedesignsjohnfranci.com/>

² <https://paradisoritrovato.org/>

³ <https://deepgreenpermaculture.com/diy-instructions/home-made-plant-rooting-hormone-willow-water/>



The Schoolyard Garden Project

The School Yard Garden Project (“Gradina din Curtea Scolii”, referred to as GDCS) is a project built around setting up outdoor learning spaces for schools, with a focus on community building, permaculture design and organic gardening.

(1) Photo from the mandala garden in late summer 2015.

GDCS can be found at the moment (2016) in two different cities of Romania, implementing edible-garden designs in schools, with the involvement of the whole school community, including teachers, non-teaching staff, children and parents.

Organisation

The project has been initiated by Romania in Transition, an NGO established in 2009 with a clear objective to serve as an instrument to the Romanian grassroots emergent movement and to promote community-orientated projects focused on sustainable development.

Over the years, the GDCS project has grown into a (soon to be) stand-alone organisation.

now run by a team of creative young individuals using permaculture to build sustainable, inspiring spaces in schools where children can explore learning outside the classroom, and teachers can connect curricula to the garden. GDCS puts children in the center of the design in such a way that the whole structure of the project develops their relationship with nature on theoretical, social and ecological levels.

Setting

“Ferdinand the 1st” School in Bucharest is where the project took off and it has been running there since 2012. This state school has both primary and secondary stages of education, holding up to 570 children. Our project was

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embraced by the headteacher of the school and has benefited from her full support throughout. Children in the school already had access to extra-curricular activities that include sports and arts. This has furthermore encouraged the development of their innate curiosity and eagerness to go outside and learn while playing.

Children

The children that initially took part come from both stages, aged 7-14 years, with a greater turn-out from the children in secondary (aged 11-14) and a smaller number of the somewhat more curious children from primary (aged 7-10). The activities took place outside school hours, on the weekends, making it a non-formal activity for children.

Activities

1. Non-formal education class with children

Use small and slow solutions: GDCS began by carrying out extracurricular activities focused on gardening and environmental awareness using permaculture principles. The initial turnout was over 80 children, but by the 3rd session the number had dropped considerably. By the end of the first year we had a consistent group of 25 children working in the garden every Saturday, when the



(3) The children using tools on their own.

sessions would take place.

The activities were varied: gardening, building, cooking together, teamwork and games. They related to topics such as: design, companion planting, plant needs, permaculture ethics and principles, raised beds, compost etc.

Obtain a yield: We had a bountiful fruit, flower and vegetable harvest that made children happy, and further encouraged and engaged the whole school community to take part in the project.

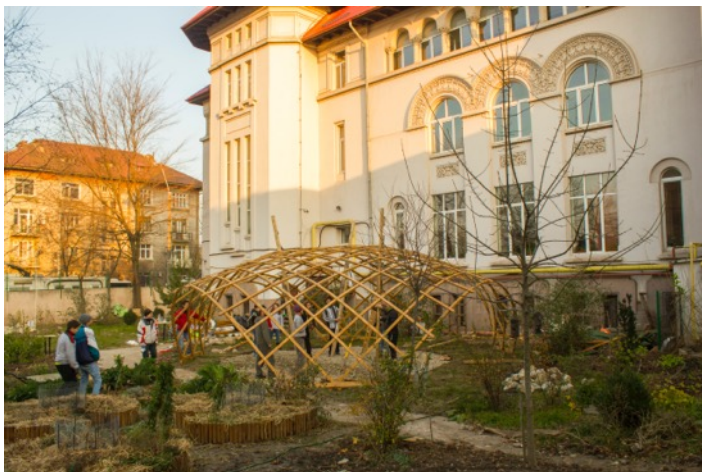
Highlight

Children smiling, laughing, helping each other, being happy to see fruit growing and go to school to have a picnic with the GDCS team with harvest from the garden. Over the four year project, the children have improved their social abilities, gained self confidence and increased their knowledge about nature.

2. Garden design and implementation

The school grounds are approximately 6,000m², with the outdoor learning space, (that is separate from the school playground and games court) approximately 1000m².

Observe and interact: The first year of implementing the project was spent more on



(2) The grid-shell structure coming to life.

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connecting with the children through outdoor activities and narrowing it down to a group of children that would commit to the project. Together we planted an annual garden in the outdoor learning space without having a particular design in mind. In this process of using the space we could observe it and harvest the needs and wants of children from it.

Integrate rather than segregate: In the second year the GDCS team designed the outdoor learning space integrating children's, teachers' and parents' ideas.

Design from pattern to detail: The GDCS team gathered, worked on the design and came up with a complete proposal and plan for implementation. The design included: an outdoor classroom, a mandala vegetable garden, a pond system and many more elements, all integrated in the pattern of the forest garden spread over the area of the outdoor learning space.

Obtain a yield: The final design was the product of 3 months of work in which plans, views, sections, perspectives and a model were created. The permaculture design proposal was presented to the school and was received with joy, enthusiasm and hope for it to be implemented



(5) The children together with two of the GDCS team members.

successfully.

Catch and store energy: Money is an energy that could be channelled in the project by seizing the right opportunity and with the right amount of work. There was willingness from the municipality to see a presentation of the design. After seeing it they agreed to fund the implementation with €8,000.

Children raised money themselves and set-up a crowd-funding campaign to buy perennials and fruit trees for the edible forest zone.

Integrate rather than segregate: Parents and teachers supported the implementation of the design. The school yard became a very busy place, with setting up the garden, outlining the appointed areas for the outdoor classroom, the tool shed, mandala garden etc. Parents came to shovel gravel for the ponds and move soil for the raised beds, after school and at weekends.

Use and value diversity: A lot of learning by doing happened in the process, all participants acquiring a variety of skills:

- Technical skills needed for building structures, like keyhole gardens, hugel-beds, ponds, food forests, compost, and benches, such as measuring, tool use, organising the work-space;



(4) The Mandala veggie garden.

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- Life skills such as cooperation, a sense of commitment to completing tasks, creativity, empathy, taking initiative, conflict resolution.

Use succession and evolution: We planted over 500 bushes and trees on the perimeter of the school grounds (160 linear metres) and 60 more inside the outdoor learning space. In time their growth will change the scenery of the school yard.

Highlight

When parents and children came together to help set up the outdoor classroom, working with natural materials and taking part in creating a structure called a gridshell.

3. Events and community building

Use edges and value the marginal: After opening the door to our project (GDCS), Ferdinand the first school was eager to host events related to the topic of permaculture offering their workshop spaces and the outdoor learning space created through the project. The events themselves have been held by a wide range of people, starting with members of the GDCS team, then members of Romania in Transition and eventually internationally renowned trainers for project development tools such as Dragon Dreaming and Deep Ecology.

Creatively use and respond to change:



(6) Some of the bigger children, building the raised beds.



(7) Picnic in the schoolyard garden.

The fourth year the GDCS team stepped back, passing the project on to teachers and letting them use the space for their inspiration and wishes: holding classes in the outdoor learning space, tending to the garden etc.

Highlight:

It was wonderful to see the school and outdoor learning space become a laboratory for exploring permaculture and sustainable alternatives to living.

4. Taking the project a step further – children present their project outside the school community

In the 4th year of the project, a self-organised group of older students (ages 14-15) presented the project and its design in a national ecology and sustainability competition for students and won first prize. With a little guidance from one of the GDCS team members, they made a map, an exhibition stand, a powerpoint presentation and a speech in order to explain to the jury and to visitors the vision for the garden.

Highlight

Children took ownership of the school garden and took the process even further by entering and winning a national competition on the topic of ecology and sustainability. Some of the

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children became interested in pursuing a horticultural career.

Top tip

Getting the headteacher on board from the beginning, ensures the support and motivation of all the staff, making your workload smaller and smoother. It's great when the school consciously takes up the responsibility of making the project work from the start and ensures continuity after the initiators step back.

Conclusion

Even though the GDCS team has stepped back from actively gardening in the school, it still oversees how the design evolves and is completed, since there are parts of it that are yet to be developed. The school community has been empowered to advance the project according to their needs and at their own pace. As far as our relationship to the project is concerned, it is enough to go there today and sit in the space for a short while - we can feel the difference.



(8) Going on a nature walk in the botanical garden.



Integration of permaculture among teachers in a big school

Since it was established in 1996, Društvo za Permakulturo Slovenije (Permaculture Association of Slovenia) has been sharing and spreading permaculture in Slovenia and making connections within and beyond her borders.

(1) Urban garden with worm tower - a result of the first big event.

Integration of permaculture in schools began in 2011 when one of the members of the association was engaged in a national eco-schools project in which permaculture principles and techniques were applied to building gardens in schools. Since 2012 another permaculture practitioner has been working closely with several schools in the north-east of Slovenia.

This case study presents the steps performed to integrate permaculture design and community building in the primary school Osnovna šola Ivana Cankarja in Ljutomer, which has about 450 pupils aged 6 to 14 years and 48 teachers.

Initial contact and finding a location

Tomislav Gjerkeš, as a permaculture

designer and a trainer in Dragon Dreaming, was invited by the headteacher to collaborate with the school and help build an outdoor learning space with an organic garden, outdoor classroom (seating area for learning outside), and other elements to engage children in learning.

Integrate rather than segregate: In 2012, after a brief presentation from Tomislav and the headteacher, a core group was established with Tomislav, the headteacher, 5 teachers, 2 pupils of higher grades (invited by teachers) and 3 parents. The group dynamics were a little bit awkward to begin with, as traditional hierarchies were broken down with children, teachers, headteacher and other adults having equal rights in the project.

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With gentle encouragement and social games the group eventually achieved a relaxed atmosphere great dynamics and results. At their monthly meetings, the core group designed the outdoor space using a Dragon Dreaming methodology. This enabled them to include children, teachers and parents in creating an impressive outdoor learning space.

Top tips

- If you are working in/with a school, invite a local permaculture practitioner along to help to design the outdoor space, or attend training in permaculture yourself.
- Get the headteacher on board as early as possible in the project, as s/he has useful connections and will support you to reach out to other teachers, staff and the rest of the school. Include everyone in discussing needs, forming the project's vision and establishing the first steps.

Strategy with teachers

People care: About one fifth of the teachers were readily engaged in the project. Great emphasis was put on recognising the needs of the rest of the teachers, so that later they could be engaged and integrated.



(2) The first workshop with parents, children and teachers.



(3) The outdoor classroom being used for class.

Observe and interact: It took a few years for Ljutomer School to get the majority of the teachers to engage with the outdoor learning project. This process included regular checks on the teachers' and the headteacher's needs and integrating those into the design.

Top tip

It is important to ensure that all the teachers, parents and local community are informed about the project and its progress and success. For example, recognition by local press is really useful and you can post newspaper items on the school's corridors to make it visible to everyone.

Designing new elements of the outdoor learning space

Observe and interact: Before adding new elements in the system, Tomislav made sure that they were using and maintaining existing elements and applying the concept of *working out from well managed areas*.

Use and value diversity: 200 parents, 450 children and 50 teachers participated in the creation of the outdoor learning space one Saturday in April 2013. Beforehand, the core group presented the design of the outdoor

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learning space to all the teachers, integrated their suggestions, and allocated tasks to organise the event. Teachers prepared for a month during which Tomislav was helping only with technical solutions. The outdoor learning space was created by the whole school community which enabled us to use and value the diversity of many different people of different needs, abilities, skills and interests.

To reduce the volume of organisation required, the following year parents were not invited, the group still managed to renovate all existing elements of the outdoor learning space and add new ones (garden, mushroom growing, hedgehog home, insect hotel, seating area for outdoor classes, tidying the surroundings, planting trees, bushes and flowers, maintaining compost heap etc). Some parents complained that they were not included! So the year after that (2015) three events were organised to include parents but still keep working groups smaller.

Top tips

- Make sure that each change in the surroundings of the school, which is visible to others, is aesthetically pleasing; this will help keep people on board.



(4) Outdoor classroom workshop.



(5) Dreaming the best school year possible with the pupils.

- It is important to communicate with the janitor/gardeners about all the work outside and ask for her/his opinion, especially if the new elements will add to their workload. If you can inspire them, you can have a great assistant.

Highlight

One group of students was tasked with building stairs in the outdoor learning space and they had to do everything by themselves starting from a tree chopped down near the school. The fact that they could actually create and manifest something was of huge significance to them as they were able to do hands-on work and self-organise around the project.

Increasing the dynamics and deepening the content

Use small and slow solutions: At first, children went outside to do their normal lessons, such as mathematics or reading, and just to be outside was a great success. However, it is preferable for group dynamics if the teachers are using all the elements of the outdoor learning space. Therefore we held a workshop about how to lead sessions in the outdoor learning space.

To deepen understanding among teachers

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of what permaculture is, Društvo za Permakulturo Slovenije organised a PDC (Permaculture Design Course) in Ljutomer. This is a standard-internationally-recognised 72-hour course in which the full basics of permaculture are learnt. The course was attended by several teachers from the school, some parents who were invited through the school network, and others. We organised the PDC in the school and the outdoor learning space was used as a learning tool.

After the PDC was finished, the content of the course and the impressions by the participants were shared with the whole teachers' group and new teachers were invited to the outdoor learning space working group.

Top tip

To learn more about permaculture, it's great if you can set aside some specific time where everyone can focus (rather than overwhelming people at the end of a hard day's work).

Highlights

It was lovely to observe surprised teachers when their colleague who attended the PDC said that she was not tired after an intensive weekend workshop and that her dream is not to be tired after school! This same teacher was inspired by the experience of working in small groups at the



(6) Pupils organize the dreams themselves and put them up.



(7) EM and worm indoor composting 8m near school kitchen.

PDC and started applying the learning. She is now regularly splitting pupils into small working groups for doing their homework in the after-school care and it has already proved to reduce the pressure on her, as children self-organise and are more motivated to work. Preparation for learning in the outdoor learning space requires ongoing development of different approaches to engage and motivate pupils:

- Peer-to-peer learning among different-aged children was implemented. 14 year olds now teach 10 year olds (history for example) and 10 year olds teach 7 year olds (ball games, for example).
- At the beginning of the 2016/17 school year dragon dreaming was introduced to 10 year old children. They worked on a dream of what a fantastic school year would be like, with the aim of making it happen.

Follow up

It is important to create a safe space where complaints can be expressed and integrated into the design. Some teachers were concerned that so much money was being used for permaculture whilst none was available for other purposes. It turned out that not as much money was being used

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as they thought, but still it is good to provide independent resources for permaculture projects. This is easier to do in the second or third year, when some results can be shown and the project is more visible in the media. Of course there is always the option of impressing some funders even before the project starts, especially if you can provide other examples (evidence) of success.

Starting this kind of work with schools is pioneering work and one should be aware of what she/he is getting into in terms of finances. Seeing the situation through the ethic of Fair share, it's good to emphasise that money is just one of the reasons for doing this work. It is very precious to be given an opportunity to develop something new and showcase what it is possible to achieve in a school. It might be that in this phase some work is done for free, but it might set a good example that other schools will want to follow, and pay for it. The outdoor learning space in Ljutomer has already been visited by teachers and headteachers from other schools who are now inspired to develop their own outdoor learning spaces.

Top tips

- Make sure you create a maintenance plan, and if you are external, consider who will take it



(9) All the school is engaging with the outdoor classroom.

over when you step aside. Parents, children and teachers all move on too - they will not be there forever. Make sure that there are good written records and several people involved in designing and decision-making.

- Be aware that designing and setting up an outdoor learning space can take a lot of time and effort, and is often unpaid or underpaid. However, there are many other benefits to creating an outdoor learning space in a school including benefits for children (e.g. fresh air, exercise and applying learning), teachers (e.g. happier children, variety of teaching methods and project work), and the environment (reduced climate change and increased environmental awareness), and that when other teachers visit they may be inspired to create their own.

Highlights

When the initial conversations and activities started happening, and there was nothing tangible to show, the headteacher put a deep trust in Tomislav. A few years down the line everybody in the school now experiences the benefits of new learning methods and time spent in the outdoor learning space.



(8) Large garden to supply the school kitchen.