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Education for Sustainable Development in the Early Years

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Acknowledgements

Organisation Mondiale Pour l'Éducation Prescolaire (OMEP) is an organization which started in 1948 for professionals in the field of peace education, to meet the needs after the 2nd World War. In 2008 when Ingrid Pramling Samuelsson was elected World President the focus was changed more towards education for a sustainable development (ESD) – a field that had not formerly been on the agenda for early childhood.

Following successful international workshops in this area, OMEP has adopted the topic of ESD as a main issue in its 2010 World Congress – “Children, citizens in a challenged world”. People will come from all over the world to share their experiences of working in the area of Education for Sustainable Development in early childhood. We hope that this book will contribute to practitioners' everyday work with children in this important area.

A lot of people have contributed to the production of the book. Ingrid Engdahl has written about a specific interview study with participants from 30 countries. Many preschools have also provided examples of their work, these include: In Sweden: Värmdö preschool, Stockholm; Lillgårdens preschool, Ale; Preschool Svalan, Skelleftå: In the UK: Ireland Wood Children's Centre and Carr Manor Primary School Leeds, and Glusburn Community Primary School, Keighley: In Australia Hallett Cove Preschool and the University of Melbourne's Early Learning Centre also warrant a special mention.

Eva Ärlemalm Hagsér has contributed with web-links. Anna-Karin Engberg has provided the illustrations while Lisbeth Söderberg has done the layout. The three of us: John Siraj Blatchford, Kimberly Caroline Smith and Ingrid Pramling Samuelsson, have written the text.

Introduction to Sustainable Development

What is Sustainable Development?

It is now widely recognised that humanity faces urgent problems affecting local, regional and global environments, and social and economic development. The Earth's limited natural resources are being consumed more rapidly than they are being replaced, and the effects of global warming upon ecological balance and bio-diversity are well known. Rising sea levels threaten millions in less developed nations. The implications in terms of migration, increasing poverty, the supply of food and upon human health and security are extremely serious. The goals of the UN Decade of Education for Sustainable Development (2005-2014, DESD), are therefore to integrate the principles, values, and practices of sustainable development (SD) into all aspects of education and learning.

Sustainable development was first defined in 1987 by the Bruntland World Commission on Environment and Development (WCED), which argued for a development strategy that:

"...meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p.43).

As Little and Green (2009) point out, citing Pearce (2007), more recent and complete definitions drawn from the

1987 Commission report contain two additional key concepts.

The concept of 'need', in particular the essential needs of the world's poor, to which overriding priority should be given, and;

The idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and future needs (WCED 1987, p 43).

Agenda 21 which was adopted by most of the, world's governments at the Rio de Janeiro 'Earth Summit' (UNCED, 1992) also introduced the notion of 'sustainable consumption' and the idea that people in rich countries needed to change their consumption patterns if sustainable development was to be achieved.

The work of Amartyn Sen has also been influential. Sen argued that the WCED (1987) 'need' centred view of development was "illuminating," but "incomplete" (Sen, 2000, p. 2). He argued that individuals should be seen as "agents who can think and act" and not like "patients" whose needs had to be catered for (ibid, p. 2). His argument was that it was only by treating people as agents that they would ever be able to "think, assess, evaluate, resolve, inspire, agitate, and through these means, reshape the world" (ibid, p. 1). Sen therefore redefined sustainable development as "development that promotes the capabilities of present

people without compromising capabilities of future generations” (Sen 2000, p. 5). Sen’s ‘capability’ centered approach to sustainable development aims to “integrate the idea of sustainability with the perspective of freedom, so that we see human beings not merely as creatures who have needs but primarily as people whose freedoms really matter” (ibid, p.6).

This perspective resonated strongly with the position taken by Schumacher (1999) where he argued:

“Development does not start with goods; it starts with people and their education, organization, and discipline. Without these three, all resources remain latent, untapped, potential” (ibid, p. 139).

Since the World Summit on Sustainable Development (WSSD) convened in Johannesburg in 2002 it has therefore been widely recognised that education has a major role to play in the realisation of a; *‘vision of sustainability that links economic well-being with respect for cultural diversity, the Earth and its resources’* (UNESCO 2007, p.6). There is also general agreement that education for sustainable development (ESD) has to be an integral part of quality Education for All (EFA) as defined in the 2000 Dakar Framework for Action.

For most early childhood practitioners, parents and children the day to day activities most significantly influencing sustainable development are at the level of consumption. Sustainable consumption is therefore the most appropriate area to initially focus our attention in the early years. If we are to support parents and children acting together to live more sustainable lives this initiative might therefore adopt a minor adaptation of the Bruntland definition so that:

Sustainable Actions may be seen as *“actions that meets the needs of the present without compromising the ability to meet future needs or the ability of future generations to meet their own needs.”*

The UN "Earth Summit" in Rio (1992) referred to social development, economic development, and environmental protection, as the three; "interdependent and mutually reinforcing pillars" of sustainable development. The challenge for early educators is therefore to develop educational systems, curriculum and pedagogic practices that promote **sustainable actions** with respect to each of these pillars.

The Three ‘pillars’ of Sustainable Development

Education for Sustainable Development provides a vision of education that seeks to balance human and economic well-being with cultural traditions and respect for the environment. It is therefore important to recognise that sustainable developments are supported by these three pillars acting together, and that any practices and policies developed without taking each into account are likely to be weaker and may even fail. From the perspective of sustainable development the most efficient or effective environmental, economic or social strategy may not be the most sustainable. For example, the choices that we make in any one area may need to be moderated by the other two. To take a concrete example, in an area of water shortage the most environmentally sophisticated, ‘state of the art’ water treatment plant might not be practical especially if it required costly or highly skilled regular maintenance. In this case a more

appropriate (even if less 'green' or even 'effective') technology capable of being supplied immediately and/or maintained by the local community might be more sustainable and save lives. A classic example of this is provided by the introduction of cloth filters to reduce contamination in the water supply¹. In Bangladesh an old cotton sari is folded to make four or eight layers and then folded over a wide-mouthed container before collecting surface water.

One of the implications of this for early childhood education is that we need to develop in young children a more critical appreciation of many of the most advanced products of science and technology. This suggests a significant shift in perspective from traditional approaches to these subjects which focused upon the uncritical celebration of achievements.

In practice, education for sustainable development has the potential to integrate and build upon a number of established areas of curriculum development including 'futures education'; 'citizenship'; 'peace education'; 'multicultural and gender education'; 'health education'; 'environmental education'; and; 'media literacy'. It also provides a platform and rationale for the further development of more recent curriculum initiatives such as those concerned with developing children's economic understanding (along with positive attitudes towards) sustainable credit and saving.

¹ http://en.wikipedia.org/wiki/Cloth_filter

Why do we need Education for Sustainable Development (ESD) in the early years?

The UN Convention on the Rights of the Child (1989) affirms that all children have a right to education and Agenda 21, the action plan for sustainable development drawn up at the "Earth Summit" in Rio (1992) set as its first priority the promotion of basic primary education. But it is in early childhood that children often experience the greatest environmental challenges, and it is a time when the foundations of many of their fundamental attitudes and values are first put into place. We know from research and from experience that even very young children are capable of sophisticated thinking in relation to socio-environmental issues and that the earlier ESD ideas are introduced the greater their impact and influence can be.

In the UK in 2010 the public attention was drawn to the actions of a seven year old boy from West London.



Charlie Simpson's sponsored bicycle ride

After watching on TV the devastating effects of the recent earthquake in Haiti Charlie Simpson said , *"I want to make some money to buy food, water and tents for everyone in Haiti."* Charlie decided that to do this he would cycle five miles (8km) around a park near his home to

raise funds for Unicef's earthquake appeal. He expected to raise £500 but media attention has resulted in him raising more than £210,000 so far². Charlie's story provides an example of what can be achieved in both individual and community terms through a greater emphasis being taken on education for sustainable development in early childhood.

In 2009 the United Nations General Assembly (UNGA, 2009) devoted special attention to the right of children to be heard, reaffirming "that the general principle of participation forms part of the framework for the interpretation and implementation of all other rights incorporated in the Convention on the Rights of the Child". The General Assembly called upon States to assure that children were given the opportunity to be heard on all matters affecting them, without discrimination on any grounds, by; "adopting and/or continuing to implement regulations and arrangements that provide for, and encourage, as appropriate, children's participation in all settings, including within the family, in school and in their communities".

It is in this context that the recent work that has been carried out by Göteborg University and Chalmers University of Technology, through the Joint Centre for Environment and Sustainability (GMV), might be considered particularly significant and timely. The GMV initiative began in 2004 with an international conference on Education for Sustainable Development held in Goteborg entitled *Learning to change our world*. Subsequent workshops led to the

publication of a discussion paper in early childhood education³.

The Goteborg Recommendations

The recommendations (Davies et al, 2009) were grounded on notions that children are competent, active agents in their own lives and recognised that children are affected by, and both capable (and often required by circumstance), to engage with complex environmental and social issues. The recommendations steered away from romanticized notions of childhood as an arena of innocent play that positions all children as leading exclusively sheltered, safe and happy lives that remain untouched by the events around them. Eight foundational principles upon which ESD should be developed are suggested:

ACCESS FOR ALL TO A PROCESS OF LIFELONG LEARNING

It is imperative that Early Childhood Education is recognized as the starting point for lifelong learning within education for sustainability. There are still a large proportion of children who do not have access to education in the early years. Early childhood education offers a valuable starting point for early childhood education for sustainable development, and the highest priority is therefore to ensure access for all children to early childhood education.

² <http://www.justgiving.com/charliesimpson-haiti>

³ http://www.327matters.org/sustainability/docs/gote_pub.pdf

GENDER

Early childhood education is a highly gendered field. It is also a potential starting point for identifying, critically analysing and engaging with the important contributions that women from diverse contexts offer to educational practice broadly and to child development and ESD. It also offers the opportunity to critically engage with the roles of men within the field, especially in terms of their impact as role-models for young boys.

LEARNING FOR CHANGE

Early childhood education has strong traditions of curriculum integration, engagement with the lived environment and child participation, which align well with ESD. Early years ESD can readily build on these foundations and embrace the complexities of transformative learning.

NETWORKS, ARENAS AND PARTNERSHIPS

Good practice in early childhood education integrates indigenous knowledge, sustainable living practices, basic human rights and learning through experience. Such practices are already common in many community early childhood provisions. However, these practices remain largely unrecognised in these terms and they need to be documented and promoted. Children live different childhoods. There is a need not to romanticise, but to critically engage in the varied contextualised approaches, and to document and share successful practices.

PROFESSIONAL DEVELOPMENT TO STRENGTHEN ESD ACROSS ALL SECTORS

Early childhood education provides the foundations for lifelong learning and

there is an urgent need for capacity building within the practitioner community and among other members of society to form strong safety nets and communities for young children, including strengthening the capabilities of their primary caregivers in terms of sustainability.

ESD IN THE EARLY YEARS CURRICULUM

Early childhood education has a tradition of integrated curriculum approaches embedded in children's everyday lives, even if this is not always fully enacted. Such approaches need to be more widely adopted into the formal curricula of schooling and into informal and non-formal learning approaches.

SUSTAINABLE DEVELOPMENT IN PRACTICE

The principle that you should live as you teach is very important. Early childhood educational settings and services need to be places where sustainability is practiced. This means that all early childhood education settings should examine their own 'ecological footprints' and work towards reducing waste in energy, water and materials. They should aim to live out democratic and participatory social practices. They should 'practice what they teach'.

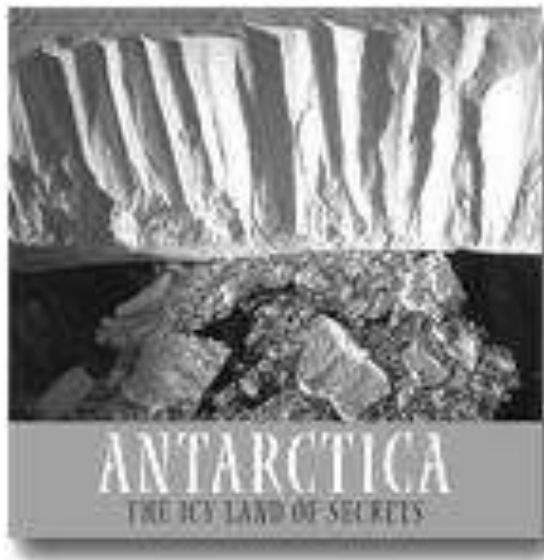
RESEARCH

As an emerging field of practice, early childhood education for sustainable development is seriously under-researched. This must be remedied in order to build the field on an evidence-base of critique, reflection and creativity.

The recommendations also suggest specific action points for the development of national and international policy.

The specific contribution that can be made by early years settings

One of the most striking examples of what can be achieved in recent years can be seen in a DVD produced by the University of Melbourne Early Learning Centre. The project was developed in response to the International Polar year 2007-2008 and is entitled *Antartica: The icy Land of Secrets* and it is available to order along with supporting materials⁴.

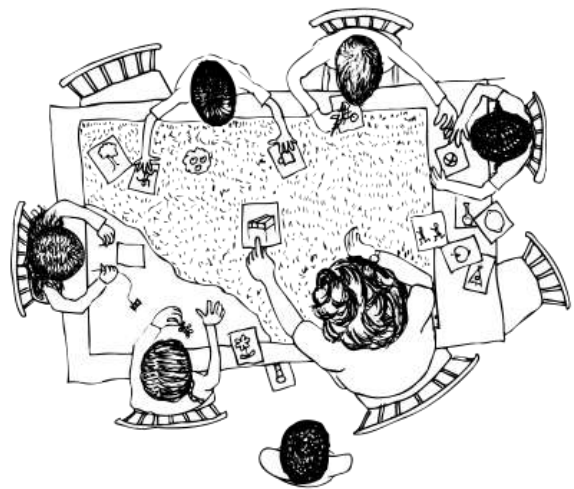


Another project that illustrates the potential of a whole centre initiative is provided by the example of Children's participation in designing a new preschool playground in Sweden.

Lillgården's preschool was old, and a new preschool was to be built in an adjacent area to it. An architect was therefore called in to the preschool to get the children involved in designing their new out-door space. The aim was to make children agents and active participants in developing their own environment and to support the children (aged 4 and 5 years)

in developing a greater awareness of the local surrounding.

The architect made cards with signs for objects that were in the children's existing play area (trees, slide, swings, sandpit etc.), and for activities in the preschool (eating, taking a rest, talking, play etc), and finally also for the children's feelings (dangerous, secret, happy etc).



Designing a new playground

The children then took the pictures with signs and walked around in the out-door space in small groups, putting them where they thought they should be. The pictures showed what the children thought they did in each area. Afterwards, the architect and children walked around and looked at their choices and discussed with the children why they had located them where they had. They also talked about how signs could represent objects, activities and feelings.

The next step was to introduce the children to a series of maps, which the architect had already made and the signs that children had located in different places were then added to these maps.

⁴<http://www.edfac.unimelb.edu.au/eldi/elc/multimedia/index.html>

The children then began to make their own maps, and there were extended dialogues about where, what and with whom the children played in the different areas of the playground. They also discussed what else would be good to have in the different play areas. The children took photographs and made their own pictures of their favourite places. They also talked more about their existing playground and the site of their present preschool. They found some historical information about this and also some photos. This provided an opportunity for the children to make connections between the 'here and now' and the pre-schools use by earlier generations. They worked on this as a theme for a while. The next step was to connect their planning it to the future. They produced their own maps, and began by measuring the size of the building of the new preschool, and when this was marked they knew what was left for out-door space.



Measuring out the space

Then came the imaginary phase, where the children could come up with their own ideas of what they wanted the playground to be like. They realised that there were different heights, and secret

places they wanted to save, places where they could grow flowers and vegetable, where they could have construction work, barbeque etc. They asked: "Is there room for the old apple trees, or can we plant new ones?" "Can we grow tomatoes somewhere?" "Can we make a small pond where the birds can drink and we can play?"

Phase four was where they began to apply all of their experiences and knowledge about the old area of the preschool, transferring it into new maps and new signs. Some of the old signs still worked, but they also had to invent new ones. They made a map with signs, and also a model with suggestions for the new playground. For the model they used cardboard, paper, cloths, paint, etc. The model construction of the new preschool playground was exhibited for parents and for the municipality who were responsible for the new building and playground facilities. Also the local newspaper came and took pictures and a debate started in the community about the role of children as active citizens. Economics also become a question since the children themselves posed many of the questions about what they wanted in the new playground. "it depends on how much money one has!"



Agreeing on a final design proposal

While the Antarctic example provides an illustration of an activity that focuses most strongly on just one of the central pillars of sustainable development, the Playground example shows how they may be effectively integrated into a major project. There is an important observation to make at this point. Although for curriculum planning purposes it is important to audit our programmes to ensure we address all three of the pillars of sustainable development, we should recognise that in the early years, children don't need to address all three in every activity that they do. Projects may legitimately be developed with children that focus on just one or two at a time. Certainly, as the children get older and more capable they will benefit from the experience of more sophisticated challenges involving ESD problem solving. But in the early years there are many foundational ideas and attitudes that deserve more focused attention. These include developing an awareness of interdependence, care for living things and for the environment, and attitudes associated with sustainable consumption and thrift.

Parents and Practitioners in Partnership

The children's parents and families can make an important contribution to a child's understanding of sustainable development. A great deal of research evidence⁵ shows the fundamental importance of the early home learning environment on a child's development.

An Early Learning Toy Appeal at Ireland Wood Children's Centre in England provides a good example of effective

practice where the parents and children were encouraged to work together on a major project. As a team, the staff wanted to develop the environmental education curriculum and it was also felt important to develop projects that involved all three pillars of sustainability. The Centre serves a multiethnic community, and many children come from disadvantaged backgrounds, so it was also felt to be important to promote community and parent partnerships.

From the outset, during free flow play, toys made from a variety of materials (wood, plastic, metal, fabric), and toys from around the world, and with different mechanisms were left for the children to explore. Many children selected wooden bricks to play with and enjoyed creating different structures that were incorporated into their imaginative socio-dramatic play.

Other open ended resources including shells and pebbles, were popular with the children and supported lots of adult: child discussion about where they could be found. At one point a couple of the boys looked at the baby dolls, but dismissed these immediately as being 'girly toys' as they were pink. This began a discussion on stereotyping, and one three year old said he would play with the doll if it was blue.

When looking at toys many children also showed an interest in how the wheels turned on the toy tractor and how the toy supermarket trolley moved. All of these experiences provided a fantastic opportunity for the children to begin to analyse, appreciate and evaluate the toys.

The early year's practitioners recorded these observations of the children playing with and exploring the toys and they planned for adult led sessions that

⁵ E.g. Sylva et al, (2010)

responded to, challenged and built upon the children's ideas. During a circle time one practitioner presented the pre-school children with a doll that she had been given from a child in India. The children were fascinated with how the doll looked so differently, to the baby doll's that they played with. This provoked lots of comparative and evaluative discussion between toys and the materials they were made from. Children were introduced to recycling and where materials came from. This led on to thinking about what happened to these toys when children had finished playing with them. In particular it also led the children to question the toys that they had at home that they no longer played with. Could they pass any of their toys on to someone else that didn't have any toys? What toys were no longer played with? One 4 year old said that she would like to pass on her old baby toys to babies that didn't have anything to play with.

The children decided that they wanted to give the toys they had at home that they no longer played with to children who were less fortunate.

The staff and parents at the centre were in firm agreement that this project was a fantastic idea as toys were a theme that every child had experience of. They decided that they would set the centre up as a hub for collecting early learning toys. They would then send these toys off to children who were less advantaged. The staff also hoped that this would give children opportunities to learn more about recycling and in the process make an active contribution to helping others. They decided to support the early learning toy appeal by inviting parents, staff and children to become part of an ESD committee who would support making key decisions developing the

project further. This also strengthened the partnership working between the parents and practitioners more generally.

The declared aims developed for the project were to:

- *support children in making their own informed decisions and actions on the way they live.*
- *find out how much the children understood and use this knowledge and their interests as a starting point.*
- *bring the community and families together to become more involved in the life of the centre.*
- *provide enhanced support for the parents and local community*

The staff got in touch with the local high school and asked if any students would like to design posters to advertise the appeal. These were then displayed these around the local area, to inform the local community and encourage them to get involved.

With the help of the OMEP a pre-school in Zambia was identified as one that would benefit from the early learning toys collected. A local charity named St Vincent's were looking for early learning toy donations for their new community room in the town so some donations of toys were made to them.

The highly motivated committee of parents, children and staff developed a set of criteria to evaluate each learning toy against. these criteria included:

1. *Very strong early learning support potential.*
2. *Not something likely to be available or have an equally valuable alternative available locally.*

3. A high educational value to shipping weight ratio.

The use of these criteria ensured they only sent out the most appropriate early learning toys. It was also felt that this helped to raise other parent's knowledge of choosing new toys and encouraged them to critically question the claims of toy manufacturers that were presented on the packaging. A group of motivated parents from a lone parent support group helped the committee in sorting out the toys to send.



The children were encouraged to critically evaluate the toys

The centre also set up an internet news blog⁶ that was regularly updated with the latest information on the centre's sustainable practice. This was used to share and celebrate the project and to support the home learning environment with children's families. The blog also provided a means of sharing the good practice with other early year's settings. An ESD notice board was set up within the setting to support parents, who had

no access of the internet, to keep up to date.

In evaluating the project it was found that the early learning toy appeal not only encouraged the children to challenge their own learning and learn about empathy, it also developed children's understanding of recycling, and allowed them to understand how they could make a positive contribution to sustainable development. The children showed they could be active citizens and through their contacts with St Vincent's and the Pre-school in Zambia, they are gaining experiences of local and global dimensions to learning.

When speaking to Parents many spoke about how they felt welcomed into the setting and enjoyed working with the staff and children. The staff also spoke of how motivated they felt to come into work, as they were doing a project that they were interested in and enjoyed. The feedback from the Lone parent group was also encouraging, as they felt the project enhanced their questioning and evaluative skills when buying new toys for their own children.



Parent and child discussing the blog

⁶<http://earlyyearseducationforsustainability.wordpress.com/>

The Environment Pillar

Depleting natural resources, increased greenhouse gas emissions, overflowing landfills and polluted waterways are a few of the effects demonstrating how societies have adopted lifestyles that have focussed on maximising immediate comfort and convenience at the expense of future generations. Rising sea levels are threatening many communities, and many of the people living in the poorest countries are the worst affected. These factors already have implications for poverty, migration, food and water production and health care. Unfortunately, already much damage to our planet has been done, and much of the damage is irreparable.

As early years practitioners we have a role to play in offering children experiences, and in supporting them in gaining knowledge and understanding of the environment as it relates to their society. At an early age children can begin to develop the critical thinking skills required to make the sort of informed decisions that will affect the quality of not only their own and the lives of others around the world, but also the lives of future generations. Yet, historically this has not always been our way of teaching young children about the environment. Up until the last few years environmental education promoted awareness and knowledge about the environment, biodiversity, and the interactions and connections between people and nature. While environmental education has had a place in our education system for many

years, the focus has now developed to a perspective emphasising sustainable development.

This new perspective has a greater emphasis on equipping generation to take responsibility for making informed decisions towards a sustainable future by considering what is best in the *long* term. This no longer involves children learning about what has happened, but also about what can be done for tomorrow.

In Ireland Wood Children's Centre in England three and four year old children have been actively involved in setting up their own fruit and vegetable garden. Initially the children had looked at photographs of allotments around the world and looked at a range of fiction and non-fiction books on gardening for inspiration. The teacher noted all of the children's ideas, and the children also made their own designs of how they wanted their garden to look. As they did this, there were extended dialogues about where and what should be grown in the garden and how this could be achieved. Throughout the next few months the children helped plant seeds, bulbs and tree's. Later on in the year the fruit and vegetables were harvested and eaten at meal times and shared with family and the local community.



The children have been actively involved in setting up their own fruit and vegetable garden

As suggested earlier, the most important issue here is that it is young children who have the highest stake in the protection of the environment. Within early years education we also know that even very young children are capable of thinking about environmental issues and we also know that the earlier these ideas are introduced the greater the impact can be. But while research evidence is available we don't really need the research to convince of this. We all know from experience that if an adult has never recycled, it is quite hard to forget the wasteful habits of a lifetime even when it is their intention to develop more positive values. For children who grown up, from an early age to recycle and care for their environment these attitudes will be sustained for a life time.

In fact young children are capable of making even quite complex moral judgements. One concrete example is provided by Bates and Tregenza (2009) in a case study from Hallett Cove Preschool

in Australia⁷. They report on a four-year old child and her mother standing at the supermarket counter. The child is reported to have picked up an item and following a close inspection saying:

"We can't buy these, Mummy...they don't have recycle symbols on them!"

As Bates and Tregenza go on to observe, children are often seen as having little influence on our world. Yet here is an example of a four-year old trusting her beliefs and exerting her influence on her family, and thus, indirectly, on society (op cit, 2009).

Many early years settings are already making significant contributions to education for environmental sustainability through integrating recycling and composting into their every day practice. Yet arguably, the biggest development that needs to be made in terms of the early years is to involve the children more closely in making decisions on the issues affecting their own lives and local environment.

Outdoor Learning

In many Western urban contexts, during the last few years there has been renewed concern that children should spend more time outside. There have been concerns about children's play in the home, being dominated by the use of electronic toys, computers and the television. There has also been some concern that this type of play can be linked to the restriction of social skills and that the limited time spent outside had serious implications for children engaging in physical activity. Particular concerns

⁷ <http://www.decs.sa.gov.au/efs/files/pages/HallettCovePreschoolCaseSt.pdf>

have also been expressed regarding early childhood obesity.

Yet early years practitioners have long recognised the learning potential of the outdoor learning environment. Outdoor education in Scandinavia has a high status, with the aim of improving physical development, and the child's connection with nature. Many of the Scandinavian forest pre-schools are built and run in secluded woodland, other settings provide regular access to local woodlands by bus. Throughout a typical day children have the opportunity to engage in child initiated activities and investigate the tree's, wildlife, and eco systems. The children are often encouraged to work in teams, problem solving and learning through direct hands on experience.



A discussion in the forest

In the UK, forest school developments have also been extremely successful and have been shown to have made a positive impact on those children with behavioural problems and those that need to develop confidence and self esteem. Reggio Emilia has provided another international influence that has supported the learning potential of the outdoors. In fact in the Reggio Emilia model of early childhood education the environment is seen as the third teacher.

Using the child's interests as a starting point.



Watching a chick hatch from its egg

Curriculum planning should always take account of the children's interests, this is an important aspect of personalised learning. At Glusburn Primary School, for example, they have used the children's interests in Easter and in hatching eggs to provide opportunities for the children to look after and watch real chicken eggs hatch in an incubator. This highlights the value of learning through first-hand experience. Building upon particular interests or concerns that the children express, pictures, video clips and objects can all then be used as a starting points for discussion to find out what children already know and understand. Once the foundations for new knowledge and understanding are identified then we can build children's awareness of quite different social cultural contexts and experiences.

In one project at Cannon Park Primary School in Coventry for example, the children were concerned that they were unable to keep their drinks cool. The teacher was able to show the children pictures of unglazed pots known as 'Chatties' that are often used in South

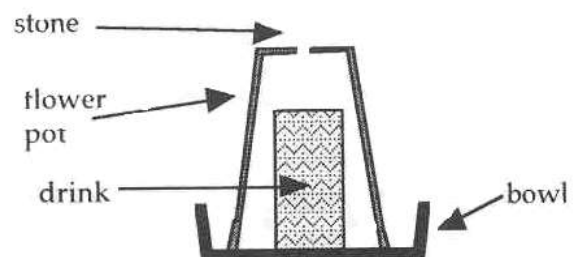
Asia and Africa to store water and keep food fresh.



A 'Chattie' Refrigerator

The children were shown how, if they wanted to keep their drinks cool on a hot day, they could use the same principle as the Chattie to make their own refrigerator. All it takes is for their can or

bottle of drink to be stood in a bowl and a flowerpot soaked in water placed on top. As the water evaporates from the clay pot it takes the heat away and keeps the drink underneath good and cool. This 'cooling effect of evaporation' is the same principle applied in modern electric refrigerators. The advantage here is of course that the refrigerator doesn't need electricity...If they pour a little water in the bottom of the bowl and the pot will gradually soak it up and the 'fridge' will last even longer.



A 'Chattie' refrigerator

The Social and Cultural Pillar

"...cultural diversity is as necessary for humankind as biodiversity is for nature"

(The Universal Declaration on Cultural Diversity, UNESCO, 2001)

Social sustainability is concerned with all of those social, cultural and political issues that affect the quality and continuity of people's lives, within and between nations. Sustainable societies are therefore considered just and inclusive societies, which may be characterized by participation, emancipation, freedom, security and solidarity. To achieve social sustainability equality and fairness is therefore required between individuals and groups within and beyond national borders and between generations. Sustainable development requires, therefore, an ethos of compassion, respect for difference, equality and fairness.

The key concerns of social sustainability are to promote participation and dialogue, counter inequality, and secure peace. If peace and security are to be achieved and maintained throughout the world then social development and social justice are crucial. In fact it is widely recognised that social development and social justice cannot be achieved without peace and security, and it can't be achieved in the absence of respect for human rights and fundamental freedoms either. (United Nations. 21 August 2000 World Summit for Social Development)

Cultural prejudice and racism is a worldwide phenomenon and most

national governments have policies to counter the misinformation peddled to less educated minorities by manipulative extremists. Recent illustrations of the need for these educational provisions are diverse and include the mistreatment of ethnic Albanians in Greece, attacks on Romanians in Northern Ireland (2009), and violence against African farm workers in Southern Italy (2010). In India, discrimination against the Dalits, (so called 'untouchables') remains a significant problem and indigenous communities in many countries including the USA, Canada and Australia remain severely disadvantaged. In 2009/10 increased racist attacks against Indian's were reported in Melbourne. In South Africa, the deep scars inflicted by apartheid will take a long time to heal and these processes of reconciliation continue to be frustrated by extremists on both sides. The atrocities in Rwanda in the 1990s and Kenya more recently undoubtedly had many causes but if the ethnic divisions had not been so great then it is clear that they could never have been exploited to promote genocide. In the Middle East extremist factions on both sides have also often stood in opposition to peaceful settlements.

Children of three to four years of age commonly exhibit curiosity about physical differences and they often show gender and 'racialised' preferences. At this age the children develop their identity as family members and they can also absorb their families' stereotypes and biases. It is also at this stage that they begin to classify people into groups and to develop theories about why people are different.

In fact it is at this stage, when they are forming their first friendships, that we can do the most to support them in learning to accept diversity and to feel comfortable with differences. As previously suggested, Biologists used to think that human beings could be split up into different groups or 'races' but the study of genetics has now shown that the differences between people in any one population are enormous in comparison to any differences that can be found between populations. We can therefore now say with confidence that 'race' has no biological significance for human beings. The differences that we see between groups really are only 'skin deep'. Unfortunately we do tend to essentialise the differences we see between ourselves and 'others', and it is the differences between us that are often considered to define us. This is particularly problematic as we often take the similarities between us completely for granted. Children need to understand that skin colour is a totally arbitrary difference, and that all human cultures and populations, at home in the UK and throughout the world have much more in common than they have differences⁸.

Adults can contribute a great deal in supporting children in their development of positive perceptions of themselves and of others. A great deal of early years curriculum development along these lines has been carried out around the world. In the UK for example the Early Years Foundation Stage Guidance (2007) for England suggests:

8-20 months Planning and Resourcing:

⁸ <http://www.327matters.org/Paper.htm>
<http://www.327matters.org/Sustainability/Docs/skincolour.doc>

"Work with staff, parents and children to promote an anti-discriminatory and anti-bias approach to care and education".

16-26 months:

Note: "Young children's interest in similarities and differences, for example, their footwear, or patterns on their clothes and in physical appearance including hair texture and skin colour".

Note: "Young children's questions about differences such as skin colour, hair and friends".

Effective Practice: "Talk with young children about valuing all skin colour differences".

40-60+ months:

Note: "How children express their attitudes such as about differences in skin colours".

Effective Practice: "Develop strategies to combat negative bias and, where necessary, support children and adults to unlearn discriminatory attitudes".

The Frazer Bear Project

In November 2009, seven teachers from a variety of schools in North Yorkshire in the UK accepted the challenge of being part of a pilot project to look at using an online 'Fronter' Virtual Learning Environment to enhance Community Cohesion through school linking. Each setting was paired with another setting and each of the seven teachers were given a special bear with the surname of 'Fronter'. The bears came equipped with special passports and bags – ready for their adventures!

In the Autumn term of 2009, the Foundation Stage Unit at Glusburn Primary School began the project as one aspect of their community cohesion

(COCO) program. The project began with letter arriving at the school from 'Frazer Fronter' and the children guessed that he was a bear because he had left a paw print on the letter. The children then talked about what they thought Frazer might look and what he would need to settle into school.



Talking about Fraser the bear

With the support of the adults the children researched, using nonfiction books, yo fond out what bears needed. The children took photos and videos, using digital cameras , to show him what the unit was like and they introduced themselves to him using a forum on the Fronter web site. Frazer bear then spent a term at Glusburn School learning all about the local community and the school itself. The children made "Teach me" videos to tell Frazer how to log onto the computer and how to make porridge" (Frazer Bears room on Fronter). Videos were also made of the children talking about the things they did at school for Frazer. At the end of the Autumn term, Frazer told the children that it was time for him to meet some new children in a different school. Together the children and teachers uploaded the photos, videos and their work with Frazer onto Fronter so that Frazer could show the new children he met, all about his adventures.

In the Spring Term of 2010, Frazer Bear then visited a 'link' school in Harrogate, North Yorkshire to learn more about the local community there. Pupils from the Harrogate school were able to access Fronter and find out about Frazer's adventures in Glusburn. The Frazer link, prompted children from Harrogate to contact the children from Glusburn and although in contrasting areas, both sets of children could see how they were similar to others. Towards the end of the spring term both the children from Glusburn and Harrogate met up at a National Park in the Yorkshire Dales.

When Frazer returned to Glusburn, in time for the start of the summer term, links were made with a pre-school in Tanzania and arrangements made for Frazer to spend some time there. Other similar projects have been carried out in other countries. One other example comes from a project developed within the IBM KidSmart program. In 2008 this involved 500 preschool children from disadvantaged communities in 13 European countries participated in a 'Travelling Toys' project developed to foster cultural exchange and increase IT communication skills in the classroom.

A link between Sweden and Uganda

The Swedish curriculum for preschools suggests that: "Children should acquire ethical values and norms, particularly through concrete experiences", but also "to support children's empathy and imagination in other human being's situation". This led the teachers in one Swedish preschool to exchange letters

with teachers in Uganda, and to involve the children in the dialogue.



Children become interested in each other's every-day-life

Two major differences were identified between the preschools. One was that the preschool in Sweden was municipality owned, and provided as a right for all children, while the Ugandan preschool provisions were being made by an NGO and places were available for some of the local children. The other differences were related to the inequalities in access to food, electricity and materials. These became the two starting points for discussions between the children in Sweden and Uganda. The children exchanged mails with photos and drawings, and every time a new envelope arrived there were new questions to deal with. The Swedish children asked a lot of questions from the start, but the project really took off when their teachers had a chance to visit the school in Uganda. They had successfully applied for a grant to do so. In their preparations for travelling to Uganda the Swedish teachers, children and parents discussed the very different levels of resourcing in the two settings and collected together a range of educational materials they could contribute.



Letter exchange

The Swedish children also formulated many questions for the children in Uganda, like: "What is the most dangerous animal?" "How long is the tongue of the giraffe?" Many of these questions were quite odd for Ugandan children since most of them had never seen a giraffe. These questions drew the teachers attention to the need to address a range of popular stereotypes about life in Africa.

The teachers took many photographs for the children in Sweden to look at. These photographs and the first hand accounts made everything much more concrete for the children. They could observe things in the photos and they asked questions such as: "Why are children eating the same porridge every day?". They also asked questions about the children's skin colour such as: "Why are these children so dark?"

The Swedish teachers thought it should be interesting for the children in Uganda to hear about the total darkness that people experienced in northern Sweden in the wintertime. But for children living in Uganda who had no electricity, they found it more surprising to hear that

people were living with the electricity on all day.

It was clearly realised how much easier it was to talk about cultural and human differences when they had this experience of having visited them. They also found children's were more interested when they could tell them more about their own every-day experiences in Uganda. The next step has therefore been for the Swedish teachers to apply for funds to bring their Ugandan colleagues to Sweden.

Making and 'Evaluating' toys

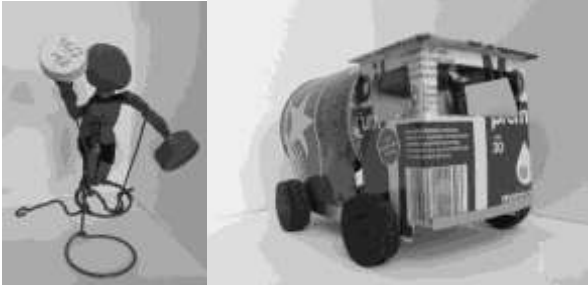
An example of the toys project conducted in one pre-school setting was included in the introduction above. One aspect of this involved the children and their parents evaluating toys from a sustainable development perspective. It is important to recognise that the 'made' environment, along with every technological artefact contained within it is a cultural product. When we encourage children to evaluate artefacts from different cultures, artefacts produced for different purposes, and/or for individuals with different needs we are encouraging them to develop better understanding of the people who made them. It is for this reason that 'learning through artefacts' has become popular in teaching history and religious studies in schools. Artefacts also provide a powerful resource for values education. The undesirable technological side effects of some products may also be discussed along with alternative designs.

In this context it is important to recognise that children are themselves consumers

and that advertising and popular media has an influence on the choices that they make with respect to toys, clothes and activities. It has been estimated that the average child in the UK watches as many as 10,000 television commercials per year. In Sweden all television advertising is banned during children's prime time and commercials that feature characters that children are familiar with are prohibited until 9 p.m. during the week and 10 p.m. at weekends. Yet the regulations in most other countries are mostly weak or non-existent. The World toy sales market in 2008 has been estimated at \$78 BILLION. The toy manufacturing industry are constantly looking for potential new products and one of their recent innovations has been to market 'green toys'. In part this may also be a trend encouraged by the industries heavy use of plastic, which has resulted in their costs rising fast along with oil prices.

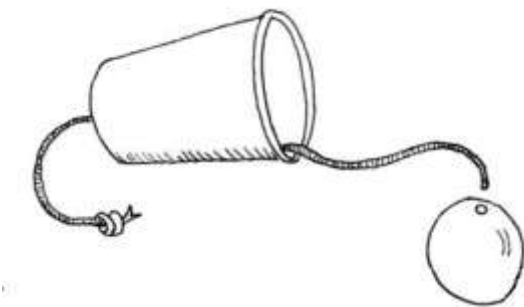
Toys made from recycled wood and plastic are therefore becoming more common and some companies now advertise that they use wood grown from sustainable sources. Packaging is also an issue and there are particular concerns regarding battery powered toys. It has been estimated that more than 14 billion batteries get thrown away each year yet only a tiny proportion are recycled. Most batteries end up in landfills where the chemicals inside leach out and into the soil and water to damage the ecosystem. It should also be noted in this respect that battery's typically hold about 50 times less energy than it takes to make them... One useful alternative to buying 'green' toys is to encourage children to make their own and these activities have the additional benefit of showing children the

innovative and ingenious toys that many of the poorest children around the world play with. Some of the most striking examples are the toys made from wire and other recycled materials in Africa.



An African wire shaker toy and tin truck

There are a number of books and there are also internet websites that provide a wealth of ideas for toys and games that children can make at home and/or in the preschool. Musical instruments such as drums, shakers and thumb piano's can be made out of recycled rubber bands, sticks, boxes and containers. To make a simple cup and ball toy you can simply take any recycled plastic bottle, tin or cup and punch a hole in the bottom. Then thread a string through the hole and through a ball of modelling clay or plasticine (or a ping-pong ball) tying a knot in each end to hold it in place.



Craft activities have been considered an important part of early years practice since the beginning of the kindergarten movement, so it isn't at all surprising that a good deal of 'designing and making' continues to take place in most settings.

Children model with clay or plasticine, they play with wooden blocks or construction kits. Children are often given the opportunity of making things from old boxes, food and drinks containers and other 'recycled' materials. In some early years settings children work with more resistant materials, shaping and joining wood to make things. Comenius, Pestalozzi, Owen and Froebel all extolled the virtues of work of this kind and encouraged educators to provide opportunities for children to make things. For Froebel, education in manual skills served to develop the whole child, it was much more than merely a vocational concern. Froebel believed that craft provided a means of expression and a powerful means to develop habits of success and perseverance.

In recent years a great deal of effort has been put into developing our understanding of design and technology and the major principles determining quality in designing and making have been identified. When we 'design and make' things we usually start off with some ideas about what it is that we want to achieve, and in the process of 'making' we evaluate our efforts and modify our designs as we go along. When we prepare food we 'taste' it, and we may add, reduce or change ingredients according to our evaluation of 'how it is going'. Similarly, when we work with textiles, knitting or dressmaking, as long as we are not rigidly following someone else's pattern or plan, we constantly evaluate the progress that we are making and modify our ideas until we are satisfied with the final result.

Children will enjoy making food products, simple pop-up cards, block structures and

a wide variety of other products and these making activities may introduce them to the artefacts used by children in other cultures and religious groups. They can also design and make 'environments' that can be played in, and they may even be involved in reorganizing the home corner for a new theme or topic. Collections of recycled and other 'consumable' materials should be kept in

the setting and the children should be given free access to them for exploration as well as more structured designing and making activities. In addition to cardboard boxes, and recycled plastic food and drinks containers and fabrics, a number of other materials are often available from schools suppliers.

The Economic Pillar

The aims of environmentalism are already widely acknowledged and increasingly supported throughout the European early childhood sector, and there are also many intercultural initiatives and insights that may be drawn upon to support sustainable developments in social and cultural terms. Yet the current level of awareness of sustainability economics is, by contrast, extremely weak and few practitioners currently working in the sector are aware of the multiple pillars (environmental, social, cultural and economic) that policy makers have come to accept as the major foundations of any adequate understanding of sustainable development. Yet young children like Charlie Simpson (above) show the potential for developing social entrepreneurs from an early age. It is for these reasons that we believe education for sustainable development requires programs that emphasise the importance of providing learning experiences for teachers and parents as well as for the children, and initiatives that encourage them to question how and why the issue of sustainable development affects every individual and community in a variety of ways.

It is often argued that an education that promotes thrift (or frugality) simultaneously supports the development of positive environmental values and pro-environmental behaviour. As Robins and Roberts (1998) have argued, all of our practices of sustainable consumption need to be grounded in a wider range of environmental, social equity and moral concerns and practices to support and encourage:

- reducing the direct environmental burden of producing, using and disposing goods and services;
- meeting basic needs for key consumption goods and services, such as food, water, health, education and shelter;
- maximising opportunities for sustainable livelihoods in the South;
- consuming goods and services that contribute positively to the health and well-being of women and children;
- increasing the development and adoption of energy and water efficient appliances, public transport and other demand-side measures
- the production and sale of new goods and services adapted to global environmental constraints; and
- lifestyles that place greater value on social cohesion, local traditions and non-material values.

John Fien (2002)

In much of this *lifestyle questions related to nature* can be central. To illustrate one of the ways these things may be addressed we will consider the example of how lifestyle questions became integrated into a project that was extended to address all three pillars of ESD, in a Swedish preschool, when they first intended to work on the topic of the 'living and dead'.

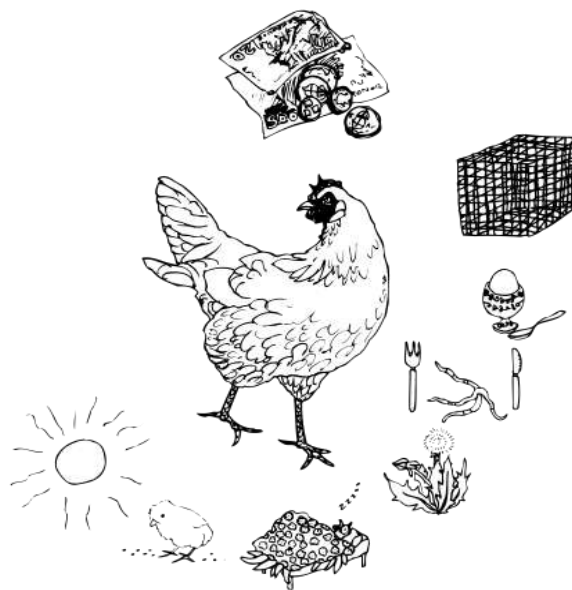
What came first? Was it the Chicken or the Egg?



The nature theme that the children and teachers started to ponder was "What is life?" the focus then moved towards hens and chickens and the children asked, for example: "How come that there are chickens in some eggs, but not in others?" They also asked how life can begin in a chicken. To find out about this they decided to read books about it and ask someone they thought knew about this phenomenon. A lot of questions, were posed by the children: "From where does life arise?" "Why are eggs different from each other?" "Can a baby chicken have chickens?" "Does the egg come out the same way as the poo?" They also asked about the chickens' everyday life: "Can they go out?" "Can they fly?" "How can they find the worms?"

From their own questions and from what they learned from their examinations the children soon realized that chickens can live under very different circumstances. They found that many of them live in small, narrow cages, without a sitting place of their own, and have to stay indoors all their life. The children then got upset and wanted to know where the eggs they eat at the preschool came from. When they were told that they came from chickens who were kept in small cages and unable to go outdoors they got really upset. They decided to

stop eating the eggs. Together with their teachers they went to the people responsible for the preschool's purchases with their protests and complaints about the way the chickens producing the eggs were treated. Their protest led to the institution as well as many of their parents changed their purchasing habits and starting to buy ecological eggs from a place where the chickens could go out and live a good life.



The economics of egg production

Here we can see an example of how the children participated in a search for knowledge related to nature, the economy and social aspects of the learning for sustainable development. 'Lifestyle' has a lot to do with what kind of eggs you buy, which is closely related to values. But it is also related to economy, as ecological eggs are more expensive, which in turn could mean that the children learn to understand that they cannot eat eggs as often as before, since they are more expensive. In projects such as this, the children also take part in a democratic process in which they influence something in their own lives.

Making the most of any opportunities to address the economic issues

In one preschool classroom in the early days of the commercial recycling of aluminium in the UK, a company approached a setting and offered to pay by the kilo for all of the drinks cans that the setting could collect. The staff used the opportunity to create a project that looked at recycling in general and on the material properties of aluminium as well. They decided that the children should decide themselves how the money should be spent on the school and a concerted effort should be made to engage the parents and their wider families in the project. The children were so enterprising in their strategies for the collection that a sizable sum was soon raised. Some of the income was spent on purchasing more recycling bins to support the continuing project. All aspects were discussed with the children through focused classroom meeting and the school council and the whole project provides an example of early entrepreneurial education in practice.

The 'macro' economic contexts

The UNESCO *EFA Education for All Global Monitoring Report 2010 Summary Report*, argues that the international community needs to identify the threat posed by the current economic crisis and the rise in global food prices to minimize the impact on education. As chapter 1 of the report suggests:

- The environment for pursuing the Education for All goals has deteriorated dramatically.

- The economic slowdown has far-reaching consequences for financing of education in the poorest countries.
- These countries urgently need an increase in aid to offset revenue losses, sustain social spending and help recovery.
- The international response to the financial crisis has so far failed to address the most vital human development concerns.
- Education for All financing gaps should be closed under an international human development recovery plan.

Chapter two of the UNESCO *Report* monitors progress on five of the six EFA goals and states three "key messages" for early childhood care and education (goal 1):

- Malnutrition, which affects around 178 million young children each year, is both a health and education emergency.
- Improved access to free maternal and child health care is crucial for education as well as for public health. Eliminating user fees is an urgent priority.
- Governments need to tackle inequalities in access to early childhood care, especially those based on income and parental education.

Action is required at many levels. Most urgently action is required to provide up-front, sustained and predictable aid to counteract revenue losses in 2008 and 2009 in order to help developing countries protect and strengthen their public financing commitments.

But the challenges of current global economic trends may not be for the 'developing world alone. As Little and Green (2009) have argued:

"As China and India continue their economic rise, western powers will increasingly realize that their remaining comparative advantages in tradable sectors – those in the so-called knowledge-based industries and services – cannot be sustained indefinitely. China's and India's wage advantages will not soon disappear, as they did in Japan and have begun to do in the tiger economies. China still has some half a billion people waiting in the rural areas to enter urban labour markets which will prevent wages rising fast in the urban economies. Soon many developed countries will be forced to recognize that remaining competitive is likely to require competing on price and quality, even in the knowledge economy sectors. This implies tough times for sustaining western living standards and, combined with strains over limited energy resources, major international tensions ahead. Global – and environmentally sustainable - solutions will require open international dialogue of the highest order".

The future economic, environmental, social and cultural challenges that the Western world is facing are increasingly recognised at the international policy level. What may be less well understood are the challenges to be met within each individual nation state, and the need to develop an effective education for sustainable development at all levels. In all educational sectors, a major aim must to provide an appropriate curriculum to prepare our young children for the challenges of their future lives. Educators have a special interest and concern for the future. The children that we teach in

our pre-schools today will face the challenges of a world that is yet to be realised, and many authorities consider the economic challenges that are to be faced as particularly significant. The future will inevitably bring us some degree of redistribution in the wealth of nations and it provides the possibility of creating a world that is more equitable and fair. It is widely recognised that the current high levels of international inequality are unsustainable and provide a serious threat to security and peaceful cooperation and coexistence:

"It is now widely accepted that – on the one hand – poverty should not be seen only as a lack of income, but also as a deprivation of human rights, and - on the other hand - that unless the problems of poverty are addressed, there can be no sustainable development. It is equally accepted that sustainable development requires environmental protection and that environmental degradation leads directly and indirectly to violations of human rights." (UN High Commissioner for Human Rights, 2002)

Effective early childhood care and education (ECCE) can give children a better chance of escaping poverty and overcoming disadvantage. Millions of children start school carrying the handicap that comes with the experience of malnutrition, ill-health and poverty. Inequitable access to pre-school programmes remains a burden in both rich and poor countries.

As Odora Hoppers (2007) has argued, in the context of Africa in which the majority of its children of three, four, and five years of age are in the rural areas it is especially important to consider what children are learning at home. Of course

the principle is universal and applies as much to the indigenous knowledge of families in Western urban contexts as it does to those in less affluent rural communities. The significant difference for us is that we may all have a great deal to re-learn from the indigenous knowledge of the African rural communities that she describes where:

“...the worldview embraced by traditional knowledge holders typically emphasizes the symbiotic nature of the relationship between humans and the natural world. Rather than opposing man and nature as in Western thought, traditional knowledge holders tend to view people, animals, plants and other elements of the universe as interconnected by a network of social relations and obligations”
(ICSU/UNESCO, 2002)

Leaving aside the values and philosophies of human existence, Odora provides a useful list of the concrete domains of knowledge that may be involved:

- agriculture and husbandry;
- preparation, conservation and distribution of food;
- location, collection and storage of water;
- coping with disease and injury;
- interpretation of meteorological and climatic phenomena;
- hunting, fishing and gathering;
- manufacture of clothing and tools;
- construction and maintenance of shelter;

- orientation and navigation on land and sea;
- management of ecological relations of society and nature; and
- adaptation to environmental/social change.

Each of these domains of indigenous knowledge is directly related to sustainable living and livelihoods at the community level. If we are to support the development of children's improved understanding of economic, social and environmental contexts then we need to look for opportunities for dialogue between children and their educators, parents and carers across these cultural, economic and linguistic contexts.

As early childhood professionals we can all contribute to the development of policies addressing these economic challenges in the institutional contexts of our preschool settings. We can also exert an influence through our local authorities and political representatives, and through support and campaigning activities of organisations like OMEP and others that are listed in the pages below. We also have an important role to play in the development of an appropriate curriculum in our own community and early childhood settings.

Developing good practice

The following pages provide advice and resources to support you in implementing ESD within your own preschool practice settings. A good deal of this material is available online and direct links to this may be found on our dedicated curriculum development site: <http://www.ecesustainability.org>

A Case Study from Hallett Cove Preschool

The case of Hallett Cove Preschool in the south of Adelaide in Australia provides an example of how even relatively small steps towards sustainability can add up to overall gains that are really significant. Hallett Cove Preschool sees itself as a very “ordinary preschool in an ordinary suburb” yet the centre is now entirely ecologically focussed, and its four-year old children are already making decisions for a sustainable future. The preschool has developed a sustainable ethos, and the children who pass through the centre each year carry it with them influencing all those who come into contact with them.

Hallett Cove Preschool was established in 1989, on a new site and from the start the inaugural director worked in consultation with the landscaper in selecting plants and designing the layout of the grounds. Native plants were chosen in particular, plants indigenous to the local area. The plantings offered a diversity of deciduous, shrubs and a variety of trees including a spectacular Plane Tree and a Mulberry Tree. This, from the first day, established precedence for conservation and

environmental awareness at the centre. Other initiatives followed, a small rainwater tank at first provided a water course which used a seepage pipe to trickle water into the gardens, detachable taps were also fitted to prevent water wastage, and swan plants introduced to attract and sustain the monarch butterflies. Later a worm farm, composting, silk worms, ducks, hopping mice and other animals were introduced. Over the next nine years, the preschool won three KESAB (Keep South Australia Beautiful) awards for their environment-friendly gardens.

Water conservation became a special focus of interest, and the staff began to integrate it into the curriculum. The centre aimed to become more self-sufficient for water and electricity and in 2000, when they initiated their Water Conservation Project; a new 22,000 litre rainwater tank was introduced. This led to further brainstorming, and photovoltaic panels were also fitted and connected to the power grid to provide electricity to the preschool, as well as installing a solar powered hot water system:

“What had started as a project designed to conserve water, quickly manifested into a quest for conserving natural resources more generally, thus reducing the preschool’s impact on the environment, and making ecologically sustainable choices an embedded daily practice.”
(Bates and Tregenza, 2004)

The centre had a good deal of success in securing grants and the staff began the

process of researching alternate funding options. After discussions with Marion Council and various water boards, the preschool applied for and received a large \$18,250 grant and two smaller grants from the Ecologically Sustainable Development Project Fund from the Education Department, making the site the first preschool in South Australia to obtain a grant for solar power from this fund. In addition, the preschool received a AUS\$9,600 rebate for the photovoltaic panels through the Commonwealth Photovoltaic Rebate program.

All stages of the project were completed around the daily activities of the preschool with the children involved through active participation, and the concepts of water conservation and use of rainwater and solar power have been fully integrated into their learning activities.

Partnerships were forged with the technology suppliers and other commercial and community groups. In 2005, the preschool was accepted as a pilot site for the Sustainable Schools and Children's Services Initiative (SSACSI), a joint initiative of the South Australian Department of Education and Children's Services and the Department of Environment and Heritage.

The children have been an integral part of the project and involved in every step of the process. They have discussed the project during group time, and have been able to explain the reasons for the project. The children participate in recycling (cans, paper and printer cartridges), they created a worm farm, feed food scraps to the chickens and ducks, engage in composting, grow sunflowers, collect eggs and pick mandarins from the tree in season - with

all learning reinforced through play, songs, games, books and computers. They also measure rainfall with the rain gauge and watch the electricity meter turning backwards as the photovoltaic panels feed power back into the national electricity grid.

In reporting on their initiative, Bates and Tregenza (2004) refer to Hart's (1997) "Ladder of Young People's Participation" which identifies different levels of participation from "manipulation" to "child-initiated shared decisions with adults". They argue that the children of Hallett Cove Preschool achieve a high level of participation at around level 6 "adult-initiated shared decisions with children", but have not yet moved on to initiating environmentally focussed activities themselves. The children have not yet developed the capability of formulating their own ideas and initiatives. But as Bates and Tregenza say; *"the full empowerment of children is really in its infancy in society, so achieving even a modest level of active participation is a major stepping-stone"*.

Roger Hart's Ladder of Young People's Participation



Wider community awareness of environmental sustainability has also developed through articles about the preschool's achievements featured in the local newspaper, through displays posted

at various community sites, an exhibition at the Education Department office, and staff attendance at various conferences. Projects initiated by the preschool have also encouraged the participation and involvement of other centres and organisations. Bates and Tregenza (2004) provide an account of a typical day at the preschool:

A day at Hallett Cove

Billy arrives at preschool, with his mother at 9:00 am. It's been raining overnight, so he checks out the rainwater gauge as he goes through the gate, and although he can't read the numbers, he notices that it's a lot fuller than it was the previous day. He knows that means the rainwater tank will have collected more water. He hangs up his bag, then goes inside and dumps the cardboard boxes he has brought into the "making" bin before lining up to get his name checked off on the role. As he says good morning to the teacher, he passes her an egg box for collecting eggs from the chickens out the back. When his mother leaves, he checks out the incubator where ten chicken eggs have been keeping warm. One of the eggs has a crack in it, and he excitedly drags the teacher over to have a look. She tells him the chick has started to break its way out of the egg, but that it will be quite a while before it's fully hatched. She tells him this is called 'pipping'.

Billy's friend, Sam is doing puzzles with a teacher, so Billy wanders over to see what they're working on. It's a layered puzzle from a caterpillar egg through to a butterfly and it looks really difficult. Billy chooses a chicken egg cycle puzzle and finishes it in record time. He's good at puzzles, and likes the feeling it gives him when he puts the last piece in and knows

the picture is complete. Just then, Sam says, "Come on, Billy. It's outside time!" and they dash outside to find their hats.

Outside, Billy plays with a boat canal set that's been filled with rainwater before heading to the sandpit. After the teacher puts the tamper proof tap head on the tap, he fills buckets with rainwater and tips them into the hole he's dug. He makes sure to turn the tap off when he's finished filling his bucket. A teacher comes by and asks what he is doing. He says he's making a lake for the fish so the fishermen can catch the fish for him to eat for tea. He loves fish and chips. The teacher says she is going to feed the ducks and asks if he'd like to help. He eagerly drops his bucket and dashes off to the duck enclosure at the back of the preschool. The teacher turns on the solar-powered pump and hands Billy the hose. The pump brings rainwater from the tank, and they flush the ducks' water troughs and toss in some food scraps left behind from fruit time, plus some carrot and lettuce bits (from last night's salad at home). Billy watches as the ducks splash happily, bobbing for the tasty treats.

It's group time. Someone has brought some soft drink cans from home for the recycle bin, so they sing the can recycle song and he plonks them in. The children all get a turn looking through the window on the bin to see how full it is. One of the teachers goes out to get the rain gauge, and they figure out that 20 ml of rain fell in the night. Next, the teacher talks about the butterfly project they are working on. She needs some children to help count seeds and put them in the special envelopes. She reads "The Very Hungry Caterpillar" which shows a caterpillar turning into a butterfly. The seeds they are packaging will grow into food for the

butterflies. Billy plans to take some home to plant in his garden.

When Billy has finished his fruit, he puts his banana peel in the compost bucket and his yoghurt container in the rubbish bin. He helps with the seeds for a while, but soon gets bored and goes over to the home corner where Sam and Jessica are pretending to cook. Sam asks Billy to get him some eggs for his cake and Billy pretends he's getting them from the chicken house, just like he did yesterday with the teacher, collecting eggs from the chickens at preschool.

Billy's parents arrive at 11:45 to collect him. As they wait for him to be dismissed, his dad checks out the gauge on the solar power converter by the front door, noting that a lot of power is being generated as the sun is shining, and his mum purchases a dozen eggs from one of the teachers. Some children have helped pick mandarins from the tree in the yard, so Billy and the other children each get one to take home. Billy says goodbye to the teacher, gathers up his artwork and heads home.



Risks should be assessed

Children can derive a good deal of educational benefit from taking part in visits and practical activities within and away from their preschool setting. Most visits take place without incident but good planning and attention to safety measures will reduce the number and severity of any accidents that do happen. Much of the advice available is common sense, but we all sometimes need to be reminded about the lessons learnt from experience, for example it is much better to divide a group into smaller groups and for each adult to count their group than to have one person counting the entire group. Risk management is sensible and there are numerous organisations providing advice, these include:

Health and Safety

Supporting Organisations and Associations

CLEAPSS - <http://www.cleapss.org.uk>
Health and Safety Executive - <http://www.hse.gov.uk/risk/principles.htm>

Learning Outside the Classroom - <http://www.lotc.org.uk/>

London Borough of Newham - http://primary.newham.gov.uk/files/early%20years/co-ordinator/Safer_Play.pdf

NatureNet-
<http://www.naturenet.net/people/safety.html>

Caerphilly Health Alliance and Cymorth - http://www.caerphilly.gov.uk/earlyyears/pdfs/healthy_snack_award.pdf

Preschool Learning Alliance - <http://www.pre-school.org.uk/document/225>

The **Ashden Awards for Sustainable Energy** aims to promote the use of local energy solutions both in schools and businesses, in a hope to improve lives both locally and globally. The website has a separate section for education; in particular this organisation supports early year's teachers working with children aged four to eight. It provides practitioners with a range of video clips, photographs and teaching resources that have been developed through the collaboration with the Geographical Association and CREATE. Settings are also invited to complete an application form and enter into the Ashden Energy Award scheme.

The Ashden Awards for Sustainable Energy, Allington House, 150 Victoria Street, London, SW1E 5AE

Website <http://www.ashdenawards.org>
 Telephone +44 (0)20 7410 0330
 Email info@ashdenawards.org

Breathing Places is run by the British Broadcasting Communications (BBC), Breathing Places has been set up to encourage more children to take local action on protecting the natural environment around them. The website emphasises that all children can make a positive contribution to their local environment by running their own small project. The website provides lots of ideas of projects children can run at home, school or within their local community. There are pocket guides and posters that can be downloaded, activity guides. There is also a monthly E- Newsletter published that offers updates and events that are running throughout the UK.

Breathing Places, BBC Learning Campaigns, MC4 A5 Media Centre

201 Wood Lane, London, W12 7TQ

Website
<http://www.bbc.co.uk/breathingplaces/>

CLEAPSS provides support for a consortium of local authorities in the areas of health and safety including risk assessment related to primary and secondary school environmental science and technology education. **CLEAPSS®**, The Gardiner Building, Brunel Science Park, Kingston Lane, Uxbridge UB8 3PQ

Website <http://www.cleapss.org.uk>
Tel: +44 (0)1895 251496
E-mail science@cleapss.org.uk

Cool it Schools has an aim to let school children share their commitment to the environment through adopting a creative approach. Teachers can use the website to set up their own showcase to display and document children's work on environmental issues. Yearly projects are run through the organisation to reflect global issues.

Website <http://www.coolitschools.com>

Email jane.langley@ukonline.co.uk

Eco - Schools are part of an international programme for environmental management, certification, and sustainable development education for schools. There is a focus on early years education and it is free for settings to join up and apply for a reward. The organisation provides a range of case studies of good practice, resources to support teaching and a range of advice on writing eco- policies and carrying out an environmental review.

Eco-Schools, Keep Britain Tidy, Elizabeth House, The Pier, Wigan, WN3 4EX

Website <http://www.eco-schools.org.uk>

Telephone +44 (0)1942 612621

Email eco-schools@keepbritaintidy.org

Environmental Education in Early Childhood (EEEC) aims to promote a holistic approach to environmental education and sustainable practices in early childhood and the early years of primary school. The approach involves policy development, house keeping practices, play and learning experiences and strategies for working with children, staff and parents.

<http://home.vicnet.net.au/~eeec/index.php>

Growing Schools is a UK Government organisation that is funded through the Department for Children, Schools and Families (DCSF) Their aim is to support teachers and early year's practitioners to plan outdoor learning opportunities for their pupils to connect with the living environment. Their work on sustainable development is very much linked to supporting schools (mainly in terms of the better use of their school grounds and a greater understanding of food production and the importance of the countryside) and they offer training throughout the UK. They clearly make links to the Healthy Schools initiative and the food and drink doorway of Sustainable Schools Their website offers a specific early years focus which provides step by step project ideas, early years case studies (including from childminders) and also research articles specifically looking at environmental education within the early years. Growing Schools provides an annual conference and produces a E Newsletter twice termly.

Website

<http://www.growingschools.org.uk>

Email growingschools@face-online.org.uk

Learning Outside the Classroom is a UK run organisation supports educators in developing their Continued and Professional Development (CPD) in Environmental Education. The website provides a wide range of reading to support the importance of environmental education and case studies of best practice. There is an annual conference held in the UK and a twice termly E-newsletter.

CfBT Education Trust, Learning Outside the Classroom Department, 60 Queens Road, Reading, Berkshire, RG1 4BS.

Website <http://www.lotc.org.uk/>

Email lotc@cfbt.com

Nature Detectives is run by the Woodland Trust and provides advice and activity sheets:

Nature detectives, Woodland Trust, Autumn Park, GRANTHAM, NG31 6LL
<http://www.naturedetectives.org.uk/>

Tel +44 (0)1476 581111

The **NSW Early Childhood Environmental Education Network (ECEEN)** supports early childhood professionals and families of young children by providing resources, information and support necessary to facilitate meaningful environmental education into their daily experiences. Julie Gaul, Project Officer, NSW ECEEN
Tel: (02) 9398 4374
Email nsweecen@earlychildhood.org.au
http://www.earlychildhoodaustralia.org.au/nsw_branch/eceen.html

The **OMEP Sustainable Development Curriculum Development Site** aims to provide resources to support research and practical innovations in Sustainable Development for the early years of education.

<http://www.ecesustainability.org>
http://www.omep.org.gu.se/English/projects/sustainable_development/curriculum_development_site/

The **Princes Rainforest Project for Schools** is an environmental organisation with two main aims. To identify appropriate incentives to encourage rainforest nations to slow their deforestation rates and to raise

awareness of the link between rainforests and climate change. The organisation offers a variety of lesson and activity ideas, pictures, videos, information packs, sounds, games and assembly ideas aimed at children three to sixteen, their parents and teachers.

The Prince's Rainforests Project for Schools, The Princes Charities Foundation
Clarence House, London, SW1A 1BA

Website <http://schools.rainforestsos.org>

Email schools@rainforestsos.org

Project Genie is run by the British Telecommunications Group (BT) as part of their Corporate Responsibility Programme. It currently in a pilot stage but has an aim to provide educational support for practitioners to inspire and motivate children and their families to adopt a more sustainable life style. Resources and lesson ideas are currently available for ages seven to eleven, however there are plans for the expansion of this project and they hope to create more resources aimed specially for the early years.

Website

http://www.btbetterworld.com/bt_education_zone/genie

Email tim.fiennes@globalcool.org

Telephone +44 (0)8448792039

Resource Futures is a UK organisation that runs a range of programmes to support Education for Sustainable Development. These include programmes for teacher training and helping schools develop their ESD work. Each program on offer is on a particular sustainable development doorway i. e. Global Dimension, energy/ carbon management. The organisation is aimed at to support ages four to eleven, however there are

plans to extend their support to the early years. They offer a range of resources to order, including big books, recycled musical instruments and resources to use during socio- dramatic play. An online blog keeps practitioners up to date with the latest news and resources.

Website

<http://www.resourcefutures.co.uk>

Telephone 0117 930 4355

Email sheila.gundry@resourcefutures.co.uk

The aim of the **Royal Society of the Protection of Birds** is to encourage people of all ages to take care and be interested in the wildlife and environment around them. The charity supports practitioners working with children from ages three to sixteen by providing activity packs and lesson ideas. There is no cost to use the resources provided on their website, however voluntary donations are welcome. A monthly E- Newsletter is available.

The Lodge, Potton Road, Sandy, Bedfordshire, SG19 2DL

Website <http://www.rspb.org.uk>

Email education@rspb.org.uk

The mission of the **Tide Global Learning** is to provide CPD support to teachers to help children understand global dimensions, development perspectives and human rights principles which will shape their lives. This organisation supports both the environmental and social pillars of sustainable development. There is a network of ideas and schemes of work for teachers that also supports creative development. Tide also provides articles to inform best practice. There is an online journal and annual conference

available for all practitioners. There is specific support for ages five to sixteen.

Tide Global Learning, Millennium Point

Curzon Street, Birmingham, B4 7XG

Website <http://www.tidec.org/index.html>

Email wmc@tidec.org

The **U.S: Council for Environmental education** is a non-profit educational organization founded in 1970. It recently introduced a '*Growing Up WILD*' early childhood education program.

Website <http://www.councilforee.org>

<http://www.projectwild.org>

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Internet Resources

Action C02 provides the 'facts':

<http://actonco2.direct.gov.uk/actonco2/home/climate-change-the-facts.html>

AfriTwin selects schools of a similar type and size in the UK and South Africa and 'twins' them a third South Africa school in a rural or township area
<http://www.afritwin.net/>

Atmosphere, Climate & Environment Information Programme provides a website for children.
<http://www.ace.mmu.ac.uk/kids/>

Best Foot Forward has developed an ecological footprint site site has been developed to demonstrate how our individual behaviour influences the impact we make on the environment.

<http://www.ecologicalfootprint.com>

BBC World Class is an initiative bringing the benefits of international school linking to schools across the UK.
<http://www.bbc.co.uk/worldclass/>

Carbon Grove™ lets you sign up for reminders for small things you can do to reduce your carbon footprint. Users simply need to visit their tree once a week and watch it grow. You can visit your tree by clicking on the link in the convenient weekly email reminder.
<http://www.carbongrove.com/>

The Centre for energy and environmental education at the University of Northern Iowa believes education should start at Home: We believe in the importance of demonstrating change first within our

own lives, families, organizations and communities. <http://www.ceee.uni.edu/>

Consumers International is a global voice for consumers and for the past 50 years it has played a role in the development of consumer rights around the world.

<http://www.consumersinternational.org/>

DEA's vision is for all citizens to understand the global challenges we face and develop the capabilities to create a more just and sustainable world.
<http://www.dea.org.uk>

The Disasters Emergency Committee (DEC) was formed in 1963. We are an umbrella organisation for 13 humanitarian aid agencies.
<http://www.dec.org.uk/>

The **ESD TOOLKIT** provides community leaders and educators needed an easy-to-use manual that would help them get started in the business of educating for sustainable development.
<http://www.esdtoolkit.org/>

The Forum on Science and Innovation for Sustainable Development focuses on the way in which science and innovation can be conducted and applied to meet human needs while preserving the life support systems of the planet.
<http://sustsci.aaas.org/>

Friends of the Earth is the UK 's most influential environmental campaigning organisation.

It also has around 2 million supporters across five continents and more than 70 national organisations worldwide.
<http://www.foe.co.uk/index.html>

Global Gateway aims to bring an international dimension to education



<http://www.globalgateway.org.uk>

Green Facts aims to bring complex scientific consensus reports on health and the environment to the reach of non-specialists.

<http://www.greenfacts.org/en/index.htm>

The **International Development Research Centre (IDRC)** is a Crown corporation created by the Parliament of Canada in 1970 to help developing countries use science and technology to find practical, long-term solutions to the social, economic, and environmental problems they face. <http://www.idrc.ca>

International Institute for Sustainable Development (IISD) is a non-partisan, charitable organization specializing in policy research, analysis and information exchange. <http://www.iisd.org/>

John Huckle's web site provides a list of his publications, some of which can be downloaded; notes and activities on ESD; and links to related sites.

<http://john.huckle.org.uk/index.jsp>

Kids @ National Geographic provides many activity ideas and resources.

<http://kids.nationalgeographic.com/kids/>

The One World Linking Association believes mutual respect for cultural, social and religious diversity is a basic tenet of partnership and that true and lasting friendship is a pre-requisite for the promotion of understanding between people of widely differing cultures. <http://www.ukowla.org.uk>

Practical Action is a development charity with a difference. We know the simplest ideas can have the most profound, life-changing effect on poor people across the world. This is why, for over 40 years, we have been working closely with some of the world's poorest people using simple

technology to fight poverty and transform their lives for the better. <http://practicalaction.org>

Redefining Progress: Ecological Footprints. Redefining Progress is a leading public policy think tank dedicated to 'smart economics'. They aim to find solutions that ensure a sustainable and equitable world for future generations. <http://www.rprogress.org/index.htm>

Towards Sustainability is evolving into a general information resource for all seeking to become better informed about sustainable development, the severe environmental problems threatening our planet and importantly, the solutions to them.

<http://www.towards-sustainability.co.uk>

United Nations Decade of Education for Sustainable Development' (UN-DESD). In 2002, the United Nations General Assembly adopted Resolution 57/254 to designate the decade 2005-2015

<http://www.unesco.org/en/esd/>

United Nations Commission for Sustainable Development. The Division for Sustainable Development (DSD) provides leadership and is an authoritative source of expertise within the United Nations system on sustainable development.

<http://www.un.org/esa/dsd/>

OMEP World Congress 2010

**Sustainable development?
It means that everybody
makes something for the
globe.**

Boy, six years, from Poland

ESD is one of the themes for the OMEP World Congress 2010 in Gothenburg, Sweden. With around 700 participants, the congress is the largest meeting on ESD in the world. But what do we actually know about how young children think and what ideas they carry on sustainability? Not much.

Therefore, OMEP started a World Project on ESD, where we talk with children around these things. The starting out point for the informal interviews is the World Congress Logo.



Anna-Karin Engberg

The aim of the project is to gather knowledge about children's thoughts, comments and understanding of the picture. OMEP members in more than thirty countries have up to date

interviewed around 8 940 children aged one to eight years. In some countries, like China and USA, teacher students have been studying ESD and then performed the child interviews, thus involving colleges and universities in an ESD reorienting process.

The result shows that children interpret the picture in many different ways. Most common is the answer that the children are cleaning the globe because it's dirty. But many children also thought that the children on the picture were painting the globe. The reasons why the children are cleaning or painting are aesthetical, or looked upon as a garbage problem or because they want to promote health. Some children think that it's a stone or an elephant and some of them were intrigued by the size of the earth on the picture.

The youngest children, the one – three-year-olds, are very concrete, and tell about what they see in the picture: "I see children. They are washing. I see a bucket." Some older children in rural settings tell about the picture without recognising that it represents the globe. They tell things like: "There are boys and girls. The children are painting a stone."

Children aged four to five years in China tell: "They are washing the Earth. They are defending the Earth." Answering the question: "Why the do this", some children say: "People cannot live without the Earth." They also comment on the



children in the picture, saying that they look different, and also different from themselves.

Other three to five year-old children from different countries tell about all the details they can find in the picture; green leaves, blue sea, brushes, sponges and buckets. Quite a number of six to seven year olds look for their own country, naming it and then they also name other countries on the earth.

The children have many ideas about Why the children in the picture are cleaning the earth. A common answer in all countries was: "Because the planet shall be a more beautiful place." A Norwegian girl says: "The earth didn't notice where it was rolling so it became dirty." In Poland, one child says: "The children want the globe to be clean because it is our home." In Canada, some children answer: "So there will be peace, because they look after the earth."

When a parent in Australia got the information to give consent to the project, she made the comment "But why are they asking the kids?" One of the children nearby answered her: "Why not? We know stuff too."

Most countries report that the children do not recognise the concept Sustainable Development. In some countries it doesn't exist as a word and there is no translation into their mother tongue. However, there are also many reports describing that the interviewers were amazed by all the knowledge the children showed them:

"This dirty planet was ugly. When it is dirty we can be ill. When water is dirty the fish will die. The children want health and happiness for everybody" (Poland).

"I know why they are cleaning the world, because they are trying to show you to stop littering, because if you litter you're destroying your country" (Ireland).

Some children relate directly to themselves when they talk about the logo: "I can see myself in the picture" (Brazil). "If the earth feels clean, I'll feel happy. Earth's friends will like it. Who the friends are? The sun and the moon" (girl, 3 years, Korea).

The findings from the five Norwegian preschools do not support the assumption that environment concepts such as greenhouse effect and ozone depletion are beyond the intellectual capabilities of young children. Although few children mentioned 'sustainable development' or 'environment' when asked to describe what is happening in the picture, several children did show knowledge of environmental issues.

"The Earth is clean. Dust from outer space has landed on the earth" exemplifies this knowledge. The Earth is viewed as a clean place, while pollution is an external dimension. Other quotations from our data show even wider understanding of environmental change. While describing action in the picture, a five-year-old child says: "All the children are together to keep the earth clean. If you are blind and can't see the smoke, you can still smell it. Chimney-smoke is not good for the globe. Then ice melts on the globe." The quotation implies a rather complex understanding of pollution and the greenhouse effect.

A Swedish teacher who was interviewing children commented on the lack of ESD in her everyday practice. She said: "We need to talk more about these issues with the children."

The next step in developing knowledge about sustainable development and younger children is to further engage children in research questions about learning for sustainable development in pre-school setting. The OMEP World Project on ESD continues. The full report on this project can be found on the OMEP World Web site www.omep.org.gu.se later in 2010.

A final quote from a 5 year old child in Ireland to show how a child has grasped the whole idea – and in one sentence: "I think it might mean, like, to save the world for later."

Ingrid Engdahl

President, OMEP Sweden and Project leader.

More information on the OMEP 2010 congress may be found at:
<http://www.omep2010.org>

See also:
<http://www.ecesustainability.org>

Early Childhood Education and Sustainable Development

This book has been written to support practitioners in developing their understanding of education for sustainability in the field of early childhood. The introduction briefly describes how the idea of education for sustainable development (ESD) emerged, and how it today includes an integration of social, environmental and economic aspects of life and society. We argue that ESD in early childhood should be understood in terms of the knowledge, attitudes and actions taken by members of the early years educational community of practitioners, parents, carers and children. We also argue that the foundations of all aspects of this work are already laid in early years' education.

The book then presents a number of examples of themes carried out in practice with young children. There are many suggested references and Internet links from which more information can be found.

Our main objective in writing this book has been to give teachers all over the world inspiration for further development of Education for Sustainable Development in early years.



John Siraj-Blatchford is an honorary Professor at the University of Swansea and has written widely on science, design and technology in early childhood.



Kimberly Caroline Smith is a reflective early childhood practitioner and she is currently actively engaged in ESD curriculum development in the UK.



Photo: Torsten Arpi

Ingrid Pramling Samuelsson is the current OMEP World President and she holds a UNESCO Chair in Early Childhood Education and Sustainable Development.