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The contribution of early childhood education to a sustainable society

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Edited by
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Preface

Education is humanity's best hope and most effective means in the quest to achieve sustainable development. This powerful statement was made in 1997 in the UNESCO report, *Educating for a Sustainable Future*. Five years later, it was brought to the attention of the world leaders at the Johannesburg World Summit on Sustainable Development, paving the way to the establishment of the United Nations Decade for Education for Sustainable Development (2005-2014). UNESCO was designated as the lead agency for implementing the Decade.

The Organization has taken the leadership role to heart, and helped catalyse, guide, co-ordinate and document related efforts around the world. This publication represents a highly important effort in the implementation of the Decade: it is a product of a well-focused international workshop, 'The Role of Early Childhood Education for a Sustainable Society', held in Göteborg, Sweden, in May 2007, during which delegates of sixteen countries contributed a diversity of insights, perspectives and experiences. More importantly, it is about early childhood education – the first stage of education where the foundation for lifelong learning and development is laid – and its contribution to building a sustainable society. It offers a rare and valuable collection of reflections on the linkages between early education and sustainable development, which UNESCO is pleased to publish.

I would like to thank colleagues from Göteborg University and Chalmers University of Technology, particularly Ingrid Pramling Samuelsson, Helene Nilsson, Elsi Brit Jodahl, Christer Larsson, Lars-Erik Olsson, Helene Bergsten, Inger Björneloo, Bo Samuelsson and Lisbetth Söderberg, for having planned and organized the workshop. I am also grateful to the City of Göteborg for its generous financial support for the organization of the workshop, and to Göteborg University and the Centre for Environment and Sustainability, which kindly contributed to the printing of this publication. My special thanks are reserved for Ingrid Pramling Samuelsson, Göteborg University, and Yoshie Kaga, the Division for the Promotion of Basic Education, UNESCO, who prepared the synthesis of the workshop proceedings and who oversaw the preparation of the publication.

I hope that this report will inspire further reflection and action to educate and empower our youngest citizens for a common, sustainable future.

Nicholas Burnett
Assistant Director-General for Education
UNESCO

Contents

List of abbreviations

CBASSE	Commission on Behavioural and Social Sciences and Education
CCF	Christian Children's Fund
DESD	Decade of Education for Sustainable Development
DICECE	District Centres for Early Childhood Education
ECCE	Early Childhood Care and Education
ECD	Early Childhood Development
ECE	Early Childhood Education
ECEC	Early Childhood Education and Care
ECEE	Early Childhood Environmental Education
ECEfS	Early Childhood Education for Sustainability
EE	Environmental Education
EFA	Education for All
EfS	Education for Sustainability
ESD	Education for Sustainable Development
MDGs	Millennium Development Goals
NACECE	National Centre for Early Childhood Education
OECD	Organisation for Economic Co-operation and Development
SDS	Sustainable Development Society
SD	Sustainable Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UNLD	United Nations Literacy Decade
WSSD	World Summit on Sustainable Development

Introduction

Ingrid Pramling Samuelsson[1] and Yoshie Kaga[2]

This report originates from the international workshop, 'The Role of Early Childhood Education for a Sustainable Society', jointly organized in Göteborg, Sweden, by Göteborg University, Chalmers University of Technology and the City of Göteborg, from 2 to 4 May 2007. It was attended by thirty-five participants from sixteen different countries (see 'List of Participants'). The workshop was a follow-up to the international conference on education for sustainable development, 'Learning to Change Our World', held in May 2004, in Göteborg. It was one of four preparatory workshops leading to another international conference on education for sustainable development, to be organized in 2008 or 2009, in the same city. The aim of the four workshops is to discuss promoters and barriers related to learning for sustainability, and to propose recommendations for the upcoming international conference.[3]

The present workshop was conceived for the following reasons. First, our societies urgently require new kinds of education that can help prevent further degradation of our planet, and that foster caring and responsible citizens genuinely concerned with and capable of contributing to a just and peaceful world. Second, these new kinds of education must be available to all – not only a handful of people – and take place in various settings, including families and communities. Third, they must begin in early childhood, as the values, attitudes, behaviours and skills acquired in this period may have a long-lasting impact in later life. Thus, early childhood education clearly has an important place in the efforts to bring about sustainable development.

1. The Department of Education, Göteborg University, Sweden.
2. The Division for the Promotion of Basic Education, UNESCO.
3. The titles and dates of the other three workshops are: (a) 'Drivers and Barriers for Implementing Learning for Sustainable Development in Higher Education', 7-9 December 2005; (b) 'Drivers and Barriers for Learning for Sustainable Development in Pre-School, School and Teacher Education', 27-29 March 2006; and (c) 'Public Learning for Sustainable Development – Laboratory for Democratic Learning', 11-14 October 2007.

Summary of presentations

The workshop was opened by Professor Bo Samuelsson, Göteborg University, who referred to the concept of sustainable development as an ever-evolving concept; it could and should not be defined in one single way.[4] He spoke of education for sustainable development as a learning process and not a product. He also mentioned that the present practices were far from sustainable, and that it might be easier to define what are unsustainable practices rather than sustainable ones.

Professor Charles Hopkins, UNESCO Chair in Reorienting Teacher Education towards Sustainability, stated that, to his knowledge, this was the first international workshop on education for sustainable development with specific reference to young children. Raising provocative questions such as: 'What does it mean to *be* more instead of *having* more?', 'What is *enough*?', 'What is *for all*', he pointed to the necessity of changing our perspectives and ways of living if our societies were to become more sustainable. He said that many paths could be taken, and that in order that the right ones were taken, world citizens must be educated, well informed and uphold democratic values. Furthermore, he claimed that while rich countries continued to cause the largest problems related to sustainable development, their perspectives, values and knowledge were listened to more often vis-à-vis those of developing countries.

As a promoter of the United Nations Convention on the Rights of the Child, Lena Nyberg, the Swedish Ombudsman for Children, spoke of the importance of listening to children, understanding their perspectives, and encouraging their participation as adults' equal partners. She said that more efforts were needed in order to implement the United Nations Convention properly, e.g. children's participation in decision-making in schools – a central theme in the Swedish preschool curriculum. She also stated that attitudes about children having equal rights as adults was more important than laws and money, and that we should never let children feel guilty about world problems.

Issues arising from the discussions on the three group work themes

Below is a summary of the issues raised during the discussions on the three themes: (a) what might education for sustainability look like in early childhood; (b) cultural issues related to sustainable development; and (c) policy and research questions related to young children's lives and sustainable development.

4. One useful definition is put forward by Helen Bergsten (in Chalmers Annual Report, 2006, p. 31): 'Sustainable development is a perspective or a vision rather than a definition and provides room for many different starting points'. One of the more well-known and widely used definitions of sustainable development comes from the Brundtland Commission report, Our Common Future, 1987, in which it defines sustainable development as 'development that meets the need of the present without compromising the ability of future gen erations to meet their own needs'. Another frequently used text is the United Nations Millennium Declaration, in which the message is that we must ensure that basic human needs may be satisfied for all human beings without damaging the life-sustaining system of our planet. A clear common message in the perspectives and definitions gathered from different international contexts is that the time line encompasses several generations, and that there is always a global perspective. Individual involvement and responsibility are also integral parts of the concept of sustainable development. The key principle is that economic, social and environmental conditions and processes are integrated into a whole, and also includes opportunities to approach this whole from different directions.

Sustainable development as a topic in early childhood education programmes

It was stressed by the participants that learning for sustainable development was not a common topic in the field of early childhood education. A possible reason was that many early childhood educators would view discussions about sustainable development as 'doom and gloom' – i.e. depressing and fearful, and therefore inappropriate for young children. Another possible reason was that sustainability was too big and too awesome an issue to be 'dumped' on young children. The participants acknowledged that, while these perceptions might be pervasive in early childhood education, they were by no means shared by everyone working in the field. They felt that there were possible ways of introducing the topic in early childhood education programmes that were constructive, positive, interesting and suitable for children.

Link between early childhood education and sustainable development

A common question raised in the beginning was 'What is sustainable development?' Most of the participants were not familiar with the concept, and rarely had the opportunity to discuss early childhood education and young children's lives in relation to sustainable development. All knew by intuition that early childhood education has a role to play in constructing a sustainable society, although the link between the two was not clear at the outset of the workshop. In the course of the three days, the link had become clearer as the participants immersed themselves in the discussions. This can be considered one main achievement of the present workshop. A useful framework for thinking and analysing the workshop theme was suggested: it is composed of 'three pillars' of education for sustainable development – namely economy, environment and socio-cultural phenomena – intersecting with each other.

Different concerns in the developing and developed world

It was clear that relevant concerns and issues differed in developing and developed countries. In the former, the most pressing concern is children's survival and development in the early years – in families and communities – and that supporting and empowering families and communities for ensuring adequate care, protection and stimulation through enlarged access to health, nutrition, sanitation and water provisions appeared most needed. Concern for curricular changes, for example, seemed secondary for the majority of the population. Meanwhile, in the developed countries, more attention is given to concerns about how to improve the quality of early childhood education in the service of sustainability – e.g. classroom practices, curriculum and pedagogy and early childhood teacher education. Inequity – disadvantaged groups such as low-income families, ethnic minorities, those living in rural and remote areas and urban slums – was recognized as a concern and barrier to achieving sustainability in both worlds.

Traditional practices and sustainable development

Some of the participants advocated 'going back to basics' in our living and lifestyles – i.e. adopting traditional practices in order to create better conditions for sustainable development. Traditional cultures were more attentive to the rhythm of the environment and careful not to overexploit the natural resources for their survival and co-habitation in the vast ecosystem; they were more rooted in family networks and immediate communities, whereby they provided mutual support to each other. However, it was pointed out that not all traditional practices should be preserved, as some of them are indeed harmful for those concerned (e.g. some childrearing and gender practices). The participants agreed that there was a need to identify positive and negative practices, and try to discourage the latter. As for positive ones, they should be promoted; but care is required since the context itself may have undergone a dramatic change, making simple application difficult.

Importance of local relevance

Early education for sustainable development cannot be dealt with only in abstraction – it needs to be rooted in the local concrete reality of young children if it is to have real meaning and impact. To some extent, it is possible to discuss general features of education for sustainability that would apply to all situations. However, real-life questions faced by children, their families and communities, and arising from specific local contexts, are central to shaping what learning for sustainable development should look like. This is where participation by children, families and communities becomes essential.

Education for sustainable development must start in early childhood

There was a strong consensus that educating for sustainability should begin very early in life. It is in the early childhood period that children develop their basic values, attitudes, skills, behaviours and habits, which may be long lasting. Studies have shown that racial stereotypes are learned early and that young children are able to pick up cultural messages about wealth and inequality. As early childhood education is about laying a sound intellectual, psychological, emotional, social and physical foundation for development and lifelong learning, it has an enormous potential in fostering values, attitudes, skills and behaviours that support sustainable development – e.g. wise use of resources, cultural diversity, gender equality and democracy.

What kind of early childhood education for a sustainable society?

There was an extensive discussion on what kinds of early childhood education would emerge if it were to contribute to sustainable development. The insights gained on this issue can provide guidance for reorientation and strengthening of curriculum and pedagogical guidelines, a necessary exercise and an important policy issue. First, the participants strongly agreed that the notion of the child embedded in the vision of sustainable development is that as portrayed in the United Nations Convention on the Rights of the Child – the child as a right holder, who is an active participant and has his or her contribution to make to society's present and future, and not an invisible, marginal worthless being. In education for sustainable development, young children's perspectives and meanings are listened to, considered and shape the content and approaches of learning.

Second, early childhood education for sustainability is much more than environmental education. It should be broader than simply taking children outdoors to discover the beauty of nature and speaking about the natural environment. It must include opportunities for children to engage in intellectual dialogue regarding sustainability, and in concrete actions in favour of the environment. In addition, it should incorporate learning to be compassionate and respect differences, equality and fairness as the world is increasingly interdependent and inter-connected. It was suggested that, instead of talking about the 3Rs (reading, writing and arithmetic), one should refer to the 7Rs for education for sustainable development (reduce, reuse, recycle, respect, repair, reflect and refuse). Encouraging scientific and technological literacy was also pointed out as a component to be included.

Third, diversity was considered a key issue in thinking about early childhood education that contributes to sustainability and was discussed extensively by the participants. In the globalizing world where different nationalities and ethnicities increasingly live side by side, learning to respect and appreciate diversity should begin early – through parents, community members, and early childhood programmes. Early education should help children acquire an identity firmly grounded in a culture closest to them, while developing a sense of themselves as world citizens. One way to promote this is intercultural education.

Nurturing respect for, and appreciation of diversity cannot be realized without adhering to democratic values and practices. Democracy is one fundamental value embedded in sustainable development, and a requisite for a just society where everyone's participation in the social, cultural, economic and political life is valued and counted. Learning about democratic values and practices can and should start in the smallest unit of society – the family – at birth, and should also be part and parcel of an early childhood education programme.

Fourth, sustainable development requires people to be able to think critically about things taken for granted, and to find creative solutions and alternatives to unsustainable habits and practices, which tend to dominate at present. The work in the early years should not be about teaching how to read and write early and formally. Young children can be encouraged to question over-consumption through discussions about familiar food products, clothes, toys and advertisements. Such discussions could be expanded to incorporate considerations about their counterparts in less materially rich circumstances, and stimulate conversations about solidarity and co-operation.

Build upon traditions of early childhood pedagogies

There is a great deal in the traditions of early childhood pedagogies that align with education for sustainability: e.g. interdisciplinary approach, holism, use of the outdoors for learning, integration of care, development and education, learning through concrete experiences and real life projects, and involvement of parents and communities. It is not necessary to invent entirely 'new' pedagogies in order to 'do' education for sustainability in the early years – one can build on its pedagogical traditions to do so. Research evidence shows that the traditional subject- and discipline-based teaching of knowledge, common in schools, does not give the best result in learning about issues related to sustainable development, which are interdisciplinary in nature.

Role of the family in young children's learning

Families are the child's first educators. They have the greatest influence in shaping young children's attitudes, values, behaviours, habits and skills. As such, they have a central role to play in educating their children for sustainable development. Learning for sustainability can therefore be effectively undertaken by parents, siblings, grandparents and other extended family members. Often, grandparents have old wisdom about ways of life that favour living together, preservation of the nature throughout generations and co-habitation of different species, which should be tapped upon. Thus, where formal early education programmes are not available, non-formal education can be set up – as an integral component of community programmes or otherwise – to provide parents and grandparents with opportunities to discuss what could be done differently in daily life in order to become an effective agent of bringing about sustainable development. Where an early childhood education programme does exist, a parental education can complement what children experience in the programme.[5]

Training, working conditions and status of early childhood educators

Much attention was devoted to discussing the vital importance of training of early childhood educators, and the kinds of training desired. Training should first and foremost raise educators' awareness about sustainable development, and the role that early childhood education could play in promoting it. It should enable them to adequately address sustainability issues, and to make 'alive' the values and principles

5. An early years' programme also has the potential to change family practices through children's experiences and exposure to new ideas and practices offered in the programme, as demonstrated by research.

associated with sustainability in activities with children. It must also enable them to provide opportunities to question and challenge taken-for-granted beliefs and practices. As such, training should not be based on the model of education as a one-way transmission of knowledge from teacher to pupil. A debatable point, however, was the extent to which early education should give weight to teaching academic skills and preparing for primary education in its entire programme.

The participants agreed that provision of high-quality training constitutes one of the priority policy concerns, and that empowering educators and caregivers for sustainability should be undertaken through pre-service and frequent in-service training. The low status and unfavourable working conditions of early childhood educators was pointed out as a major obstacle for envisaging an increased and active role of early childhood education in sustainable development. It was felt paradoxical that early childhood educators – who have strong influence in shaping children's personality and dispositions – often have very low social and professional status. It is important to improve the status of the early childhood education field and its personnel in the pursuit of realizing a sustainable society.

Increase investment in young children and their families: a priority policy concern

There was a consensus among the participants that ensuring access to quality early childhood care and education for all children was an important pre-condition that enables societies to be sustainable as well as an essential goal towards which all countries must strive. Every child has the right to adequate care, learning, development and protection, and a sustainable society is where everyone's rights are recognized, respected and fulfilled. Early childhood is where the foundation for development is laid, and must be perceived as the first stage of education – which should be made accessible, just like elementary education. Increasing *investment* in improving access, quality and equity of early childhood provision and supporting families is an urgent necessity. This requires government commitment and leadership, around which other stakeholders, including international and donor communities,[6] can be mobilized.

Information and research needs

The participants all felt that there was so little research on the theme of the role of early childhood education for a sustainable society. They emphasized foremost the need to collect *good practices* on education for sustainable development in the early years – found in different countries and cultures – which can inspire and guide the daily work of early childhood educators. Other research ideas suggested were: (a) research on the kinds of knowledge and skills that early childhood educators need in order to provide early education for sustainability; (b) comparative studies of children's and educators' attitudes and conceptions about sustainability; (c) collection of life stories from famous people (e.g. Al Gore) about their early childhood experiences and how these might have shaped their values, ideas and actions in favour of sustainable development; and (d) a longitudinal research on the impacts and benefits of education for sustainable development in the early years.

Advocacy and networking

Advocacy should effectively communicate the relevant facts and messages about sustainability, and exploit a variety of means of communication, e.g. internet, local conferences, workshops, newspapers and journals, magazines and radio. It was suggested that the *International Journal of Early Childhood* [7]

6. A letter was prepared by some of the workshop participants in support of fulfilling the commitments made by G8 countries vis-à-vis financing the Millennium Development Goals, and sent to the heads of states respectively.

could devote one issue to the workshop theme as a way of mobilizing support for related research. Another suggestion was to mobilize journalists for the issues of sustainability and early childhood education.[8] Yet another suggestion was the establishment of awards and prizes to stimulate new ideas in the work of sustainable development with young children. Networking and forging alliances was identified as a crucial exercise in mobilizing effective advocacy as well as sharing and building knowledge.

Recommendations and conclusions on the workshop theme

The following is a list of major recommendations identified by the participants that could be put forward in the upcoming international conference on education for sustainable development in Göteborg, Sweden, in 2008 or 2009.

- *Increase investment in early childhood education* in order to expand access to quality early childhood education. Sustainable societies cannot be built if children are not given the opportunity to develop a strong foundation for development, wellbeing and lifelong learning.

- *Incorporate education for sustainable development in the early years without delay*. Early childhood is a highly appropriate period in children's development in which to introduce basic concepts related to education for sustainable development. The local context should be taken into account when incorporating education for sustainable development in the early years. Effective learning occurs only when the content and approaches to implement the content are made locally relevant.

- *Recognize and raise awareness about the powerful role of early childhood education* in realizing a sustainable society. Efforts should be made to increase awareness at all levels and in all sectors of society that early childhood education has an important role to play in laying the foundations for active and responsible citizenship.

- *Take the United Nations Convention on the Rights of the Child (UNCRC) as a common foundation*: Ratified by most of the countries in the world, UNCRC can serve as a common foundation (children as right holders, principles of non-discrimination, children's participation, etc.) on which to conceptualize and design early childhood education for sustainable development.

- *Take note that perspectives of education for sustainable development are critical of the divide* between rich and poor, North and South, gender differences and inequality between and within countries, and that they call for a change in conceptualization and practices that perpetuate such a divide – in favour of interdependence, solidarity and justice.

- *Recognize the strengths of early childhood pedagogies and exploit them fully* in the work with young children, e.g. theme-based or project-based interdisciplinary approach to learning; child-centred approach; parental and community involvement; emphasis on holistic learning, whereby children learn with mind and body; use of different languages and senses, e.g. verbal, visual, etc., for making sense of the world, expressing and communicating.

- *Include in early childhood education curriculum*: (a) context sensitive and culturally relevant content; (b) content that fosters caring attitudes and empathy vis-à-vis the natural environment, and people living in other parts of the world; (c) learning about respect for diversity; (d) learning about gender issues and equal rights, opportunities and responsibilities of boys and girls; (e) learning of basic life

7. The scientific journal of OMEP (Organisation Mondiale pour l'Éducation Préscolaire).
8. For example, there are journalists in Brazil who call themselves 'Friends of Children', who could help to write about and disseminate relevant information.

skills, (f) the concept of learning for life, i.e. learning for sustainability; and (g) activities built around the 7Rs: reduce, reuse, repair, recycle, respect, reflect and refuse; etc.[9]

- *Strengthen teacher training as a basis for learning and teaching* about education for sustainable development. Pre-service and in-service training of early childhood educators and caregivers in all countries must be revisited and reinforced from the perspectives of learning for sustainability, and must be provided regularly.

- *Increase support and funding for research* on education for sustainable development and early childhood education. A number of useful studies (e.g. comparative study on early childhood education for sustainable development understood and practised in different countries), have been identified and mentioned earlier.

- *Undertake, promote and strengthen advocacy and networking* at the local, national, regional and international levels in order to achieve a better understanding of sustainable development, to share good practices and research, and to mobilize different stakeholders for the causes of sustainability. One useful advocacy activity to be considered is the establishment of national and international awards for those who effectively address education for sustainability.

- *Disseminate and communicate issues about sustainable development to young children* through advertisements and various means of communication, including ICTs, so that informal learning about sustainable development occurs outside schools and official educational programmes.

- *Urge state leaders to be role models for young children* with regards to concerns about education for sustainable development, and to meet with them regularly. Leaders and heroes in schools and communities can be interviewed by children about their lifestyles to find out whether these are in accordance with the principles of sustainable development.

In conclusion, what emerged is an image of a sustainable society as an *inclusive society*: where all people are united through their common humanity and where differences are respected and valued. Sustainable development is greatly facilitated when all groups of people – regardless of their age, gender, ethnicity, socio-economic status, places of residence or capacities – participate in finding solutions and constructing a sustainable future for our common habitat. Sustainability challenges us to go beyond segregated societies, which exist in many parts of the world today, and to transform them to ones that are more inclusive.

From this perspective, should the goals of early childhood education be re-thought and redefined? Should the goal of early childhood education primarily be to promote academic knowledge and competences for successful learning in later stages of education, or should they offer a broader range of knowledge, skills and support, and if so, what are they? Should early childhood education programmes focus attention on children, as emphasized in recent trends towards assessing child outcomes? Alternatively, should they serve their families? If so, to what extent and in what ways? There are no straightforward answers to these questions. However, when seeing early childhood education through the lenses of sustainability, it becomes clear that it requires rethinking and redefining based on the paradigms that support sustainability.

[9] The four pillars of learning proposed by the Delors Report (UNESCO, 1998) – learning to be, learning to do, learning to learn, learning to live together – are also relevant in developing early childhood education in service of sustainable development.

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What might education for sustainability look like in early childhood?

A case for participatory, whole-of-settings approaches

Julie M. Davis, Australia

Abstract

Education for sustainability in the early years is a significantly under-practised, under-resourced and under-examined field, even though young children are the ones who will bear the consequences of our actions and inactions on sustainability-related issues. After all, they will be living the longest – as economic, social and environmental conditions worsen. Nevertheless, over the past decade, a sea change has been occurring, as interest in sustainability education for young children has expanded, and practitioners and researchers begin to think about, develop and implement early childhood programmes with an environmental or sustainability focus. It is now being recognized that the early years are the most significant growth period in a child's life. Experiences during this phase extensively influence physical and neurological developments, which drive biological, psychological and social responses throughout the entire human lifespan. The implications for early learning for sustainability are obvious. This article expands on these ideas and provides a short case study of how one early childhood setting in Australia has sought to embed sustainability throughout all its practices – management, curriculum and through its relationships with its community – and in so doing has provided numerous opportunities for young children to act as agents of change for sustainability. The article concludes with a summary of key characteristics of organizational change that might help other early childhood settings and services to make sustainability a central priority.

If you are thinking a year ahead, plant a seed.
If you are thinking a decade ahead, plant a tree.
If you are thinking a century ahead, educate the people.
(Chinese proverb)

Al Gore's (2006), *An Inconvenient Truth*, the Stern (2006) review into the economics of climate change, and the report of the Inter-Governmental Panel on Climate Change (2007), have heightened awareness of how humans are over-stretching the Earth's life-support systems. Not only are there significant concerns with global warming and its impacts, there is a raft of other environmental challenges that need to be addressed, such as rapid urbanization, diminishing fresh-water supplies, loss of forests and biodiversity, ongoing use of toxic chemicals in the food chain, to name a few. As the health of human populations and the health of the global ecosystems are inextricably linked, the need for fundamental changes in how we live is becoming impossible to ignore. As McMichael (2003) comments, we are already seeing increasing health impairments from chronic preventable health problems as a result of modern ways of living – such as diabetes, heart disease, cancer and growing impacts of mental health disturbances, such as depression and anxiety. Children – the most vulnerable of humans – face the greatest risk of developing such health problems because their exposure to the effects of life circumstances and life choices occurs for longer as conditions worsen. Furthermore, the impacts of unsustainable living are not evenly distributed. While some humans are enjoying the benefits of global economic development, others are disproportionately bearing the risks and costs. While this has always been the case, added negative impacts from global warming, for example, strengthens arguments for stronger commitments to reducing these large differences among nations and continents. As Stern (2006, p. xxvi) comments, 'The poorest developing countries will be hit earliest and hardest by climate change, even though they have contributed little to causing the problem.' Additionally, while efforts are beginning to get under way to reduce or reverse future global warming, the pattern of unequal distribution of benefit and risk is being compounded into the future, with future generations being allocated the brunt of the expected consequences. What must underpin the much-needed changes are world-views that embrace 'Earth stewardship' and the needs of future (as well as present) generations. Such world-views involve ecocentric – rather than purely anthropocentric – ways of thinking, acting and living that recognize that people are an embedded part of natural systems rather, than separate from them.

While not the complete answer to the question of how we move whole societies towards sustainability, education must play a role in imagining new ways of living and transforming existing patterns (Fien, 2001). This includes early childhood education and care (ECEC). There is already a growing research literature that shows the value of quality ECEC to the development of healthy children and healthy communities (Friendly and Browne, 2002). Central to the provision of such quality care and education in the early years is the recognition that early experiences be stimulating and involve positive interactions with adults in appropriate learning environments. The OECD (2006) report, *Starting Strong II*, identifies this latter element, in particular, as a developing area for further research. The report draws on the work of Malaguzzi who asserts that early childhood environments often fail to fulfil the role of the 'third teacher' (the first two are the parent and the teacher), and identifies outdoor, experiential play and learning in nature as significant contributors to children's potentials for learning and development. The implications of these findings for sustainability education are obvious, especially at a time when, as McKibben (1990, p. 189) comments, 'Nature is already ending, its passing quiet and accidental'.

While the early childhood field has been rather slow to take up the challenge of sustainability, it has a potentially significant role – not least because of underlying concerns for children's welfare, interest in children's environments (consider the kindergarten), and its attention to social justice. Recently, a new dimension has been added to ECEC. This is early childhood education for sustainability (ECEfS), an emerging national and international field, given a fillip with the launch of the United Nations Decade of Education for Sustainable Development (2005-2014) (UNESCO, 2005). ECEfS recognizes that young

children have capacities to be active agents of change *now*, as well as into the future, and that early learning is important for shaping environmental attitudes, knowledge and actions. This is because early childhood is a period when the foundations of thinking, being, knowing and acting are becoming 'hard wired', and relationships – with others and with the environment – are becoming established. It is also a time for providing significant groundings for adult activism around environmental issues (Chawla, 1998; Davis and Gibson, 2006; Wells and Lekies, 2006).

If children are to grow up in a world that maximizes their life opportunities, that recognizes their capacities as active citizens, and nurtures hope, peace, equity and sustainability, adults cannot do 'business as usual' and simply pass the problems of unsustainable living on to the next generation. The UNICEF (2003) report, *The State of the World's Children*, stresses that children need to be seen *and* heard in their communities, around a wide range of social and environmental issues of concern to them. It also observes that responsible citizenship is not something suddenly given at 18 years of age. Hart (1997) insists that even very young children have the capacity for active participation and the acquisition of political literacy skills, though it is critical that children are not seen as the 'redemptive vehicles' (Dalberg and Petrie, 2002, p. 60) where the social (and environmental) ills of the world are cured through children.

While interest in ECEfS is increasing, what is missing is a substantive body of research in ECEfS – indeed, it is almost non-existent. In Australia, for example, the first research-related activities in early childhood environmental education[10] of which this author is aware, was a symposium held as recently as January 1999. This symposium sought to raise the profile of this fledgling field and highlighted the dearth of research in early childhood environmental education (ECEE). The year 2003 saw the release of Elliott's *Patches of Green* report – the first national review of early childhood environmental education in Australia, which also emphasized the missing research base. Indeed, as recently as 2000, no Australian doctoral studies and only three Master's research projects had been identified as bearing some relationship to ECEE or ECEfS (Davis and Elliott, 2003). It is obvious that this is a research 'hole' that the environmental education / education for sustainability communities should have the 'courage to discuss' (Reid and Scott, 2006, p. 244). Equally, this challenge applies to the field of early childhood education. It is asserted here that this hole has contributed to the slow uptake of ECEfS – relative to other educational sectors – and if not addressed, will impact negatively on the entire education for sustainability field – a major component is missing! Furthermore, the capacity to build the ECEfS field – at a time when interest *is* growing rapidly – will be seriously diminished without a strong evidence-based platform.

In a recent, as yet, unpublished report into the current status of ECEfS research, this author has determined that one of the most important areas for ECEfS research is case study research into existing, successful ECEfS programmes. This is important because such studies have the potential to be most helpful to practitioners through: (a) identifying what works, why and how; (b) outlining opportunities for and barriers to successful implementation of ECEfS; and (c) providing inspiration for others to 'have a go'. However, such case studies need to be exemplars of activist, participatory sustainability education that also express the complex dynamics of early childhood settings and services. To date, such published studies are rare. While there are some centres and services engaged in sustainability education, practitioners generally do not have the time – and often lack the research skills – to investigate and interrogate what they do, and then to make their work available to a wider audience. To remedy this, one such in-depth study was conducted at an early learning centre in Brisbane (Australia) in 2004, collaboration between university researchers and centre staff. What follows is a short description – derived from a longer version outlined in Davis et al. (2005) – of this centre's journey to become a sustainable early learning centre. Highlighted are key points that this author believes are fundamental to effective education for sustainability in the early years.

10. This author now prefers 'education for sustainability' (EfS) instead of 'environmental education' (EE) to reflect the broader socio-ecological dimensions of sustainability.

The Sustainable Planet Project

The environmental focus at this long day care centre – with children aged between 2½ and 5 years – originated in 1997, the outcome of a staff team-building exercise to encourage homework linkages. In looking for a shared project, 'the environment' emerged as a common interest. Under the banner of the Sustainable Planet Project, staff members sought to add value to their roles as early childhood educators by including their personal interests – such as gardening, wildlife conservation and recycling. From the start, the project had an action-oriented focus, encapsulated in its subtitle, 'Saving our Planet: Become a Conscious Part of the Solution'.

Initially, the staff worked with the children on a number of mini-projects allied to their own particular environmental interests, as identified in the diagram below.

As time passed, these mini-projects became embedded into the everyday practices of the centre and, increasingly, the children have been the main initiators of new projects. Briefly described here is one such child-initiated project centred on water conservation. In this mini-project, learning about water conservation was sparked when concerns were expressed by both children and teachers about excess water use in the centre, especially as it was a time of severe drought. Guided by staff, the children began noticing that their 'kindy [kindergarten] friends were pouring out more [water] than they could drink and then tipping the rest into the garden' (Campus Kindergarten, 2002). From this initial observation, a 'whole centre' project about water conservation emerged – collaboration between children, parents and teachers, but organized mainly by the preschoolers, aged around 4 years. This involved the teachers supporting the children as researchers inquiring into the origins of household/centre water, holding discussions about the concept of drought, and exploring photographs and newspaper articles about water conservation, as featured in the community newspaper. As the children's knowledge of water issues grew, their inquiries turned to actions, including the creation of signs that were placed at all the water points around the centre. Examples included:

Mia: Please don't leave the tap running.
Layla: When you flush the toilet, press the small button.
Andrew: Turn the hose off when you are finished.

The centre also installed a water barrel (around 50 litres) into the sandpit, for the children to access for water and sand play. This is filled just once each day and the children have learnt to monitor its use. Although water consumption figures were not recorded at the start of the project, it is believed that the barrel – and the learning associated with its use – has dramatically reduced the centre's total water

consumption. Furthermore, water conservation habits learned at the centre have transferred to home. As one of the parent's commented:

> The water issue … he's bringing it into bath time. We're only allowed to fill the bath to a certain level and we're not allowed to put the tap on again!

Another child-initiated mini-project was the 'Shopping Trolley Project'. Here, the children responded to a shopping trolley dumped in their playground, and became actively engaged with the local shopping centre, from where the shopping trolley originated, and with the local community, including the sub-group of 'trolley stealers'. Through their learning and social activism, the children were able to highlight their concerns about the 'stealing' and dumping of the shopping trolley, and their wider concerns about plastic shopping bags and other rubbish in their local environment.

Another focus of the Sustainable Planet Project was on waste management. Over the years, bottle and cardboard recycling have been introduced, as well as a composting system and worm farm. Paper usage has been significantly reduced, dropping from three reams of A4 paper per month in 2003, to one ream per month in 2004. Allied with these initiatives has been the 'litterless lunch' programme – home-packed healthy lunches with a minimum of disposable packaging. Another waste management practice was the bulk ordering of kitchen and cleaning products to reduce packaging, a change that has also seen a switch to more 'environmentally friendly' cleaning products. A direct result of all these waste management measures is that the number of bins requiring collection from the centre has been significantly reduced – from two bins per day to half a bin/day.

Other results of the Sustainable Planet Project have been improvements to the children's play spaces and to the 'eco-friendliness' of the outdoor environment. Not only are the grounds developing into a habitat for local flora and fauna, the changes have also provided multiple new opportunities for provoking the children's (and adults') curiosity about the natural environment, have enhanced learning about natural processes, and have contributed to the development of environmental sensitivity and social responsibility – important qualities for sustainable living.

Conclusion

It could be said that this centre has developed a 'sustainability ethic' where thinking and acting sustainably permeates deeply into the centre's culture. This is also an ethic that supports the view that even very young children can critically respond to environmental issues and can be proactive participants in educational and environmental decision-making – as initiators, provocateurs, researchers and environmental activists.

Of course, centre staff is central to this process. They recognize the value of a 'whole settings' approach, and work persistently in the creation of a learning community around sustainability. This involves a synthesis of interlocking components – housekeeping and management practices committed to reducing the centre's 'ecological footprint'; curriculum and pedagogical practices underpinned by belief in the capacity of children to be informed learners and environmental activists, right now; and community interactions that embrace parents and the wider community. While the process has its difficulties, nevertheless, significant persistent changes have been made that influence future changes.

According to educational change theorist, Michael Fullan (2003) – there are really just a small number of actions that help an organization create deep-level change, such as is needed to embed sustainability as a core element of its practices. To summarize briefly:

- Start with your own context-specific moral purpose, ethical dilemma or desirable direction. This should not be imposed from outside.

- Create a collaborative learning culture where teamwork and mentoring become normal social practices.

- Ensure that informed, reflective practice infuses interactions and deliberations.

- Consolidate 'small wins' and build on them to scale up their impacts, both internally and in the community. This is the 'butterfly effect' sometimes associated with chaos/complexity theory.

While few in number, it is obvious that putting such actions into practice is not necessarily easy – changing the organizational culture of a childcare setting or service towards sustainability is much more difficult than introducing a worm farm or water tank, or leaving the effort to just one or two people with a passion for the environment. Nevertheless, this vignette of the Sustainable Planet Project shows that it can be done. As the early childhood education field moves to capitalize on its potentially powerful role in the transition to sustainability, it is hoped that more early learning services and centres – both in Australia and internationally – will embrace such systemic, ecocentric and transformative ways of contributing to a healthier, more equitable, more sustainable world – for ourselves, for our children and for the environment.

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Early childhood education for a sustainable society

Vital Didonet, Brazil

'To move forward we must recognize that in the midst of a magnificent diversity of cultures and life forms we are one human family and one Earth community with a common destiny. We must join together to bring forth a sustainable global society founded on respect for nature, universal human rights, economic justice, and a culture of peace'
The Earth Charter, Preamble

Abstract

The author develops (in seven points) his argument on the relevance of early childhood education for a sustainable society. The starting point is the importance of the first years of a human being in constructing the basis of the personality, the values and attitudes that will guide thoughts, feelings and behaviour of human beings for the rest of their life. Then, he argues that children are very sensitive, interested and curious about the elements of nature, and asserts that early childhood education, from its early beginning, should include in the programme creative experiences and exploratory activities with elements such as plants, flowers, seeds, water, fire and wind. Recently, teachers and children in education and care centres have been discussing and observing environmental problems. The article concludes calling the attention of political and educational authorities to the importance of taking decisions that consider children as citizens capable of contributing significantly towards a sustainable society and environment.

Point 1

The first years of every human being's life are the most favourable ones for developing the attitudes and values that form the basis of their personalities. The structure of values and attitudes built in the early years are the strong and permanent roots for one's entire life. They will always be used as References for main decisions that challenge men and women. Those first values determine ethical and moral behaviours throughout life. When a person has to face difficult and complex situations, or when a new challenge demands important decisions, those values that originally carved the personality will guide options and resolutions, reactions or behaviours.

Therefore, if we desire that adults, in the next generation, respect nature and care for the planet, it is important to include now, in the early childhood education curriculum or programme, the study of nature, and the interdependence between human beings and the environment. Everything deeply lived, practised and felt in the early years of human development remains for the rest of one's life.

Point 2

Children are very sensitive to nature and its elements – animals, plants, flowers, the phenomena of fire, water, the land, wind, etc. They are emotionally touched by, and intellectually interested in it. Experience shows that many adults who live in big towns remember with pleasure unforgettable moments of their infancy, in rural areas, with plants and their seeds, trees and their shapes, the little river and its sources, gardens and flowers, horses and cattle, birds and domestic animals. They often recall those memories.

It is an efficient strategy in education to take into consideration these early dispositions, curiosity and interests. Therefore, the study of nature has long been included as one of the areas of activity in ECCE. Currently, with the worldwide concern for the degradation of the environment, this subject has been attracting political interest, and will probably gain in relevance in early childhood education. In many countries, ECCE curricula include guidelines and even content on that subject.

Point 3

The curriculum of ECCE usually addresses two areas related to the environment: (a) knowledge by concrete and direct experience of nature; and (b) transformation and recycling.

The first line of action involves the study, exploration, adventure and experiences with nature elements (seeds, plants, water, soil, sand, wind, fire, little animals, etc.). The second one – recycling and using discarded materials for didactical activities – has been part of early childhood education practically from its origin. In other words, since the beginning, ECCE has worked on a daily basis with elements of nature (seeds, barks, shells, etc.), transforming them into toys, musical instruments, play and art materials for example. Moreover, discarded objects, such as boxes, plastic cups and bottles, pieces of paper and tissues, used clothes, hats, shoes, glasses, mirrors, tubes, wood scraps, acquire interesting forms, figures and uses, e.g. houses and tents, telescopes and observatories, boats and ships, submarines and rockets, trucks and trains, industries and factories. What was used before and discarded is able to give children the experience of discovering the world and its secrets. Those things, thought of as 'dead', come back to life again in the hands and imagination of children.

The lesson we learn from this activity is that the objects of nature do not die, they remain here, they exist and have meaning, they belong to the world, and they can be transformed into other beings. In other

words, they can be given a different meaning; they can be re-signified and be with us longer. Therefore, they are not supposed to be seen as garbage, or as pollution. This is a philosophical dimension of the relation man/nature, and has a deep ethical meaning. Obviously, not all discarded objects are suited to recycling. In the early childhood development centres, we can use a wide diversity of materials – but not everything. My point is the possibility and the significance of those activities can have for children, given suitable materials.

Point 4

In ECCE, transformation (by recycling or by giving a different meaning to elements of nature or industrial products) has a philosophical, psychological and pedagogical purpose. Industrialization has prompted the emergence of the consumer society, stimulating artificial needs and the increasing accumulation of industrial garbage.

All over the world, the 'common, average person' believes that 'we can't live without the goods produced by industrial technology'. The amount, the diversity and the relative reduction in the prices of industrialized products create the desire to buy and use more and more developed products. Replacement is carried out with increasing velocity. We are living in a vicious circle of production–consumption–replacement–garbage. Marketing strategies tempt people to buy the most recently launched and sophisticated products, discarding those in use (but which are still useful). These objects tend to lose their value, and are seen as outdated.

Thus, behaviour of substitution is created in our minds and habits; a race after the new, an attitude of disdain for the old, an annoyance with the used one. Consumerism is only one way of expressing the new attitude that leads the industrial production world. Another one is the disdain for what has already been used, which is not new, which is technologically behind. These attitudes make people discard cars, household-appliances, clothes, footwear, personal effects, telephones and cell phones, computers, television sets, sound, cameras, and so on. We have now started worrying about electronic garbage (batteries, radioactive chips, etc.).

Most serious, certainly, is its consequence on human relationships: love as an ephemeral emotion, friendship as a superficial feeling, human relationships are being placed under the same utility criterion. Therefore, people may be easily betrayed, abandoned, substituted. People may be viewed as discarded objects: a little misunderstanding or an occasional conflict is enough to cut the ties that had joined dad/mum and son/daughter, girlfriend and boyfriend, husband and wife. Aged people witness how easily they are abandoned and discarded by their families.

Re-evaluating some discarded objects by finding a new meaning in people's lives awakens a feeling of permanence, a sense of belonging. Prizing nature and human beings remakes the ties between them and develops an attitude of conservation and respect towards both what the objects and people were, and can be.

Giving meaning again (re-meaning) an object by transforming its first purpose into another one (for example, transforming a plastic bottle into a truck, a plastic cup into a rattle, a light bulb into an object of art with a ship inside) may contribute to the development of two values: there is something beyond the utility (an already used plastic cup is not valid any more according to its former utility, but it is now valid by the other meaning that we can give to it). Things have a multi-significant existence. The trans-utility deepens human vision in the meaning of existence.

Recycling (apart from its economic and ecological values) has a psychological, philosophical and pedagogical value: the re-assigning of meaning, the permanence and the belonging, especially in the case of the attitudes related to people. This behaviour can also rediscover the understanding of a person's value: one's intrinsic dignity, one's longing for being more, one's dreams of happiness and love.

Point 5

Are global warming, the hole in the ozone layer, the reduction in the water reserves, desertification, air pollution, illnesses caused by the environment degradation, toxic and atomic garbage… accessible issues and interesting to children? The presence of the issues on the environment in newspapers, on television and in daily chat shows reaches children's sensitivity, emotions and cognitive interests. As the problems of the environment are part of children's lives, they are challenged to speak of, think and worry about them.

Nothing that surrounds me is strange to me. It is the same to children. 'I am myself and my circumstance', said the Spanish philosopher Ortega y Gasset. It means that the dreams, desires, necessities, language, problems of social, cultural and physical environment, in which I am inserted, are the raw materials that form my personality. As I am part of nature, every problem that affects the environment – the air, plants, forests, rivers, animals, the conditions of life on Earth – affects me. 'All beings, men, women, animals, birds, plants, minerals are brothers and sisters', said Saint Francis of Assisi. As is written in the Earth Charter, 'Humanity is a part of a vast evolving universe. Earth, our home, is alive with a unique community of life'. … we must decide to live with a sense of universal responsibility, identifying ourselves with the whole Earth community as well as our local communities'. The first principle of that Charter is to 'recognize that all beings are interdependent and every form of life has value regardless of its worth to human beings'.

Point 6

What are the best forms to incorporate these topics in ECCE? I have no doubt that the best way and the most effective form of learning and building up attitudes in the early years is the Project Method. I will make a brief reference to one project developed by a class of children aged 3 to 4, with the help of their teacher, in the early childhood educational centre.

'Project Earthworms' – 3- and 4-year old children study earthworms

In an early childhood educational centre, a group of 3- and 4-year-old children decided to do a project on earthworms. How did everything happen? They were playing in the playground. Under the dry leaves of an orange tree, Felipe saw a small animal. He called his colleagues who were nearby: 'Look, look!' One of them said: 'It is an earthworm'. They observed, turned the worm with a stick, put it on a dry leaf and put soil on top of it. Returning to the classroom, the comments about what happened under the orange tree became the main subject of the class. The teacher gave 'wings to the imagination', posing several questions, trying to understand what the children had observed, and what their comments were on the worm. Luisa spoke: 'My father creates earthworms'. Trying to turn the information into a discussion for the group, the teacher asked: 'Why does her father create earthworms?' The answer soon came: 'He sells earthworm manure'. 'Do earthworms make manure?' the teacher insisted. Why do they create manure?

The answers kept coming. After a while, they came to this conclusion: 'They fluff the land and the plants grow'. The interest of the children was visible. They all wanted to know more about earthworms. Some children said they had never seen one, and nobody knew how those little worms could make the land softer and more fertile to the plants.

The teacher suggested the class to do a project. They could learn how the worms move and create tunnels, what they eat and why they hate sunlight. They would begin by inviting Luisa's father for a talk on his work. They would then build an 'earthworm house' and put it in the garden. Finally, they would put the produced manure on the school plants and would exchange the broken flowerpot for a new one and use the fertilizer made by their earthworms in the new pot.

When Luisa's father came to the school, he brought an 'earthworm house' made of glass, where the children could observe the work of the earthworms. He also explained how they multiply, how they create humus and why it is a good fertilizer for kitchen gardens. He spoke about the micro-organisms that live in the humus, and their importance for plants in general, and for vegetables in particular. In the end, the children were curious to know how he made the earthworms' house.

The next step was to build the earthworms' house. Through the Internet, they found several practical suggestions. Co-ordinated by the teacher, the children suggested several necessary materials: a plastic bottle, a pair of scissors to cut the side of the bottle, a kilogram of soil, a little sand, an adhesive strip, a bag of black plastic or a piece of aluminium foil to cover the bottle (to make it dark so that the worms would not suffer from the light). Other important things were food leftovers, fruit peelings and rotting fruit and, most important, a few earthworms. The teacher wrote on the board everything the children were saying, and then asked them to draw a picture of those objects on white paper.

The tasks for the next few days were divided amongst the children. Helped by the teacher, they obtained the materials, and started to work. They cut a large strip on one side of the bottle through which they could dispose of the layers of soil, sand, dry leaves and fruit peelings. Finally, they put in the earthworms and covered everything with dry lettuce leaves. They then covered the bottle with black plastic. Every day, the plastic was removed to observe what had happened. After four weeks, the difference was quite visible: the layers were now all mixed. The colour and the composition of the materials inside the bottle had changed.

While those 'soil workers' (as one child commented) were working producing humus, the children were investigating on the Internet. They learnt many curious things: for example, there are several sizes of earthworms, from those 0.5 centimetres long to those of 3 metres. In ancient Egypt, they were revered as sacred animals because they fertilized the banks of the River Nile. Some people eat worms, because they are very nourishing, with abundant proteins.

A few days later, when the manure was ready, the children put it in the plant pots and replanted the flower that had lost its flowerpot, broken after being hit by a ball.

Even so, the project did not end there. In the classroom bookcase, the children found a book with a tale explaining that once upon a time an earthworm was recognized as a hero for its manure, because it was used to help medicinal plants to grow, which saved the life of a boy…

All the knowledge acquired in this project inspired the children's interest to cultivate a vegetable garden at the school, and to construct a flowerbed using medicinal plants.

Point 7

It is necessary that the government and politicians acknowledge the importance of early education in building up a sustainable society. The United Nations, international organizations and national governments have been obtaining good results in creating a consciousness about the seriousness of the problems that are placing life on our planet at risk. People are becoming more sensitive to the dangers threatening the environment. However, they have not realized that childhood is a privileged time to create a new attitude of care, respect and sustainability of life on our planet.

Early childhood education has not yet been part of great national decisions. Perhaps the reason for such an absence is that the effects of ECCE are recognized only in the medium and long term, or because children are still seen as citizens of secondary importance – when other challenges, aims and objectives of a country are considered. That is the reason why we must argue, demonstrate and use social pressure to put children on to the national agenda. They need to be seen as citizens.

The necessity to act now in the political and economic field – in order to stop the planet's destruction – does not eliminate the importance of recognizing the strategic importance of the first years of life, for nurturing a new attitude in relation to the environment, and developing activities in early childhood education.

In conclusion, we call the authorities', the intellectuals' and the teachers' attention to the potential role of ECCE in forming citizens for a sustainable society. If the creation of a sustainable society 'requires a change of mind and heart', as is said in the Earth Charter, nothing would be better than to start it in the first years of a human being's life. It is during that time that we learn to respect and care for the community of life.

For a specific dignity of ECE: Policy and research issues relating the education of young children and sustainable society

Lenira Haddad, Brazil

'I believe that we are at a time when we have an old paradigm, an old principle that obligates to disjoint, to simplify, to reduce, to formalize, without being able to communicate what is disjointed and without being able to conceptualize neither the sets nor the complexity of what is real. We are at a period "between two worlds": one, that is about to die, but still has not died, and another, that wants to be born, but still has not been born. We are in a great confusion, in one of these agonizing periods, of births, that are similar to the periods of agony, of deaths; but I believe that in this great confusion different movements exist . . . for the reintroduction of conscience in science. The stake is not simply a stake for enrichment of a scientist's spirit, which would not be that bad. It is not only the conscience in the sense of the complexity that a mutilated vision of things had eliminated, which would also be very good! I think the stake is not solely scientific. More than that: it is profoundly political and human, human in a sense that it concerns, maybe, the future of humanity.'

Morin (2000), p. 40-1

Abstract

This article discusses the role of early childhood education for a sustainable society from the perspective of the policy and research issues related to young children's lives and sustainable development. Recognizing its intensive interconnection with many dimensions of the civil society, the notion of a 'specific dignity' of early childhood education (ECE) is pointed as a key instrument for the achievement of a sustainable society.

This article intends to discuss the role of early childhood education for a sustainable society from the perspective of the policy and research issues related to young children's lives and sustainable development. Recognizing its intensive interconnection with many dimensions of civil society, we shall discuss the notion of a 'specific dignity' of early childhood education (ECE) as a key instrument for the achievement of a sustainable society.

By a 'specific dignity', we mean the emergence of ECE as it tries to build its own particular identity. Early childhood education as it is understood today, services for children up to 6 years' old, and is a

recent phenomenon, present in most societies, and born from the dialogue between the needs of civil society, in an accelerated process of change, and resources available for children and their families. This is a dialogue that touches dimensions of human existence not considered by modern science – such as gender roles, the relationship between working life and family life, the upbringing of children in an extra-familiar milieu, and the everyday intense relationships of young children. Its legitimation is closely associated with the need to break old paradigms – such as the exclusive family responsibility for the care, upbringing and education of young children, and the model of formal education that does not correspond with the playful, affective, imaginative and inquisitive nature of young children. These paradigms have been supported by common sense, as well as scientific knowledge. The context in which ECE builds its identity is also a context that inaugurates new meanings for parental roles, relationships between men and women, family and state, and education for young children.

ECE can be at the same time: (a) a place where children live their childhood; (b) a space for meeting friends, enlarging experiences, improving knowledge and carrying out their projects; (c) the first step of basic education; (d) an important support system for fathers and mothers who are working; and (e) an important mechanism to foster social and gender equality. Thus, the 'specific dignity' of ECE is expressed in its multifunctional and multidimensional feature that highlights its distinction from other levels of education.

For its connection with important spheres of life, ECE is more closely related to the idea of sustainable development than other levels of formal education. For this reason the relationship between these two themes, ECE and sustainable society, generates two different types of demand.

The first is a review of the ECE position in the debate about education for sustainable development. This demand stems from the fact that when ECE is debated in the realm of other levels of formal education, its specific features are obscured by the assumptions of the overall educational system. Most of the time education is reduced to the aspects of academic (or formal) learning, while other important issues related to human existence disappear. Sustainable development (SD) touches upon all aspects of the social and institutional fabric, and in this sense provides a way of articulating the overall social project and the aim of development; if education for sustainable development (ESD) is 'the educational process of achieving human development [. . .] in an inclusive, equitable and secure manner, which includes education for poverty alleviation, human rights, gender equality, cultural diversity, international understanding, peace and many more',[11] thus it is crucial to include ECE in the ESD agenda starting from the human development perspective and not starting from the learning perspective.

The framework for implementation of the Decade of the Education for Sustainable Development (DESD)[12] presents a wider concept of education – stressing 'sharing knowledge, skills, values and perspectives throughout a lifetime of learning in such a way that it encourages sustainable livelihoods and supports citizens to live sustainable lives'. It is not enough to embrace the comprehensiveness of the potential of ECE in order to build a sustainable society.

This leads to the second demand, which is the necessity for a broader approach to encompass the complexity of the relationship between ECE and sustainable society. Improving strategies to increase the child's and teacher's consciousness of environmental problems is very important, but not sufficient when thinking about ESD. The process of widening the options and capabilities of individuals, widening the social and cultural horizon of peoples' lives, improving the quality of common life, the confidence of people in others and in the future of society, highlighting the possibilities of people to take forth initiatives and innovations that allow them to carry out their creative potential and contribute effectively

11. Available in: www.ias.unu.edu/research/esd.cfm.
12. http://portal.unesco.org/education/en/ev.php URL_ID=23365&URL_DO=DO_TOPIC&URL_SECTION=201.html.

to the collective life, are all dimensions that have been added to the concept of sustainable development (Guimarães, 2001, p. 51).

We cannot replicate the error of modern science in neglecting life, society and the notion of man as an object of study in natural and human science. The harmonization of social, environmental and economic objectives, as is proposed in the definition of sustainable development, demands the ability to situate the object in the context in which it is inserted, considering jointly the constituent components of the phenomenon in question.

The paradigm of 'disjunction, simplification and sovereign legislation', as it is described by Morin (2000, p. 67), dominated for a long time a notion of a science that tries to divide the world into its constituents. According to the author, the lack of ability to recognize, to treat and to think the complexity of a phenomenon is the result of our educational system that 'imposes in us a way of knowledge that arises from the organization of science and techniques of the XIX century, which is diffused in the mindset of social, political and human activities' (Morin, op cit., p. 90).

Thus, we cannot lose sight of the interconnectedness inherent in all dimensions that involve the ECE field and the context in which they emerge. The conscious of this interdependence is the only vehicle that can supply us the information about the obstruction points or vulnerable zones that prevent advances, and demand a more effective action. The conceptual quest of ECE – which is associated with the need to break old paradigms of the exclusivity of the family and the model of formal school as mentioned above – seems to be the key issue. Because of the lack of proper comprehension, it still constitutes the main obstacle for advancement, weakening achievements in the field.

ECE as a professional field emerges side by side with the modern epistemology, announcing new ways of seeing and thinking about the education, socialization and upbringing of young children. Most likely it is still located between the two words that Morin refers to in the phrase cited earlier, 'one, that is about to die, but still has not died, and another, that wants to be born, but still has not been born'. Considering that the child is subject of rights, including the one to be taken care of, raised and educated in a context which is not only in the family, and that the family's responsibilities can be shared with society, causes at least unease. Therefore, it is easier to reduce the broader educational dimension of ECE to schooling.

Today, in many countries, there is increasing attention given to the relationship between ECE and compulsory school. Many factors contribute to this, the tendency for a universal provision for the age prior to entering compulsory school, the growing recognition of ECE as a foundation stage of lifelong learning, and the global economy that gives more attention to school performance, bringing pressure for ECE to ensure prompt readiness for school.

Conscious of the need for continuity in children's education, *Starting Strong* (OECD, 2001) made a number of recommendations to promote a strong and equal partnership between early childhood education and the primary school: (a) ECE should be recognized as a public good, and an important part of the education process; (b) a more unified approach to learning in both systems should be adopted; and (c) attention should be given to challenges faced by young children as they enter school, or transition from one type of service to another.

The second report, *Starting Strong II* (OECD, 2006) gives two main approaches being adopted by member countries: one following the 'readiness for school' model, and another 'the social pedagogy tradition'. The 'readiness for school' approach, adopted by *France and the English-speaking world,* focuses on cognitive development in the early years, and the acquisition of a range of knowledge, skills and dispositions that children should develop as a result of classroom experiences. Contents and

pedagogical methods in early and primary education have been brought closer together, generally in favour of teacher-centred and academic approaches.

The 'social pedagogy tradition' adopted by *Nordic and Central European countries,* sees ECE as a broad preparation for life, and the foundation stage of lifelong learning. The focus is placed on supporting children in their current developmental tasks and interests. The approach to children encompasses care, upbringing and education. Links with the primary school – and free-time services – are maintained through a variety of mechanisms, and there is wide acknowledgement that kindergarten pedagogy should influence at least the early years of the primary school.

While in the first model, partnership is viewed from the point of view of the school, in a way that ECE serves the objectives of public education and provides children with 'readiness for school' skills, in the second tradition, there is a strong belief that early childhood pedagogy should permeate the lower classes of primary school (OECD, 2006, p. 59). The report describes this tradition a follows:

> … kindergarten is seen as a broad preparation for life. Parents are seen as important partners and the early childhood institution is conceived as bridging the public and private spheres, which is fully taking into account the rights of parents and the interests of young children. A more holistic approach to learning is practised and greater emphasis is placed on learning to live together and on supporting children in their current developmental tasks and interests. National curriculum frameworks guide the work of the centres and orient, in general terms, the pedagogical work and the content of children's learning.

By emphasizing the role of ECE to support families and broaden the developmental needs of young children, *combining care, upbringing and learning,* this approach seems to be close to the meaning of sustainable development defended in this article. *It helps to assure the well-being of young children and the appropriate conceptualization of early childhood institutions, and* therefore, it can be an important reference in the discussion on the role of ECE for a sustainable society.

In Brazil, a closer relationship between ECE and compulsory school has started with the approval of the Law of Guidelines and Bases of National Education – LDB/96, which recognizes ECE as the first step of basic education and unifies the services in the same educational system, generating a set of regulations, including the qualification of the ECE professionals.

The transition of the services to the education system has taken different paces throughout the country. In some states, it started even before the approval of the law; in others, the transition has just started. In any case, one can say that the approach of the two systems has brought both advantages and risks. The positive side is the improvement of ECE institutional bases, especially concerning regulations, monitoring, controlling and evaluation of the services as well as the pedagogical approach. The downside, however, is that as ECE becomes more fully integrated into the educational system, the services have become more 'school–like' in terms of opening hours, staffing, adult–child ratio, pedagogy and physical setting, and at the same time more isolated from child welfare, health and related areas.

Moreover, the redefinition of the services set by the 1996 National Law (crèches for under 3-year olds and preschools for 4- to 6-year olds, in contrast to the traditional division by goal – full-time crèches for poor families and part-time for 4- to 6-year-olds), has brought different interpretations of how the ECE system should be organized. In many cities, the segmentation of services by age was followed by a radical reduction in the attention given to children under 3, and in the provision of full-time for 4-6-year-old children.

More recently, the question of a closer relationship between ECE and compulsory school has gained more force with the approval of the law that included 6-year-old children in elementary school

education, extending the period of compulsory schooling from eight to nine years. Although the law sets the deadline at 2010, this change brought back an old debate on the role of ECE for the success of the school.

The process of building 'a strong and equal partnership with the education system' has been threatened by the old and powerful tradition of formal education. In many ways, Brazil has adopted the 'schoolifying' model as it is described in the OECD report (OECD, 2006, pp. 62-63), a term that has connotations of taking over early childhood institutions in a colonizing manner. The tendency to introduce the contents and methods of primary schooling into early education is well established. Until recently, the elementary school division at the Ministry of Education was responsible only for the preschool classes linked to the educational system, and has administered them on primary school lines. Preschool teachers were trained predominantly in primary education methods and had little or no certification in early childhood pedagogy.

Preschool children attend class groups ranging in size from twenty to forty children, cared for by one teacher and rarely with an assistant. Classes are organized, as in primary school, according to year of birth, with young children spending much of their time indoors, doing their letters and numbers in preparation for school. Moreover, the basic equipment is reduced to chairs, tables, blackboard and locked shelves. Materials and resources are hardly available and accessible to children.

The adoption of elementary school terms, such as students, classroom, lessons and homework are common. There is a strong belief that children should be seen and not heard, that being quiet and being seated are conditions for learning, 'now it is not time to talk, neither to look back otherwise you won't learn'; that the activities have to be accomplished individually, without the aid of colleagues (Andrade, 2006, p. 114).

The interests, experience and choices of young children are often ignored. Play, exploration of the outdoors, contact with nature, freedom of movement, exchange with peers and children's own discovery are hardly seen as important pedagogical components. In sum, the specific needs and learning patterns of younger children are hardly understood and very little space is given to the vision of competent children who can think and act for themselves.

Like in many other countries, the 'schoolifying' approach, presented in many public preschools in Brazil, presupposes that children enter primary school already prepared to read and write, and are able to conform to normal classroom procedures.

A strong and equal partnership with the education system requires consideration of the fundamental differences between ECE and compulsory school. The first differential mark is the trajectory of these institutions. Different from the compulsory school, ECE does not present a continuous, linear history. As already mentioned, ECE is a demand from civil society, and its trajectory is marked by discontinuity, inconsistencies, contradictions, parallelisms, and the overlapping of responsibilities between the social and educational sectors. The convergence of social and educational objectives is very recent in Brazil; therefore, they can withstand all the incoherence that has been characterizing the field.

On the other hand, compulsory school presents a more continuous evolution. It was recognized as a right for more time than was ECE, and presents clearer objectives. In synthesis, while ECE is still in search of its identity, compulsory school has already a marked trail; while there is a mess of concepts around ECE, blending the most ambiguous feelings about childhood and extra-familiar care, compulsory school already has a consolidated meaning in the common sense. This helps to explain the enormous distance between what is said in Brazilian law and what is done in the centres, and why the adoption of objectives and methods of compulsory school in ECE is supported by common sense.

This question leads us to the importance of the development of research in social representation of ECE to deepen our understanding of this cloudy territory where the ECE institutions are grounded. It is important to keep in mind that the social representations of childhood, family and ECE presented in the teachers', parents', and decision-makers' universe, come from a 'pre-existent referential of thinking' that were generated in locales of common sense and have been evocated for a long time, therefore difficult to be negotiated (Moscovici, 2005, p. 216).

One cannot expect that old representations be easily overcome just by the approval of laws that legitimate new conceptions and guidelines. On the contrary, it is necessary to search the obstruction points that prevent progress and act upon them. The meaning and implication of a model based on human rights and shared responsibility between family and state (Haddad, 2002) still seems unclear to users, teachers and leaders. Neither is the question clear nor advocated by teacher's training centres, the main meaning makers. By the way, only recently (December 2005), the qualification of ECE teachers in Brazil became a responsibility of the pedagogy course, which also does not have a tradition of dealing with the dimensions of ECE that go beyond the question of teaching-learning.

As was said by John Bennett (2007), 'young children placed in an over-formalized, school-like situation from their early years are denied the experience of appropriate early childhood pedagogy'. It seems that the strengthening of the field, highlighting its specific culture, greatness and identity (and the achievement of a privileged place among other sectors of education), is the greatest challenge towards contributing to a sustainable development. However, the expansion of the field has grown very rapidly as well as its approach to compulsory school without properly qualified professionals.

If we do not pay attention to this issue, the old teaching approach, so contested by Paulo Freire, dominated by a 'banking' model of formal education, will contaminate our early childhood system. Millions of children all over the world, especially from poor families, instead of appropriate early childhood pedagogy, will experience pedagogy for submission.

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Education for peace in a sustainable society

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Abstract

Peace is conceived as a social project based on justice, respect for the rights of others and of nations associated with international solidarity. Opposing this project there are certain elements that stand against this state of justice – for example armed violence, the economic model of violence, and violence against nature, as well as the political model of violence. Educating for peace is educating for justice; for this reason, new ways of perceiving, acting and thinking in social and environmental policies are necessary. Current conditions in Latin America – with pollution, ecological damage, disorderly growth of cities with a large urban marginality, high rates of deforestation, erosion and reduction of land for cultivation, smaller spaces for survival of indigenous minorities, difficult access to water, and increasingly precarious natural resources – is explained by these undesirable effects of development and modernization. This concern has caused Latin America to search for a 'sustainable development'. *Change is not possible only through education, but it is possible to contribute through educational programmes for peace from early childhood.*

By creating the World Organization for Early Childhood Education (OMEP), in the wake of the Second World War, its founders wanted an organization contributing to world peace. This objective was formally expressed in its bylaws and has been constantly reaffirmed during its history, remaining in its spirit. By devoting itself to the education of boys and girls from birth to 8 years' old, when their personality is being shaped, OMEP's task is 'to seek means of instilling in children a spirit of peace'.

OMEP has shared these basic ideals with UNESCO, and has contributed in its area of competence, declaring itself as a school of peace supporting its members to find sufficient paths of educative actions for international comprehension and world peace.

Educating for peace: difficulties and challenges

One of humankind's permanent aspirations, and of primary importance, is the yearning for peace. Perhaps it is the most important aspiration of humankind, since peace is a primordial dimension of love. It might be impossible as an absolute achievement, but in the fight to obtain it, and keep it, generations have passed by since the beginning of humankind.

The contingency fact makes these topics to be of relevant importance in education. Violence is part of the news that we receive daily. These facts, often shown with images and, sometimes, with details of incredible crudeness, indicate with a pathetic insistence the lack of peace and understanding in the world. However, important efforts are being made to change the prevailing pattern; the agreement of the 44th Session of the International Conference on Education, meeting in Geneva in October 1994, defined as the culture of peace: 'a process of non-violent social development linked to justice, human rights, democracy and development, which can be built only by the participation of individuals at all levels'. This is a message from Pierre Sané, Assistant Director–General of Social and Human Sciences. The editorial, 'A Better World is Possible', December 2006 to February 2007, is a call for a renewal of this agreement:

> Peace is conceived not only as the absence of war but as a society project based on justice, respect for the rights of people and of nations, in other words, peace is a positive principle of human relations based on equality, mutual respect, the cooperation of everyone for a common weal. This concept outlined by Catalina Ferrer, does not equate peace with absence of conflicts, either in the intrapersonal, interpersonal or social. On the contrary, peace needs to be created, which implies according to circumstances, the capacity to face conflicts, oppose injustices, confront established order, to question and be questioned, to negotiate, to dialogue, to strengthen oneself.
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> Human rights are conceived, not only as a group of laws or as an international regulation system present in the Constitution but as a topic permanently considered and as a complex system of equality relationships, at the same time, in daily life and in social structures. In other words, human rights involve, on the one hand a set of regulations expressing the aspirations of every human being and of every country for a decent life and on the other, the conditions that allow the real exercise of these rights in daily life.
>
> Each one of these rights implicitly expects of each individual duty towards the other and towards the community. It is a dialectic process of mutual respect, of justice and of shared responsibility, of equality and of supportive involvement.
>
> International solidarity is a concept closely bound to human rights and peace. As a matter of fact, if peace is considered as a society project based on justice, and respect towards the rights of people and of nations, in turn, international solidarity constitutes the road to peace.

Peace: social Utopia

Not withstanding the paradoxical connotation of this word, peace continues to be a Utopia of all nations. It is not only absence of war, but also a state of justice that we cannot accomplish; on the contrary, sometimes it seems that we are destroying it. Catalina Ferrer, the outstanding educator, indicated three factors that go against this state of justice generator of peace: (a) armed violence; (b) economic model violence; and (c) violence against nature**.** I would also add as a factor: the violence of the political model. Time has elapsed, and the same factors are still working against peace. It is a difficult task to determine if these factors are stronger than before. However, it is clear that they play an important role.

Armed violence. This continues to stun the world. We are witnessing wars where gigantic resources are used. We see on television the bombarding of cities, where each spark on the screen, represents death and destruction. We are witnesses of an asymmetric force applied by powerful armies against underdeveloped nations, and terrorist acts that we only knew in fiction. They argue that the violence carried out is answering the violence of the other, becoming an intricate circle without an answer. Violence becomes legitimized. With each act of violence, fear of the other increases: fear and distrust generate it and increase it. However, we know that it does not work, and that innocent people die, the humble ones who only wish for dignity.

Violence for economic reasons. The opening of the world markets has had as a consequence an unprecedented competition in searching for the control of world trade. One of the results of the globalization phenomena is that what happens in one nation affects the whole planet. There is a struggle between nations, between regions and between transnational companies, which is affecting us all. It is a total and not always a bloodless war. In addition, internal fights take place in every country. As in all controversies, success is in the hands of the strong and mighty competitors. Weak ones are the losers. Revenue distribution has become more and more unequal. How can peace survive in such a state of injustice?

Violence against nature. As a result of centuries of exploitation (with an unimaginable increase in the last century of human intervention with nature), we are now witnessing devastation without precedence. Scientists from all over the world are warning about the danger that hangs over humanity. A global reaction is taking place, but countries feel helpless when they face a negative response from greater nations, such as the United States, in signing treaties to protect nature from greater damage that will become irreparable. We have the impression that even nature is rebelling against its pillaging. Nature also tends towards equilibrium – which is equivalent to society's yearning for justice.

Violence for political reasons. I added as one of the factors that rebound in the absence of peace, the existing violence of the political model. The three previous factors could change if the immense majority of the members of the society would participate in political decisions. However, they do not. Full democracy has not been reached in any country, even though we can notice significant differences. War decisions, regarding economic and sustainable development matters, respectful of nature, are taken by small groups who hold power. Contradictions between these groups and the large majorities usually become conflicting and confronting situations resulting in a lack of governance. To educate for political life participation seems to be an essential task for peace.

Peace: individual yearning

Besides being a Utopia of nations, peace is an individual yearning. To create feelings, create deep bonds, discover one's own identity, take root, learn to give and to receive, have a sense of transcending are spiritual experiences leading to the achievement of inner peace, either individually or in groups of different religions, spiritual development groups, sects, aid organizations.

Being able to live spiritual experiences smoothly can derive from the inner peace we are seeking. The question that comes into our mind is: Is it possible to reach inner peace amid a world in competition, in conflict, in confrontation, in conflagration? Is it possible to close our eyes in the face of painful realities that we must daily witness and obtain inner peace? In some cases, it can happen that closing one's eyes is not an attempt to ignore reality, but as an act of deep rapprochement with our own beatings, hopes and dreams allowing us to survive, to grow and the possibility to transcend. To reach inner peace, it is probably necessary to recognize our own limitations, and to become aware that inner peace will help us to reach others more easily.

Allow me to meditate more regarding spiritual experiences, which could take you to a state of inner peace. Building up senses is something we do during a lifetime, from childhood; it is not done only by those who have left childhood. Daily activities fill us with worries and, sometimes, anguish. Children are often victims of tedious imposed obligations, at school and at home. Sometimes we deprive them of their games (which provide them with a deep and consistent apprenticeship), forcing them to carry out tasks that mean nothing to them. Apparently, getting 'children adapted' to this situation means having children and adults with no sense of life – therefore, without inner peace.

Creating bonds is also something that you carry out during a lifetime. These are created before birth. The quality of contacts that are established throughout life, allow us to create solid emotional bonds. All this appears very simple, but the quality of the contacts depends on the words that the child hears, how he/she is cared for and caressed, of the time genuinely dedicated to the child, of the fondness reflected in our eyes, of the beauty of our relations with all those who surround us. We can give peace only if we possess it.

We create emotional bonds not only with people. We also create it with the natural and cultural environment to which we feel we belong. To learn to love nature, to feel part of it, to take care of it as we take care of our lives, to learn about it in all its details, allows us to create this bond that involves our feeling, our thoughts and our acts.

To feel that we are part of the culture that formed us from birth – and that we have the possibility to continue building during our lifetime, with our ideas, our beliefs and dreams – it allows us to feel that we belong to something that transcends us. This sense of belonging helps us to settle down firmly and to stand up in front of the world with a serene, peaceful and creative attitude.

We create our identity based on our relations with others, receiving from others that which we are able to accept, until it becomes ours, and giving to others what we can share. 'The definition of my own self always involves a difference with the values, characteristics and lifestyle of others'. We tell ourselves a 'story' on how we see ourselves, and we believe it. That is how we start being different, until we adopt our own identity. A positive self-value goes parallel with the feeling we are transmitting to others, favouring our self-esteem. However, it is necessary to take into account that 'it is not possible to have personal identities without collective identities and vice-versa'. We belong to a community with which we identify ourselves. The conception of the community also becomes a kind of 'story' that we collectively accept and that, with some differences, we accept individually. It is the collective story to which the community identifies, and with which we also identify, even though it is never a total identification, due to our own characteristics.

Depending on our capacity to conceive an individual identity with an adequate self-esteem, recognizing positive qualities of others, helps us to establish relationships with others. In the same way, nations or communities who conceive their identities positively and are able to recognize in other nations or communities their characteristic distinctive qualities, are able to share a relationship in peace.

Education has a relevant mission to help individuals and communities in creating identities for peace. Girls and boys who have an identity that gives them security, a capacity for contact and empathy, are beings of peace. On the other hand, those who are conceived as weak, isolated and lonely, become hostile and sad beings. To remove them from this situation is a difficult task. Those with a positive identity contribute to peace, to nations and communities that value themselves, without deteriorating the values of others.

Challenges of sustainable development

Sustainable development refers to the economic, political, social, environmental, cultural and institutional aspects of development, based on new ethics where equity and human rights are at the core of the process.

New areas for discussion are required, where the various social actors build a new society project. Both the state and the market are not enough: civil society participation is required. This participation is vital for achieving a consensus on the type of development to be built.

Current conditions in Latin America – such as pollution, ecological deterioration, industrialization, the unplanned expansion of cities with a huge urban marginality, the rates of deforestation, erosion and reduction of cultivable land, reduced space for the survival of indigenous minorities, difficult access to water and natural resources, which are increasingly precarious are explained by some of these undesirable effects of development and modernization.

It is essential to recreate the concept of 'development'. Elizalde and Quiroga state that the concept of 'development', with its inferred meaning of 'sustainable', requires to be dissociated from the notion of 'development' understood as growth (2000). The difference between both notions, i.e. development / growth, understood as an unlimited progression, supposes an ever-open possibility to expand the horizon, because the systemic limitations are unknown. It is thought that there will usually be some way to overcome the limitations that may arise by means of handling some of the variables involved. The new concept recognizes the existence of limits or thresholds. Once contravened, inevitably catastrophic or collapsing conditions of the systems being developed are generated.

Development, as stated by Denis Goulet, requires clear ethical contents –respect for biological and cultural diversity, the coexistence of a plurality of rationalities: that is to say tolerance, recognition of the plurality of potential models, a non-reductionist approach to economy, the valuation of human beings as an ultimate value that is not merely instrumental, the sacred respect for the biosphere as the basis for sustaining human existence, and the responsibility for the management of the Cosmos and the integrity and survival of nature (2000).

Likewise, these authors state that development must also involve the existence of a deeply solidary ethos, expressed in the inner solidarity of peoples, international solidarity and inter-generational solidarity. Solidarity alone may counteract the effects of the excluding dynamics of the market forces and growth processes, operating without any control or regulation.

Concern for the environmental deterioration produced by the in-force model of development, and the introduction of the idea that there are certain ecological limits to economic growth, have given rise to the notion of 'sustainable development' that has been defined as 'such development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs' (Brundtland, 1986).

An experience of a human rights programme with preschool children was developed in New Brunswick, Canada, in 1991, with the following four targets:

- Learn to know oneself and fully realize one's own potential, in self-respect and the harmony of both.
- Learn to establish interpersonal relationships based on mutual respect and co-operation.
- Learn to relate to social reality based on the respect for socio-cultural differences and solidarity.
- Learn to be in contact with the natural environment based on the respect for the environment.

Without pretending that social change may be conducted only by means of education, we believe that as far as it establishes co-operation links between the various levels of the educational system and non-formal education, it may contribute to the development of both awareness and a practice of human rights. Let me quote Andrés Domínguez Vial (2003), 'Education for human rights evolves from the education of people through the education of the community and society as a whole … Then it is not a programme that may be reduced to certain pedagogical activity and a certain way of social communication. Then education for human rights appears to be the development, the ability to liberate, which by means of self-transformation and the transformation of the environment, allows expanding the life capabilities of people and the social group.'

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Building a harmonious society and ECE for sustainable development

Liu Yan and Liu Fengfeng, China

Abstract

This article discussed the concept of sustainable development with the Chinese philosophy of harmony, and explored the approaches of ECE for sustainable development in China, with a global vision. The authors believe that early childhood education plays important roles in building a harmonious and sustainable society. ECE for sustainable development consists of ECE for young children's lifelong sustainable development and young children's learning for sustainable development. 'Integrated curriculum with ESD', 'real life questions', and 'homemade toys', etc., could be adopted as appropriate and effective approaches of young children's learning for sustainable development.

The definitions of 'sustainable development' and a 'harmonious society'

The concept of sustainable development may be said to be the result of a series of crises human beings have been and are facing. Since the middle of the last century, humans have clearly sensed the danger and problems in the environment, society and the economy that were due to increasing desires for material wealth and non-rational behaviours. It is not only necessary to deal with these problems, but even more essential to see how they are interrelated, and to recognize the fundamental need to develop a new perspective rooted in the principle of sustainability.

Sustainable development is a concept that emerged in the 1980s. Many definitions of the term have been introduced over the years, and the most commonly cited one comes from the 1987 Brundtland Report, *Our Common Future*. It states that sustainable development is development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs', which means that we cannot cause irreversible damage to natural capital in the long term in return for short-term benefits. In the 1990s, the World Conservation Union (IUCN) defined sustainable development as 'improving the quality of human life while living within the carrying capacity of supporting

ecosystems', which emphasizes improving the quality of human life while protecting the Earth's capacity for regeneration. The two definitions both focus on the relationship between people and the natural environment. By the time of the Johannesburg Summit in 2002, the definition of sustainable development had been extended with the dimensions of social justice and the fight against poverty, and sustainable development now encompasses three integrated dimensions: social, economic and ecological, for all questions of development.

The concept of sustainable development gained widespread attention in China as soon as it appeared. Since the 1980s, the economy has been growing rapidly in China, and has greatly improved the quality of Chinese people's life. On the one hand, it has brought nearly 200 million people out of poverty, while creating some serious environmental and socio-economic problems on the other. Examples of the latter are the damage to the environment and shortages of natural resources, the unbalanced development between the urban and the rural areas, the wide gap between the rich and the poor, and so on. In response to an urgent need to balance economic and social progress with concern for the worsening natural environment, the Chinese people and government have put forward a new plan for building a harmonious society in an all-round way, such as the approach to sustainable development of human activities, the environment and society, which has now obtained nationwide recognition.

'Harmony is valuable' is the traditional philosophy of Chinese culture. In ancient China, the word 'harmony' was originally connected with music, and then was extended to human hearts, as the Doctrine of Mean says, 'When joy, anger, sorrow and pleasure develop to their appropriate levels, it is called harmony'. 'Harmony is the penetration of the Way through All-under-heaven'. It had been used to interpret the relationships among people. For example, it can describe happy married life (A happy marriage is just like two musical instruments performing in harmony.) Finally, harmony became an ideal of social and political life. Zhong ChangTong, a politician and advisor to CaoCao, a politician and militarist who lived towards the end of East Han Dynasty (A.D.25-220), said, 'harmony is the basis of peace and tranquillity, and disharmony is the cause of chaos and calamities'. Inspired by the traditional cultural philosophy of 'harmony', we now have a modern explanation for the need to ensure the harmonious development of society – the harmony between human beings and nature, the harmony between people and the society they live in, and the harmonious development of the individual.

The harmony between human beings and nature

Human beings and nature are equal, and should get along harmoniously. Human beings are not the hosts of nature. To develop a harmonious relationship between humans and nature, it is necessary to reinforce the protection of nature. A Chinese proverb says, 'Do not drain the pond in order to fish; do not burn the forest in order to hunt'. We cannot cause irreversible damage to natural capital in the long term in return for short-term benefits. It is a matter of great urgency to reconstruct a balanced relationship between human beings, and take all kinds of actions to protect the natural environment in order to recover a supporting ecosystem.

The harmony between people and society

People in a society should get along harmoniously. Just as Mencius, a great ancient Chinese philosopher, said, 'Opportunities of time vouchsafed by Heaven are not equal to advantages of situation afforded by the Earth, and advantages of situation afforded by the Earth are not equal to the unity arising from the accord of people'. This means that the harmony among people is the most important key to success. Human relationships play a more critical role than the others do, even today. A harmonious society

in today's China should be built in a way that is democratic and legal, fair and just, honest and kind, energetic, stable and orderly. We should make a great effort to establish a fair social system, to guarantee the human rights of everyone, to narrow the widening wealth gap, and reduce the phenomenon of poverty, especially in the rural areas, in order to increase the harmony among the communities.

The harmonious development of the individual

Sustainable development is not only necessary for society (people in general), but also for the individual. Social sustainable development can only be realized if everyone is able to develop in a sustainable way. For the individual, sustainable development is the capacity of lifelong learning and development, which is based on a person's all-round harmonious development. If a person's all-round development is harmonious, his or her development could be sustainable.

Quality education is the most important condition for people's harmonious and sustainable development. We should make a great effort to construct a quality educational system with equal opportunities, and to form a learning community to support everyone's lifelong learning. Society should also help and support everyone's sustainable development by encouraging, respecting and protecting everyone's innovations and creations.

The characteristics of ESD

The role of education in environment protection was recognized in the 1980s. In 1988, UNESCO put forward the term 'education for sustainability', based on combining the goals, characteristics, tasks and contents of environment education. During the whole of the 1990s, 'education for sustainability' mainly meant environment education, and aimed to deal with the environmental crisis.

However, the solution of environmental issues is very complex, involving social, economic, cultural and environmental aspects. It is impossible to solve the environmental crisis and to achieve the goals of sustainable development only through the approach of environment education.

In December 2002, the United Nations General Assembly (UNGA) proposed the Decade of Education for Sustainable Development (DESD) for the period 2005 – 2014, developed a draft International Implementation Scheme (IIS) for the Decade, and explained ESD manifestly as set out below.[13]

ESD tries to represent 'the ideal and principles of sustainable development', and focus on the problems of three key areas of sustainable development – society, environment and economy, with culture as an underlying dimension. This includes reality and future problems of sustainable development, such as human rights, peace and human security, gender equality, cultural diversity and intercultural understanding, health, HIV/AIDS, governance, natural resources, climate change, rural development, disaster prevention and mitigation, poverty reduction, corporate responsibility and accountability, market economy, etc.

'ESD is fundamentally about values, with respect at the centre: respect for others, including those of present and future generations, for difference and diversity, for the environment, for the resources of the planet we inhabit.'

13. UNESCO, DESD, 2005.

'ESD emphasizes interdisciplinary and holistic principles. Learning for sustainable development embedded in the whole curriculum, not as a separate subject'. The goals of learning for sustainable development are extensive, integrating with other disciplines. Because of its wide scope, it cannot be isolated as a separate academic subject. ESD demands that the school curriculum be reconstructed to enable students to understand how the subjects link with environmental, economic and social problems.

'ESD is for everyone, at whatever stage of life they find themselves. It takes place therefore within a perspective of lifelong learning, engaging all possible spaces of learning, formal, non-formal and informal, from early childhood to adult life'.

In sum, ESD is the education for forming the values, behaviour and lifestyle required by sustainable development. The overall goal of ESD is 'to integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behaviour that allow for a more sustainable and just society for all'.[14] This new definition placed ESD beyond the narrow conception of environmental education, and highlighted the important roles of ESD in promoting the sustainable development of society, the environment and the economy.

Vigorous efforts are being made to set up ESD projects all over China. Since 1998, the Chinese UNESCO committee has organized and promoted ESD EPD experimental projects in eight provinces of China, which has involved more than 10,000 teachers and more than 50 million students. In 2003, Chinese Premier Wen Jiabao gave clear instructions for further ESD: 'It is necessary for the majority of citizens, especially young people, to receive education about the environment, health and education for sustainable development. We should integrate this education with moral education and quality education, and make it regular and institutionalized'. So far, China has formulated a five-year plan of ESD (2006-2010): more and more teachers and students are participating in ESD, including some kindergartens for 3- to 6-year old children. However, the developmentally and culturally appropriate practice of ECE for sustainable development still remains a problem that needs to be explored.

ECE for sustainable development

ECE for sustainable development should include two aspects: (a) ECE for young children's sustainable development; and (b) young children's learning for sustainable development.

ECE for young children's sustainable development

ESD is lifelong learning from childhood to adulthood. Building a sustainable society requires people with a capacity for sustainable development, which is also the capability for lifelong learning and development. However, it is the human being who is at the centre of sustainable development, and 'everyone is a stakeholder in education for sustainable development'.[15]

14. Ibid.
15. UN Decade for Education for Sustainable Development (2005-2014).

To keep learning and actively adjusting oneself to all kinds of challenges is a durable basis for the ability to learn all one's life, ESD should focus on cultivating children's capacity for lifelong learning and sustainable development by helping them learn to be, learn to live, learn to take responsibility and take the initiative to act for the promotion of sustainable development and contribute to a more equitable and sustainable future.

The foundations of lifelong sustainable development have to be firmly laid in early childhood. This has to be done by cultivating their subjectivity, initiative, independence and creativity and promoting their harmonious development. ESD calls for a re-orientation of ECE approaches, from didactic teaching to facilitating children's active learning and exploration; from emphasizing academic knowledge and skills to valuing decision-making, critical thinking, problem solving, communication and co-operative skills, and so on.

Young children's learning for sustainable development

Based on the core values of sustainable development, the aims of young children's learning for sustainable development are to cultivate children's awareness, knowledge, values, behaviours and habits related to sustainable development, and to promote their ability to transform the ideal of sustainable development into reality. However, helping young children to understand the meaning of sustainable development, and learn to take relevant actions through a developmentally appropriate approach, is the core issue of young children's learning for sustainable development.

Young children's learning for sustainable development should be embedded in their daily life and play, integrated with their whole curriculum, not separated from their real life and become a separate subject. 'Integrated curriculum with ESD', 'real life questions', and 'homemade toys', etc., could be adopted as appropriate and effective approaches to young children's learning for sustainable development.

Integrated curriculum with ESD

'ESD is fundamentally about values, with respect at the centre: respect for others, including those of present and future generations, for difference and diversity, for the environment, for the resources of the planet we inhabit.'[16] It is crucial to help young children to understand themselves and others and their links with the wider natural and social environment, to learn to care about problems concerning sustainable development, and to respect the diversity and difference of cultures and people in the world. These contents of learning are quite complicated for young children to understand. Therefore, it is important to integrate them with the curriculum content, which should reflect children's current needs, interests, and experiences and potential ability. Figure 1 shows an example of combining 'respect' for cultural diversity and differences with the theme of 'understanding myself'. The contents could be extended from 'understanding myself', 'what I can do', 'my friends', etc. to understanding 'others', 'gender equality', and 'respect the diversity and difference between people and cultures'.

16. Ibid.

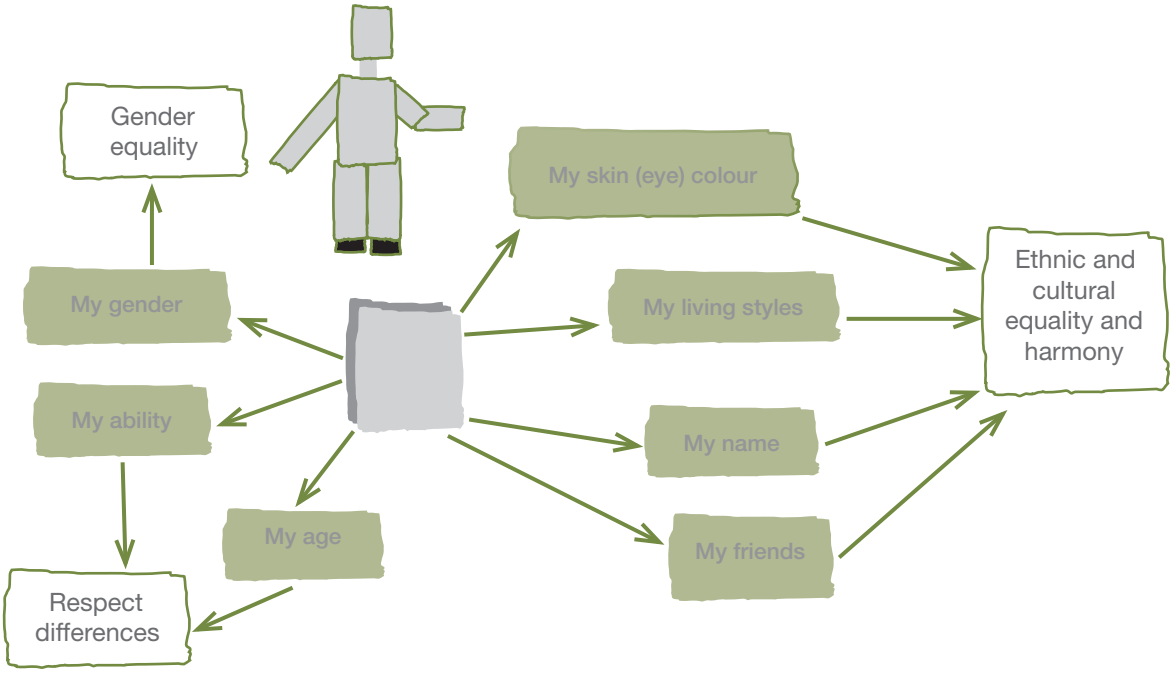

Figure 1. Combining 'respect' with the theme of 'understanding myself'.

Real problem approach

Young children live in the real world in which they will face many real problems related to sustainable development. Taking these real problems or questions as the starting point, the project activities could be organized in order to give them the opportunity to participate in society, to express their own opinions and to find solutions. The following network shows the project activities of 'Sandstorm'. Sandstorms occur every spring in Beijing. The kindergarten teachers initiated the project (see Figure 2). The paintings by 5- to 6-year-old children (see below, photos 1-8) show their understanding and solutions to these real problems.

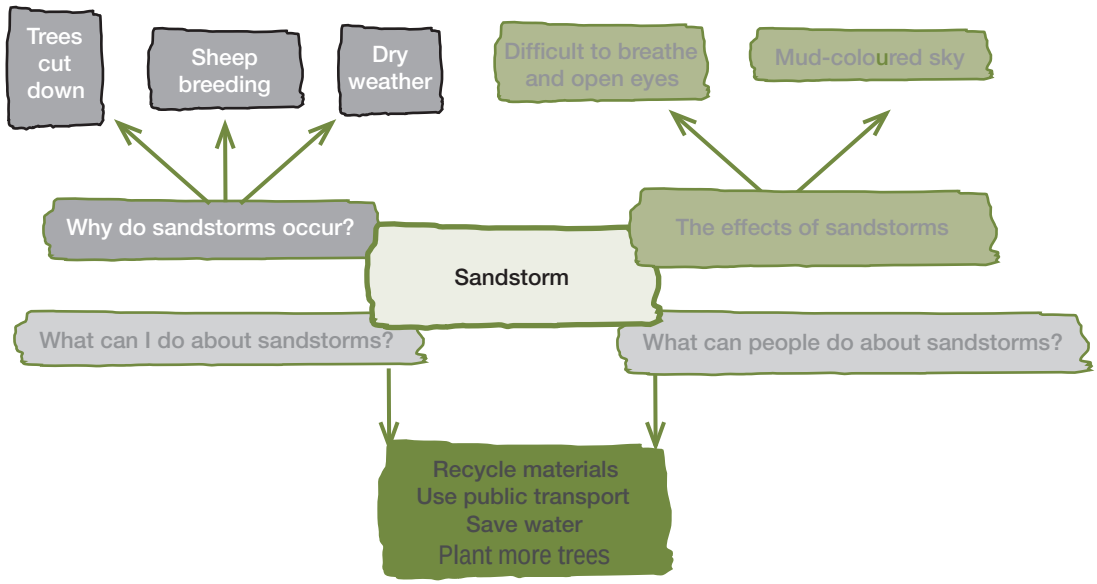

Figure 2. The 'Sandstorm' project.

1. The poor tadpoles were in the plastic bag that was thrown into the pool, and they cannot go out of it and find their mother.

2. I will tell my dad not to drive one day every week to reduce the air pollution.

3. The used batteries will pollute the soil and the grass will die.

5. Cherry trees and grass.

4. Saving water.

6. Pull out the plug when not using the electric fan.

7. Boxes, used toys, cloths, tires are recycling materials.

8. Used paper, glasses, CDs, plastic flowers, ladder, books, straws, shells are recycling materials.

Making our own toys

Toys made by the children themselves are the opposite of commercially made toys. There is a great gap between toy manufacturing and consumption among developed and developing countries. As the largest toy manufacturer and exporter in the world, there are more than 8,000 toy manufacturing enterprises in China, and about 3 million workers produce 75 per cent of the toys in the world. As a country with a large population of 1.3 billion people, there are nearly 300 million children under 14 years of age, which amounts to one-third of the total number of children of this age in the world. In the urban areas, there are about 80 million children, who constitute a very large potential toy consumer group. However, for the children in urban areas, the average consumption of toys is equivalent to about 35 Chinese dollars per year, and for rural children, it is lower than 10 dollars. It is obviously very low in China, contrasting to an average consumption of 340 U.S. dollars per year in developed countries, 144 U.S. dollars in European countries and 13 U.S. dollars in some Asian countries.[17]

Although toys are not necessities, and children can play with anything at hand, they are important materials for children's play and learning. It is the responsibility of society and adults to provide children with toys to safeguard their right to play. In the past, homemade toys were encouraged in order to compensate for the shortage of educational resources in China. ESD made us rethink the value of such toys. Homemade toys mainly use recycled materials, which not only contributes to conserving resources, protecting the environment, but also promotes children's awareness, attitudes, responsibilities and actions for sustainability. Homemade toys should become an important part of ESD. In November 2007, a national toy-making competition for kindergarten teachers and children will be held in Beijing, which will further improve homemade toy activities and ESD in kindergartens. Below are some examples of homemade toys from Beijing (see photos 9 and 10).

Making toys in kindergarten includes two kinds of activities: (a) teachers make toys for children; (b) children make toys on their own with teachers' guidance, which is both play and learning for children. In the process of making toys, children explore, imagine, create and solve problems. Making toys themselves brings children joy and feelings of strength and success.

9. Peg-tops made from used CDs, coloured paper and the caps of used painting pens.

10. Bellows made from a box, and plastic bottle can help children experience the power of wind, and the traditional way of firing for cooking.

17. *The Chinese People's Political Consultative Conference Daily* **21 May 2004, C1.**

Conclusion

ESD addresses local as well as global issues. Global and local, natural and humanistic, form two dimensions of ESD (see Figure 3). Using the Chinese philosophy of harmony, the mission of ESD is to construct harmonious relationships between nature, people and society. Early childhood education plays an important role in building a harmonious and sustainable society. At the very beginning, we should help young children to realize that there is only 'one Earth', and that people's activities interact with each other in the world.

In the world today, the gap between the rich and the poor has not narrowed; many conflicts and contradictions still exist. For a more peaceful and harmonious world, it is very important to help children learn to understand, appreciate and respect the diversity of people and culture in the early stage of lifelong learning. The new attitudes and values will inspire more decisions and actions to make sustainable development a more attainable ideal.

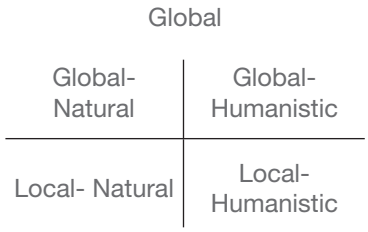

Figure 3: The two dimensions of ESD.

Acknowledgements

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Early childhood education for a sustainable world

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Abstract

This article argues that one effective way to construct a just and sustainable world is to pay attention to early childhood: to ensure adequate care and development for all children and to teach them the kinds of knowledge, skills and values – such as empathy, sharing, respect for others, love for nature – that promote sustainability from a very early age. Suggesting some features of early childhood education that contributes to building a sustainable society, the article points to the importance of grounding the related efforts in the local realities; using different formal, informal and non-formal settings; (re)orienting the programme content towards sustainability; ensuring supportive health, social, economic and labour policies for children and their families; forging partnerships; and investing in all areas of education holistically, including early childhood, primary, secondary, adult and literacy education.

Development has brought many benefits to societies. It connects people around the world, thanks to Internet and other modern communication technologies. People in many parts of the world can now obtain fresh products (which grow only in certain countries) in their local shops, and enjoy them, due to modern transportation and new conservation techniques. It is possible to take advantage of and purchase inexpensive educational materials and games produced in a foreign country where labour and material costs are very low. Common markets, common currencies and common goods give some degree of comfort when travelling in a foreign country for the first time.

However, the kind of development from which we have reaped benefits is in many cases unsustainable. Plastic bags cause pollution and accidents to humans and animals in many countries, as they are left in the streets and fields due to irresponsible use and lack of proper waste-processing facilities. The desire to produce more goods for one's own consumption and export has intensified conflicts for control over limited resources, jeopardizing the environment as well as the present and future livelihoods of countless children and adults. The gap between 'haves' and 'have-nots' is growing, and those without access to basic social services cannot begin to envisage participating in social, economic and cultural development.

18. The opinions expressed in this text are entirely her own and should not be attributed to UNESCO or its Division for the Promotion of Basic Education.

Effects of unsustainable practices affect the developing world more acutely, especially among the poor and deprived. Necessity drives the poor to use, and overuse, all the resources (e.g. wood, water, vegetation) at hand that help meet their vital needs. Poverty renders education and health provisions harder, and provokes population growth. It can also be a source of violence and war, which is destructive for humans and nature. One-quarter of the world's population consumes three-quarters of the world's natural resources. It is estimated that 'the wealth of the world's richest 359 individuals equals the annual income of the poorest 2.4 billion people, almost 40 per cent of humankind' (UNESCO, 1997, p. 9).

With regard to young children, lack of equality is great, too. Today, a child born in the developing world has a 40 per cent chance of living in extreme poverty; under 5-year-old mortality rates are high in sub-Saharan Africa and South and West Asia; 31 per cent of children in developing countries are moderately or severely stunted; 1,800 children are infected with HIV every day; children in emergency, conflict and post-conflict situations are highly vulnerable (UNESCO, 2006*b*). In industrialized and urban places, children have little space to run around and enjoy themselves; they are stressed by living in crowded, high buildings and in polluted surroundings.

All this needs to change: and change is possible through education. Education is 'humanity's best hope and most effective means in the quest to achieve sustainable development' (UNESCO, 1997, p. 16). Education empowers people by equipping them with values and basic skills that allow them to critically reflect and make informed decisions about issues and courses of action in favour of peace, social equality and justice. Education also allows those who are being exploited to defend their interests and environment better. For sustainability, education should embrace the principles and values that form the basis of sustainable development: i.e. 'intergenerational equity, gender parity, social tolerance, poverty reduction, environmental protection and restoration, natural resource conservation, and just and peaceful societies' (UNESCO, 2006*c*, p. 5).

Education for sustainability must begin in early childhood. Learning begins at birth (World Declaration on Education for All, 1990, Article 5), and even before. Early childhood education lays the foundation for later learning and development. Basic life skills, such as communication (including pre-literacy) skills, co-operation, autonomy, creativity, problem-solving and persistence are acquired, and positive and negative dispositions towards learning (e.g. motivation to learn, pleasure in learning) and society are shaped in early years. While the skills and dispositions learned in early childhood evolve throughout life, they can be carried on and reinforced through continued interactions within families and communities.

What would early childhood education that contributes to building a sustainable society look like? It is early childhood:

- That does not exclude any child on the basis of gender, nationality, ethnicity, age, socio-economic status, and capacities. Equity is one fundamental principle embedded in the concept of sustainability (UNESCO, 1997: 22), thus, access to early childhood education should be equitable. Children are right-holders, reminds the United Nations Convention on the Rights of the Child: they all have the right to development, learning and well-being. They are all entitled to a dignified start in life where they can learn and develop in a secure, healthy and caring environment.

- That nurtures learning dispositions and basic life skills necessary for building a sustainable society. Acting for sustainability requires inquiring minds, the ability to seek relevant information about the causes of unsustainable practices, and creativity to find innovative solutions. It needs responsible and responsive citizens. It necessitates willingness and the ability to work together and learn from others, as sustainability issues are interdisciplinary and can be similar in different places.

- That fosters love for, caring attitudes and respect towards nature. Early learning should encourage an awareness of problems with unsustainable practices and lifestyles for the present and future generations, and provide occasions to reflect on possible consequences of such practice and lifestyles. Furthermore, young children should be offered opportunities to learn that humans are part of the vast and intricate ecological system, and that sustainability is everyone's issue.

- That encourages values such as empathy, sharing, respect for others and diversity as positive and richness. Living sustainably requires an understanding about different populations – their particular history, culture and traditions – and a desire to live together.

- That promotes children's contact with nature and incorporates concrete outdoor projects that allow them to have an awareness of environmental and other issues concerning sustainability. As young children are in sensitive periods for social, emotional, cognitive and physical development, first-hand experience with local plants, flowers, vegetation, animals, climate, water resources, etc., should be encouraged. Creative projects demonstrating interdependence between human activities and the environment can be conceived and developed with children's active participation.

How can we promote such an early childhood education? A useful starting point for thinking about this is at the local level: Is it in rural India where survival issues are pronounced and the only way to earn a sufficient income is to cut trees for the paper industry? Is it in urban Mexico, where children have little contact with nature, and live in a crowded, stressful city environment? Is it in a community in Zambia where there are many AIDS orphans who need alternative arrangements to family care? Is it in a Japanese neighbourhood where both parents work long hours and have little time to play with their children (who spend much of their time in understaffed day-care)?

Early learning for sustainability can take place in different settings: in families, communities, schools, early childhood programmes, leisure centres, to name a few. Formal, non-formal and informal settings should all be used. Awareness must be created that everyone is responsible for, and needed to save the planet and make societies sustainable. Resources – cultural (e.g. local folk tales and songs, traditional ceremonies), economic (e.g. businesses), social and political (e.g. NGOs, governments) – must be mobilized for making learning moments relevant to sustainability and meaningful for young children.

Where structured early childhood programmes are available, the aims, content and methods of such programmes can be reoriented towards sustainability. It is observed that school curricula 'have tended in the past to reproduce an unsustainable culture with intensified environment and development problems rather than empower citizens to think and work towards their solution' (UNESCO, 1997, p. 26). Training of caretakers and educators should reflect the reoriented curricula or pedagogical guidelines. Relevant learning would favour a governance structure that allows flexibility and freedom for local authorities and programme staff to design learning activities suited to diverse contexts.

Meanwhile, effective learning is difficult in an environment where children do not receive adequate nutrition, health care, and general physical and emotional support. Therefore, supportive health, social, economic and labour policies and concerned services for young children and their families are necessary. Concern for quality early childhood education does prompt us to pay attention to the broader context and approach the issue holistically. National development and poverty reduction strategy plans should include the concern for early care and learning. Policies promoting gender equality in employment, such as paid parental leave and other family friendly measures, should be in place. In this connection, an important task is to mobilize people and resources at different levels for early childhood education for sustainability, and to forge partnerships for the purpose. This is what the United Nations Decade of Education for Sustainable Development (2005-2014) is all about. The Decade will be a success only if all of us – governments, international organizations, associations, communities, educators, the private sector and citizens – contribute to it together (UNESCO, 2006*c*).

Focus on early education also brings us to pay attention to the importance of improving other areas of education. Parents' educational level – especially that of mothers – is a predictor of the level of quality care and education children will eventually receive. Therefore, education of mothers and fathers, through literacy and other non-formal programmes, must be promoted. Investment in quality secondary education is crucial, especially for girls, because they form the early childhood workforce and are future mothers. Quality primary education is necessary for the benefits of early learning to continue. In short, investment in all six Dakar Goals of EFA[19] is imperative (Dakar Framework for Action, 2000).

In conclusion, learning for a sustainable society requires establishing a new relationship among peoples and with the environment that sustains human life – a relationship that enables societies to pursue development 'that meets the needs of the present without compromising the ability of future generations to meet their own needs', to use the phrase in the 1987 Bruntland Report. It is neither a luxury nor a lofty, Abstract idea. It is a necessity (UNESCO, 2006*a*). If we do not invest in sustainability now, our children will necessarily pay a far greater price, both financially and in the quality of their lives.

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19. The six goals of EFA are: (1) expanding and improving early childhood care and education; (2) universalizing primary education by 2015; (3) promoting equitable access to appropriate learning and life skills programme for youth and adults; (4) achieving a 50% improvement in levels of adult literacy by 2015 and promoting equitable access to basic and continuing education for all adults; (5) achieving gender equity in primary and secondary education by 2005, and achieving gender equality in education by 2015; (6) improving quality of education.

Preconditions for young children's learning and practice for sustainable development

Eveline Pressoir, France

Abstract

Global warming and globalization are challenging the world at a speed and magnitude that call for a global effort to develop a more sustainable world. We must begin with the early years. Investing in early childhood and building a sustainable society are strongly interrelated. However, in our present world with growing challenges and economic and social crisis, giving all children good conditions to develop and learn is problematic, especially in developing countries where over 200 millions children under 5 years are not fulfilling their developmental potential. Most of these live in South Asia and sub-Saharan countries. The international community, through various treaties and meetings, is mobilized to overcome this situation and the Association for the Development of Education in Africa (ADEA), in place since 1992, created a working group to deal specifically with Early Childhood Development and Education in Africa. However, if we are taking into account the fragility of the present world, working to ensure to every child "a good start in life" is not sufficient. We must also work for Sustainable Development, and comply with three main inter-related and inter-connected constraints: (a) environment and ecology; (b) economy; (c) society and culture. But what does it mean in concrete terms to educate young children in Sustainable Development? How can educators and teachers work on these topics with young children (methodology, contents, and strategies)? That also raises questions related to the African context: How do we 'teach' SD in a context of scarcity and instability? How do we ensure these new methods and contents? How do we take into account the cultural issues? In relation to the holistic approach to ECD/ECE, it is also clear that ESD should integrate the three levels of intervention identified: policy, services, parental education. In order to accelerate the changes, ECE/ESD should be part of a broader change in the entire educational system: this is in line with the UN Decade of Education for SD (2005-2014).

The world is changing. This change is more than environmental – global warming – it is also social and economic globalization. The changes since the Second World War are in the speed and the magnitude of the changes; they are now faster, and on a larger scale. More and more people are now aware of the challenges resulting from these changes, which put the planet and life itself, be it vegetable, animal or human, in danger, and generate increasing disparities all over the world: the balance between nature and human development is breaking, natural resources are downsizing and disparities and inequities are increasing.

If we want to introduce changes for a more sustainable world and a better future, we must begin with the early years. Investing in early childhood and building a sustainable society are strongly interrelated.

Scientific research has established that the early years are crucial for the development of the individual, both in the areas of physical development – anatomy and physiology – and psychological development – cognitive, psychosocial and personality building. This position flows from the achievements of science over recent decades, from discoveries on the evolution of the brain (70 per cent of which is formed before birth) and on the evolution of the individual from sensorimotor stage to pre-operational stage before the age of 7. The Dakar Conference in 2000 reminded us that 'Learning Begins at Birth'.

Research and experience have also illustrated that giving young children adequate conditions to survive, develop and learn gives them the best chance to be successful at school and to be an adult well prepared for life. In that sense, investment in early childhood development and early childhood education is the best way for individual and social development – and also for sustainable development. It is the most adequate strategy to break the inter-generational vicious cycle of poverty. Young children's education is 'an investment in human capital'. However, in our present world with growing challenges and many economic and social changes and crises, giving all children good conditions to develop and learn is often problematic. Various conditions should be met to reach this goal, which is the first of the EFA Goals: 'Develop and improve in all their aspects the protection and education of early childhood and especially of the most vulnerable and disadvantaged children'. This objective is in agreement with key treaties relative to children's rights:

- The Convention of the Rights of the Child (1989), which reminds us that all children have rights and that all rights are equal.

- The Global Declaration for Child Survival, Protection and Development (adopted at the World Summit for Children, September 1990) and its Action Plan.

- The Millennium Development Goals (MDGs) ratified by 189 states on the occasion of the United Nations Special Session in May 2002.

The latest issue of the *Lancet* series on 'Child Development in Developing Countries' (January 2007) estimates that 'over 200 million children under 5 years are not fulfilling their developmental potential. Most of these live in South Asia and sub-Saharan countries'. It continues with this obvious conclusion: 'In countries with a large proportion of such children, national development is likely to be affected'. In relation to the education sector, this article also reminds us that 'early cognitive and social/emotional developments are strong determinants of school progress in developed countries'.

To face this situation, and also in accordance with the above principles and rationale, the Association for the Development of Education in Africa (ADEA) created a working group to deal specifically with early childhood development and education. This working group has been in place since 1992 and includes UNESCO, UNICEF, the World Bank, The Consultative Group on ECD, the Dutch Cooperation, Bernard Van Leer Foundation and other organizations, and recently some ministries dealing with ECDE, representing African governments. The working group and its partners have managed or supported many

events recently to put ECD and ECCE on board in Africa: the African International Conference in Kampala (1999) organized by the World Bank, with the objective of raising public awareness and advocate for ECD/ECCE; the African International Conference in Asmara 2002, with the objective to demonstrate that ECD/ECCE can work in the African context, with many case studies and innovations reported; and finally, the Third African International Conference held in Accra, Ghana 2005, with the objective to put ECD/ECCE on the political agenda in Africa (300 participants and 35 countries represented).

The working group believes that to give all young children adequate learning conditions we have to work at various levels:

- The first level is to work with the parents, families and communities. The parents are the first caregivers and educators of the child. Even if in the traditional culture there are elements of wisdom and knowledge, attitudes and practices that are positive for the child, the new scientific knowledge and attitudes related to the young child's capacities and needs bring new challenges that the parents are not always aware of, particularly in developing countries with so many illiterate parents. In addition, due to changing patterns of work and living circumstances, many families and communities are facing new challenges due to poverty, disease, conflicts and so forth. Their capacity to cope is being stretched beyond its limits, with direct negative impact on the most vulnerable, the young ones. Therefore, working with the parents is a key strategy to ensure efficient care practices and adequate learning conditions for the child. Many traditional development programmes are trying to provide the economic, financial and technical support and sometimes the political framework, protection and security necessary for development. We in ADEA are trying also to transmit the complementary knowledge on child survival and development, and above all to work on changing attitudes and behaviours sometimes inadequate or even harmful for the child. Advocating and sensitizing families about responsible fatherhood is also an important direction to try to implement. These actions are keys to give the child a good learning environment, and also to prepare him/her for school.

- The second level is to offer all children good quality educational services. The Global Education Report (EFA Report, 2007) confirms: children's success in life begins in early childhood years, and investment in ECD and ECCE has a direct and positive impact on primary school enrolments, retention and completion. However, it has been established that interventions that took into account only one sector, for instance education, without co-ordination with the others have limited results. Co-ordination of all the relevant sectors, such as health, nutrition, water-sanitation-hygiene, protection and education, is now largely recognized as being crucial, because all aspects of a child's development are correlated and can be separated only artificially. That is why we are promoting a holistic approach to ECD/ECCE (in conformity with the EFA Goal 1): bringing together sectors for a global response to the young child's needs and rights, thus encouraging a good start in life and a good beginning in learning through early learning activities for the young child. 'Integration is seen as the single most effective way to help poor children, families, communities and nations break the inter-generational cycle of poverty' (Haddad, 2002). Many studies and researches (Jaramillo and Tietjen in Ghana and Cape Verde, 2001; Arnold in Nepal, 2003) have established that children who had benefited from preschool interventions are more motivated at school and perform better in the short and long term.

- Preparing the child for school is not sufficient. The school also should be prepared for the child. Adoption of a participatory pedagogy in the first and second grades; good preparation and updated skills of the teacher; procurement of adequate pedagogical material; utilization of a language that the child can understand (mother tongue); smooth transition from family or preschool to school. All these factors contribute to reduce school dropout, grade repetition and the need for special education. They therefore improve the internal efficiency of primary education and reduce costs for both governments and families (EFA Goal 2). A plea is made to ensure adequate allocation of resources to these early grades. More often than not, the best resources in terms of teachers, books, materials, are reserved

for the highest grades, while many kids have already dropped out before they can benefit from school. Ensuring that the child begins school at the right age is also an important element.

- However, to work efficiently at the three levels above, a supportive political environment is necessary. In Africa, if countries have a policy in health and education, most of them do not have any in water-sanitation-hygiene or protection. In addition, with these policies, the young child's needs and rights are not really taken into account. Some countries (Ghana, Kenya, Mauritania and Senegal) have a holistic (multisectoral) young child development policy. Some others are in the process of developing or approving one (Benin, Burkina Faso, Chad, the Gambia and Niger). A regional analysis of the PRSPs (Poverty Reduction Strategy Paper) has pointed out the relative absence of the young child's rights in the planned actions. Therefore, working with all sectors to develop a holistic ECD policy framework and action plan is the third pre-requisite to ensure all young children adequate conditions for survival, development and learning.

- All these points are keys for the ADEA/ECD Working Group. They are at the base of the four cornerstones and leitmotivs that the Consultative Group for ECD (International Network) has elaborated for the communication campaign this year: (a) start at the beginning; (b) get ready for success; (c) improve primary school quality; and (d) promote early childhood policy development.

- However, if we are taking into account the fragility of the situation of the world at present, working to ensure that every child has 'a good start in life' is not sufficient. In addition to working on these four levels of interventions, we must also at the same time work for sustainable development.

The three pillars of sustainable development:

- ***Environment and ecology:*** awareness of natural resources and fragility of the physical environment.

- ***Economy:*** sensitivity to the limits and potential of economic growth and its impacts on society and environment.

- ***Society and culture:*** understanding of social institutions and their role in change and development. Ways of being, relating, behaving, believing and acting differently according to context and history.

These three pillars are interrelated and interconnected (interdisciplinary approach). This is a new way of thinking and acting in a world with a decline of resources, declining equilibrium between nature and human development and increasing disparities. Additionally, in considering all socio-economic measures that are urgent and necessary to change these trends in a sustainable way, we must focus on education.

Education for sustainable development

- A new vision of education: empowering people to commit themselves to sustainability.
- An education for democracy.
- The practice of values: dignity and human rights of all people, rights of future generations and inter-generational responsibility, cultural diversity and commitment to build peace.

The pillars of education for sustainable development are:

- Learning to know: acquiring instruments of understanding.
- Learning to be: seeing oneself the main actor in defining positive outcomes for the future.
- Learning to live together: participate and co-operate with other people in all human activity.
- Learning to do: be able to react creatively and responsibly in all environments.
- Learning to transform oneself and society: develop respect for the environment, social solidarity and non-discrimination.

ESD in ECE

As already highlighted, the early years are crucial in the development of the personality of a human being. If we want to introduce new ways of thinking and a new lifestyle, we have to begin with young children's education (ECE). This is the key to our future.

However, what does it mean in concrete terms to educate young children in sustainable development? 'Is it access to quality education and care? Is it awareness and prevention? Is it modelling lifestyle at this formative age' (Hopkins, 2007).

How could educators and teachers work on these topics with young children?

- ***Methodology:*** problem-solving approach in ECE (preschool projects).

- ***Contents:*** environmental issues and rules; promoting values (human and children's rights) and attitudes.

- ***Strategies:*** children's/parents'/teachers' interactions related to these issues.

Experience shows that young children are capable of understanding environmental issues and propose adequate solutions in their environment. The Swedish National Agency for school improvement has prepared the 'sustainable school award' summary, describing the characteristics of teaching methods, the educational contents for sustainable development in general. A similar approach can be applied for ESD in ECE.

In order to accelerate the changes, ECE/ESD should be part of a broader change in the entire educational system: this is in line with the United Nations Decade of Education for Sustainable Development (2005-2014).

Questions related to sub-Saharan Africa context:

First, how do we 'teach' sustainable development in a context of scarcity and instability (poverty, lack of resources, discrimination and wars) that is different from the one in developed countries? Example: How do you teach taking care of water in an environment of abundance and accessibility in the developed countries, versus teaching the same objective in an environment where the resource is scarce, where children are walking for hours to fetch water?

A good working hypothesis is that the ECE/ESD approach, based on key common principles and values such as human and children's rights, should be contextual and related to the socio-cultural-

economic context. This calls for research on the issue in various contexts. At the Goteborg 2005 meeting on ESD, Arjen E. J. Wals (2005) identified eight criteria that we could perhaps take into account:

- Total immersion: learning by doing.
- Diversity in learning styles.
- Active participation: developing discourse and ownership by utilizing the learners' knowledge and ideas.
- The values of valuing: exposing the learner to alternative way of knowing and valuing through self-confrontation.
- Balancing the far and near: the integration of environment and other global issues.
- A case-study approach.
- The social dimension of learning.
- Learning for action.

Second, how do we ensure these new methods and contents in environments where the percentage of preschool is very low and where, even in communities where there are preschool settings, the educators are not well trained, not adequately paid, and with very low social status?

Third, how do we take into account the cultural issues related to sustainable development in ECE:

- The language of teaching *v.* the language of the mother tongue in the family environment, i.e. scientific pedagogical knowledge *v.* social pressure and the necessity of a second foreign language in the world's context.
- The rights of the child to express himself/herself *v.* cultural relationship patterns ruling adults and children relationships.
- Consumer behaviour (more important in the North but also present in the South).
- The role of the media.
- Gender issues: traditional gender roles, mainly women in preschool setting as role models, etc.
- The importance of religious prescriptions.

In relation to the holistic approach to ECD/ECE, it is clear that ESD should integrate all the previous levels identified: (a) policy; (b) education – services, curriculum and methods; and (c) parental education: interactions between parents and young children.

… and of course, we should begin by changing ourselves!

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Eco-intelligent education for a sustainable future life

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Abstract

In recent years, early childhood education seems to have been rolling on to a conveyor belt of employment-focused academic skill acquisition, at the expense of a kind of education which helps children make sense of their own immediate worlds, and affords time for them to acquire important foundational skills – thinking skills, skills in human relationships, and rich communication skills. This article suggests that making the art of 'living in place' the centre of early childhood education can counter the disconnection of 'developed' societies from natural environmental processes, and thus from their sources of understanding and valuing the natural world. If their early education gives children an opportunity to develop a close attachment to the very place on Earth where they are growing up, it has the potential to nurture a sense of caring for the Earth and all its inhabitants that can support choices and decisions grounded in an Earth- and human-centred ethic that does not exploit nor exclude.

Around the world, awareness is growing that we live on a planet with limited, and very inequitably distributed, resources. These resources do not exist in isolation awaiting human exploitation but are part of the dynamic natural processes of the Earth; they are interconnected in intricate webs and feedback loops, and we humans are part of these systems (Capra, 1996; Harding, 2006). As human activities alter the balance of soils, atmosphere, oceans, vegetation, animal life and water supplies, we witness the Earth's responses in the form of drought, flood, and temperature increase, and violent weather, loss of species and exhaustion of fossil fuels. In the words of David Orr (1992), this amounts to a 'planetary emergency', which also signals an educational crisis that demands new ways of thinking and new priorities in education.

The Earth's responses to exploitative human behaviour have the potential to strain the very relationships among humans. They raise new questions about social justice, relating to sharing of habitable land and available resources, migrations of populations and the capacity to produce and distribute food. Although this knowledge has been widely available for the past thirty years (Meadows, 1974), it has so far had little impact upon government policies, upon education systems, or the way the vast majority of families live their lives and bring up their children.

The problems facing the world during the lifetimes of children currently in early childhood programmes have arisen because of the choices, actions and lifestyles of well-meaning people, such as

their teachers and parents. As industrialization and urbanization have expanded, people in 'developed' countries have become separated from the land, so that it is difficult for many children to even comprehend, for example, that their ice-cream is made from products that come from a cow, or that the source of their cornflakes once grew in a field, and do not simply 'come from the supermarket'. If young children are to adopt sustainable lifestyles in the future they need to understand how their lives are linked to, and affect nature, and prefer to make wise and responsible choices about what they eat, how they travel, what they wear, how they build, how they spend their leisure and relate to people in their local community and in distant lands. This generation could make or break the Earth's future.

While they are young, children do not deserve to be confronted with the enormity of these concerns; they are not responsible for them, and the knowledge has the potential to generate feelings of despair and helplessness. In the early years, children's sense of wonder, and their desire to explore the real world, are the perfect vehicles for absorbing fundamental understanding about the Earth's cycles – how plants grow, how weather/climate affect our lives, how plants/animals/humans interact, and how the living and non-living worlds are interdependent. This fundamental learning through experience has been increasingly squeezed out of the curricula of early childhood education in the 'developed' countries, or replaced by second-hand experiences that are no longer 'hands-on', but mediated by technology.

Research evidence of the past thirty years, (Gould, 1991; Orr, 2004) tells us, however, that simply knowing about environmental issues has little impact upon behaviour. Knowing is not enough; children have to care enough to create harmonious relationships with the Earth and with fellow human beings. The early years are the most fruitful time to forge emotional bonds with the natural world, and given enough time for outdoor exploration, develop 'biophilia', as described by Harvard biologist Edward Wilson (1984). Despite the affinity of young children with nature, and their fascination with the elemental – earth, air, fire and water … only a lucky few children in the developed world (for example in forest kindergartens) are able to spend their days freely observing, exploring. These children have the opportunity to develop this sense of wonder, especially if they have the company of an attentive adult who listens and prompts the children to think deeply about what they sense and feel, so drawing together the child's inner life and the world's outer reality. This is 'slow learning' in an emergent learning culture. It can never be 'delivered' in a 'scheduled programme'; its focus is not academics, but making sense of the child's own world. It has no standardized assessments, but it is learning that engages the mind, hands, heart and spirit in equal measure.

The slow process of gaining a sense of belonging to a particular place in the world by watching the changes of seasons and weather, observing and caring for its plants and animals, eating its food crops, using its resources to build, to make art and to find secret places for play, allows a child to feel a curiosity about, and oneness with, the natural world that is denied to children who spend their days in hygienically scrubbed buildings filled with manufactured educational materials and organized schedules of show and tell, story-times, centres and pre-academic activities. Here children absorb the message that life is broken into separate, unrelated activities, learning happens indoors while 'we go out to play' and that other people organize our lives and make decisions for us. By contrast, the future of our world demands that we all commit ourselves to thoughtful learning about the inter-relatedness of the biology, geography, history, geology, ecology, energy use, and social relationships of the places where we live, and that we grow up feeling responsible and confident to participate actively in community life.

Nature is wonderfully interdisciplinary, everything is woven together and given meaning by seeing it in its context and observing it over time. Engagement through exploration with these aspects of the local environment helps a child gradually to develop eco-literacy or eco-intelligence. David Orr (in Stone and Barlow, 2005) remarks that the importance of education rooted in place has been overlooked, partly because we regard it as mundane and also because place is a 'somewhat nebulous concept'. He believes that we find it nebulous because 'we are a displaced people' because our food water, livelihood, energy, materials or sacred inspiration no longer come from our immediate places, but from places all around

the globe that are largely unknown to us. The early years are the time when, through immersion in local ecology, children can forge deep emotional bonds between themselves and the Earth with which they live.

Learning for eco-intelligence is founded upon a trust and respect for children as competent learners able to know themselves – their abilities and limitations, and gain that valuable 'sense of place' in a natural and meaningful way. This is learning for life, as opposed to learning in order simply to learn further in school.

Early childhood education that prioritizes eco-literacy is facilitated by:

- Opportunity to participate in many varied learning experiences integrating many knowledge areas.
- Opportunity for unstructured time - time 'to be' and to contemplate, in a natural setting.
- Opportunity to observe changes in an environment over time.
- Opportunity to play a valued part in real life activities (e.g. gardening, cooking, building, caring for animals, producing art).
- Opportunity to use real tools and begin to develop practical skills.
- Opportunity to engage in physical challenges and test one's limits.
- Opportunity to develop collaborative, investigative and critical thinking skills.
- Encouragement of a sense of wonder about the natural world.

These aspects of life were, until recently, part of the British child's life outside school. In less hurried and fearful times, playing unsupervised outdoors, exploring nature, climbing trees and collecting natural objects, were all regarded as 'play', but built solid understanding of how the world works. Innovative companies now recognize the value of creativity and collaboration, and nurture it by providing 'playrooms' and 'playtime' for adult employees. Ironically, this happens just as time for play is being reduced in the daily schedules of young children. Play must continue to be valued as the prime strategy for motivating children to expand all their capacities – physical, social, emotional, moral as well as giving them the opportunity to practise and internalize new concepts.

As well as having a respectful and empathetic regard for the Earth, a future that embraces our common wellbeing demands that Earth's inhabitants have a respectful and empathetic regard for each other. Social development has always been a foundational element of early years' programmes; more than ever, it is essential and needs to be expanded. Learning to co-operate with others, to see other perspectives, to be inclusive of others, equips children to rebuild societies that are becoming increasingly fragmented, focused upon individual over-collective needs, and socially stressed. Active citizens need a strong ethical base and the skills to give them voice. Forming habits that demonstrate valuing of the natural world and all human beings cannot begin too early. A programme that recognizes the child as a competent learner, acknowledges that he/she has valuable ideas and opinions, and uses those ideas to co-design activities with others, gives the child confidence that he/she can influence others, and that he/she can use her creativity to plan real-life projects, such as planting a garden, designing a nature trail, creating a stone mosaic, re-organizing the furniture in the playroom, or creating a drama with friends.

What is worth knowing in early childhood? Young children have been burdened with requirements to absorb more and more academic knowledge and skills, driven by social pressures that urge each learner to join the conveyor belt racing towards a 'good job' many years hence. Thinking about sustainability forces us to think about a future where many of the current 'good jobs' may well have changed forever, and completely different understandings and skills will be needed in order to experience wellbeing in a supportive community.

Shortages in energy supply are likely to demand that we meet our needs in an increasingly local, rather than global manner. Therefore, it seems wise to reconnect our children to the processes from which we have become alienated and which sustain life. Knowing how food comes to the table, how houses are built, how to make water clean, how to care for oneself and others, form groups and negotiate conflict, are worthy skills to take into the future; they should be central to learning in the early years, and can best be learned through active experiential processes. We cannot predict children's futures; but their early education is a powerful tool for building hope. It is important that as well as inspiring them to achieve literacy, their teachers guide them in developing a rich eco-literacy. Whatever challenges they meet they will be better prepared if the focus of their young years is learning what it means to be human – how to think, wonder, appreciate, and be kind to oneself, to others and to nature.

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The implications of early understandings of inequality, science and technology for the development of sustainable societies

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Abstract

The environment is considered to provide only one of the three core pillars of sustainable development, alongside the economy and society (UNCED, 1992), and social sustainability requires an ethos of compassion, respect for difference, equality and fairness (Chan, 2006). This article draws upon evidence that suggests that in the United Kingdom and the United States (at least), we still have a long way to go in developing such an ethos. The research presented was commissioned for a programme in the British television documentary series, *A Child of our Time* (2005)[20] and involved an experimental study of 136 children aged between 3 and 5 years, conducted by researchers at the University of Kent. It shows how gender, 'racial' equality and social class are already influencing how young children at this age understand themselves and their future lives. The study also explores the children's awareness, attitudes and expectations related to inequality in housing, and it is in this latter context that the reproductive part played by popular misconceptions of science and technology are identified.

Education for sustainability has a clear relevance for early childhood education (ECE), and arguably, ECE educators have been contributing towards these ends for decades. ECE practitioners have provided young children with experiences that have contributed towards their emerging awareness of the essential interdependence of humanity and the natural environment, through teaching young children about how things are made, and where the products and produce that they consume have come from. In many, if not most, preschool contexts, children have learnt about nature and about the environment, and about conservation, and (increasingly) even the importance of recycling. While we should undoubtedly be doing more to support this kind of

20. *A Child of our Time* provides a 20-year longitudinal study that is following the lives of 25 children selected as a representative sample of British families, all born in the year 2000.

early learning, it is important that we acknowledge that there is nothing particularly new about all of this. We should also be acutely aware of the danger of relying too heavily on children to 'save the planet'. In this context, children might very well be considered at times as 'redemptive agents', programmed as solutions to our present problems (Dahlberg and Moss, 2005, p. 11). Young children have always learnt the most from our actions, they have learnt from what we *do,* more than from what we *say*. It will therefore always be through the sustainability of our own day-to-day practices that we are the most influential to them. This draws attention to the importance of adult modelling, and on working in partnership with professional colleagues and parents in developing sustainable practices in our everyday lives.

In this article, I address aspects of early childhood education for sustainability that have traditionally been given less attention than any of those referred to above. The *environment* is usually considered to provide only one of the three core pillars of sustainable development, alongside the *economy* and *society* (UNCED, 1992). Social sustainability is especially 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 considered just and inclusive societies, which may be characterized by participation, emancipation, freedom, security and solidarity (Koning, 2001; Thin et al., 2002). 'Solidarity' is often considered important in this sense in generating social cohesion based on empathy and co-operation between individuals and social groups.

Sustainable development requires, therefore, an ethos of compassion, respect for difference, equality and fairness (Chan, 2006). This article draws upon evidence that suggests that in the United Kingdom and the United States (at least), we still have a long way to go in developing such an ethos. The research was commissioned for a programme in the British television documentary series *A Child of our Time* (2005)[21] which showed how 'racial'[22] equality and social class influence how young children at this age understand themselves and their future lives. Previous studies in the United States (Aboud, 1988; Brown, 1995; Nesdale, 2001) had shown that racial intergroup bias and stereotypes emerge at an early age, and the first of these studies (Rutland et al., 2005), set out to test the hypothesis that similar results would be found in the United Kingdom, and to investigate the influence of different levels of contact between groups. The study recorded the responses of 136 children aged between 3 and 5 years, to a range of questions associated with the photographs of four children, and four adults, each belonging to a different ethnic group: Anglo-British, African-Caribbean, Asian-Indian, Far-East Asian (Rutland et al., 2005, p. 704). Each photograph was obtained from a model agency, and were selected (in a pilot study) to ensure that they were considered equally 'attractive' and 'smiling'. The children were shown the photographs in sets of four (boys for boys, girls for girls) and, when comfortable and engaged, they were asked at first (to test 'racial constancy'): (a) 'Which one are you like?' (b) 'If you went on Holiday to a really hot place and got a suntan, and your skin turned dark, which of the children would you *really* be like?' Then they were shown the adult pictures and asked: (c) 'When you grow up, which one will *you* be like?'

The children were then presented with the following six positive and six negative adjectives on cards, and the children were asked to stick the word to any or all the four photographs of children. The particular words applied had been obtained through the construction and testing of an appropriate Multiple-Response Racial Attitude (MRA) instrument (Rutland et al., 2005):

21. ibid.
22. References made to 'racial attitudes' in this article are not intended in anyway to reify the biological myth of 'race' as it has been applied to humanity. Its use simply [sic.] acknowledges the popular discourse, i.e. the term derives from the objective reality of 'racism' rather than that of 'race'. Research has actually found that there is greater genetic variation within every (so called) 'racial' group, than between any two of them.

Positive adjectives	Negative adjectives
Friendly	Mean
Kind	Stupid
Helpful	Nasty
Smart	Rude
Hardworking	Lazy
Clever	Slow

Standard verbal definitions were provided for each, e.g. for 'Friendly' the interviewer said: 'Some children are friendly. They often share their toys with other children. Who is friendly? Is it the Black child, the White child, the Asian child, the Oriental child or more than one child who is friendly? Or even no child?' (Rutland et al., op cit., p. 704).

All the necessary controls and procedures were applied, and the study provided the following convincing results:

- Racial bias was strongest towards African-Caribbean children, but a significant negative bias was also found towards Far East Asian children.
- The 'Anglo-British' (White) children showed significantly more bias towards the 'African-Caribbean' (Black) children than the other children.
- Children who had more contact with the other groups showed less racial bias.
- The bias that was found towards the Far-East Asian children was related more closely to 'racial constancy' than the amount of contact that the children had with them.
- The racial attitudes identified were not significantly related to the children's moral judgements: the children were simultaneously presented with a vignette describing an incident of racial exclusion, and 87 per cent of them held it to be 'wrong'.

For young children, the 'racial identification', and 'racial constancy' that they hold for themselves appears to be especially significant, and a clear link was found in the study between high 'racial identification' and higher racial bias (Rutland et al., op cit., p. 109). This parallels similar findings related to gender (e.g. Ruble et al., 2004).

For young children, African Caribbeans may be considered the most noticeable 'visual minority' in the United Kingdom, and 'skin colour' is therefore an important issue that we should not be afraid to address directly with them (Siraj-Blatchford, I., 1994; Siraj-Blatchford, J., 2007). In England, the new Practice Guidance for the Early Years Foundation Stage (EYFS) for children under 5, to be introduced in September 2008 (DfES, 2007), provide a platform for promoting good practice in this area. This national guidance makes several explicit References to the subject:

> 'You must promote positive attitudes to diversity and difference within all children' (Sect 1.8).
> 'Provide positive images that challenge children's thinking and help them to embrace differences in gender, ethnicity, language, religion, culture, special educational needs and disabilities' (Enabling Environments, p. 23).
> 'Give children accurate information which challenges cultural, racial, social and gender stereotypes' (Knowledge and Understanding of the World, p. 76).
> 'Help children become aware of, explore and question differences in gender, ethnicity, language, religion, culture, special educational needs and disability issues' (Positive relationships, p. 75).

The publication also provides numerous relevant examples of 'good practice' in the more detailed guidance for practitioners. These include:

- ***8-20 months.*** Planning and resourcing: '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'.

Rutland et al. (2005) argue that their evidence suggests the need for an emphasis in the early years upon increasing intergroup contact, and (importantly) upon developing strategies that counter the negative (rather than merely promoting positive) attitudes towards other groups. But the difficulty with this latter suggestion is that the negative influences that these young children are picking up are actually a part of the 'taken for granted' everyday 'realities' and assumptions (the ideological hegemony) of most people living in affluent Western countries (Siraj-Blatchford and Siraj-Blatchford, 1998).

Further evidence from *A Child of Our Time* is relevant in this respect. This relates to interviews conducted by Weinger (2000) on young children's evaluations of wealth and 'life chances'. These video sequences are especially poignant, showing two 5-year-old children 'James' and 'Helena', who come from very different socio-economic backgrounds. Instead of photographs, the props that the children evaluate this time are large doll's houses; a small terraced house, and a large detached villa are used. The interviews are semi-structured to elicit the children's general perceptions of inequality, and they are first asked:

> 'Tell me about the people who live in this house.'
> 'What are the grown-ups like who live in this house?'
> 'What are the children like?'
> 'Which child would you choose as your friend?'

The children show themselves acutely aware of the consequences of growing up rich or poor. James, who comes from a relatively disadvantaged family, is visibly upset at the end of the interview. He seems quite aware even at this age of an injustice, while Helena ultimately explains the reasons for her comparative advantage as 'a secret'. . . . Overall, the research identifies the following specific associations and constructs that are held by young children:

- *Wealth associated with White skin:*
  'Being happy' – 'being good' – 'having good employment prospects' – 'being clever'.

- *Relative poverty associated with Black skin:*
  'Being sad' – 'being bad' – 'having poor employment prospects' – 'being less clever'.

To understand the manner in which these perceptions are constructed we must recognize that the doll's houses that the children were focusing their attention upon, and all of the built environment that these houses represent, along with all of the other artefacts and technologies that are unevenly distributed around them, plays a major part. Most significantly, in the case of the arguments presented here, every artefact has embedded within it the social relations and values of its production, and each should be

considered an example of 'hardened history' (Nobel, 1979). One of the most significant challenges to achieving sustainable development is therefore the need to develop a better understanding of the nature of science and technology, and to redirect our (especially environmentalist) attention away from simplistic criticism of a few technological artefacts (considered more or less unsustainable), towards a recognition of the values associated with *all* technological applications.

It has become commonplace to observe that we identify ourselves most significantly by distinguishing ourselves from 'others'. For the White ethnic majority in the United Kingdom, the 'others' that they have most significantly distinguished themselves from historically have been the Black and ethnic minority, who have also been seen as representatives of the Black populations of the former British empire. The ethnic majority identity has thus been constructed in opposition to non-Western 'others' who have often been treated as:

> … 'primitive': child-like both in the sense of being at a stage of development that 'the West' had already passed through, and as indicative of a state requiring tutelage and governance. (Fabian, 1983)

This is where popular notions of 'natural' inferiority come from, and these are directly reflected in, and are being reproduced through, the children's association of relative poverty and being less 'clever'. As long as the public continue to associate 'development' with high consumption, highly complex weapons, and industrial science and technology, they will continue to look down upon those cultures that have apparently failed to acquire it. They will also continue to underscore technological appropriacy and sustainability. This logic (or mislogic) of racism constitutes a kind of intellectual trap, a tautology that Said (1994) referred to as the 'impressive circularity' of British 'self' identification:

> … we are dominant because we have the power (industrial, technological, military, moral), and they don't, because of which they are not dominant; they are inferior, we are superior … and so on and on (Said, 1994, p. 127).

Conclusion

A Child of our Time provides the case of one child, 'Tyrese', who has not been brought up to accept the racial stereotypes that have corrupted his peers. The example of Tyrese thus provides a cause for optimism about what may be achieved. The sort of self-affirming, multi-cultural and anti-racist educational intervention that he benefited from should be provided to *all* young children.

While the influence of the current misconceptions about science and technology may be identified in early childhood, I believe the focus of our attention should firstly be upon the professional training of early years' practitioners, as the current problem is ultimately one of our own understandings of science and technology, and of our own identity and self-identification. A first step towards this would be for us all to learn to apply more 'appropriate technologies'[23] in our everyday lives.

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23. To take the example of the 'detached villa', an 'appropriate' application of the technology might be as a community care home or a nursery, rather than as the private residence of a nuclear family. (See Budgett-Meakin, 1992, Siraj-Blatchford, 1996.)

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What might early childhood education for sustainability look like?

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Abstract

Education for sustainable development (ESD) should give children the knowledge, values, desire and skills to make decisions encouraging a sustainable future. To attain this, children should have opportunities to learn about and experience diversity of people and cultures, as well as nature, and thereby learn to respect nature and community. Children should also learn to understand how our lives depend on the resources of nature and realize the importance of finding ways to use these resources wisely and ensure just access to them for present and future generations. Participating in enquiries and discussions about real issues worth solving in children's surroundings is one way for them to learn conflict-solving skills and improve their ability to seek new solutions, make responsible decisions and act upon them.

Introduction

Sustainable development is a concept referring to the way humans should behave on Earth. It has been defined as the development of economic welfare and social justice for all humankind now and in the future within the ecological limits of our Earth (Huckle, 2006). Many believe that education is the best way to change human behaviour towards a sustainable society, even if experience tells us that people in the most educated countries leave the largest ecological footprints on Earth (Global Footprint Network, 2007). On the UNESCO web site, *Education for Sustainable Development* (UNESCO, 2007), in a chapter on 'Quality Education', it is stated that:

> The international community now strongly believes that we need to foster – through education – the values, behaviour and lifestyles required for a sustainable future. Education for sustainable development has come to be seen as a process of learning how to make decisions that consider the long-term future of the economy, ecology and equity of all communities.

In the laws for preschool education in Iceland, a primary objective of preschool education is to 'lay the basis for helping children to become independent, thoughtful, active and responsible participants in a democratic society which is rapidly and continuously developing' (Lög um leikskóla, 1994). The National Curriculum for preschool education states that children should learn to respect others, tolerate different opinions and cultures, and learn to use reasoning, ask questions and answer them. Children should learn to communicate with other children and learn to respect nature and the environment (Aðalnámskrá leikskóla, 1999). Similar aims are to be found in the preschool curricula of many other countries, for example in Sweden and Norway (Utbildningsdepartementet, 1998; Kunnskapsdepartementet, 2006). The aims of living in more harmony with nature and with each other, and leaving the Earth in the same or better shape for the next generation are clearly stated; the challenge is to find good ways of implementing them into the real school experience of children. Breiting (2007) argues that ESD would be best favoured by encouraging the development of the existing school curricula as all the elements of ESD are already there. It is just a matter of sharpening the focus on ESD and establishing the appropriate contexts and emphases in the curriculum. In that way, ESD would avoid becoming just another topic to be covered in schools' overloaded curricula.

My considerations of what early childhood education for sustainable development might look like are built on the following components: children's experience of community and nature and the fostering of respect towards nature and community, the development of children's knowledge of nature and how we can use nature in a sustainable way and children's ability to make responsible decisions and actions concerning sustainable development.

Children's experience and respect of community and nature

Learning to live in a community and to respect other people and other cultures is important in ESD. It is important for young children to learn to listen to other opinions, and respect others as well as to respect one's self and express one's own thoughts. It is also important for children to experience that their voices are heard and dealt with in a respected way.

Western communities are becoming increasingly more multicultural, and schools need to recognize that fact and include the different cultures of their pupils' in the education and the school culture. By experiencing the diversity of peoples and cultures, children may learn to respect other people as well as the different cultures of the world's population.

Learning to respect nature is important as well. In order to gain respect for nature, children need to experience its beauty and diversity and have the opportunity to become familiar with it. Many people are concerned about how children's opportunities for playing outside and exploring their surroundings have decreased during recent decades. Towns are growing in size, and traffic on the roads increases, while open spaces and green areas are reduced and access to natural habitats is diminishing. Consequently, the areas for children to play are decreasing and becoming increasingly more organized. Children's lives are now generally scheduled and planned by adults with all kinds of activities and compromises to fit modern lifestyles (Hillman, 1999). This includes sports and extra classes only rarely offered a few decades ago. Furthermore, considerable time is spent in front of television and computers. This has resulted in a decrease of outdoor play for young children.

Now children are probably learning about nature more through a car window, by reading books, and watching nature programmes on television rather than through direct experience. Consequently, nature becomes distant or unfamiliar and obscure to them. Children who grow up without any contact with nature are missing the opportunity of a good healthy experience, and a rich, diverse learning environment.

Increased popularity of outdoor education is one response to the above-described development. An example of that in early education can be seen in the increased number of so-called 'forester' schools in Norway. In just a few years, they have increased tenfold to about 250 (Lysklett, 2005). The increase in research being done on the effects of children's play in nature on their learning and development is another example of people's concern regarding children's decreasing opportunities for exploring nature and their environment.

Learning to enjoy and love nature is considered one of the premises for motivating people to preserve nature (Fisman, 2001; White, 2004). We cannot expect children to respect and care about something they do not know. However, researchers confirm that children's experiences in nature do not automatically lead to their environmental awareness and the use of nature in a sensible way (Rickinson et al., 2004). Other elements in children's education have to follow as well.

Children's understanding of nature and the use of it

Helping children to develop their understanding of nature is an important component in ESD. As an example, exploring how nature takes care of its 'rubbish' through the cycle of decomposing and reusing materials can teach us something we may use in our daily lives. We can help children to understand why rubbish can become a problem, and give them the opportunity to find ways to reuse and recycle objects. A sustainable lifestyle should be fostered by encouraging children's participation in recycling, the cultivation of vegetables and nursing of animals as part of everyday life in preschool.

It is important to help children to understand that nature is the source of all of our material needs, e.g. food, clothing, buildings and furniture, as well as the air we breathe and the energy we use – this is a part of the culture within which children are raised. It is educational for them to learn how people used nature in the past, and how they are using it today. One of the greatest challenges of ESD is to change people's ideas about their material needs, resulting in over-consumption and energy exploitation. This becomes especially true as one thinks of the developing countries and the rights of all people to available resources. Our Earth resources are limited and we have to use them wisely and show regard for humanity.

It should be emphasized in ESD for young children that nature is also a resource of beauty, enjoyment, relaxation and physical exercise. It is important to recognize that all people, including future generations, should have the same opportunities and equal access to this resource.

Children's responsible decision-making and action-taking

The use of nature has been an issue of conflict between people for a long time. The use of nature for earning a living by some people may be seen as causing environmental damage by others. They want to protect nature or use it in a different way. Teaching children to seek information, form their opinions in a critical way and take action based on that is an important aspect of education for a sustainable future.

A Danish group of researchers (Breiting et al., 1999) on environmental education point out that the aim of ESD is to develop children's competence for action. This refers to the ability to critically judge different options, form opinions about questions regarding sustainable development and be able and willing to participate in actions for a sustainable society.

In a Nordic environmental project called MUVIN (MiljöUnderVisningINorden [Environmental Education in the North]) some preschool teachers in Iceland provided examples of how young children can explore conflicts of interest regarding the use of natural resources and seek solutions (Norðdahl and Jónsdóttir, 2001). In one of the preschools in this project, the teachers wanted to work with an environmental problem in their local community. The problem dealt with was the heavy stench created by a prawn processing plant located in a small village. The children were perfectly familiar with this problem in their home village. The teachers asked children to examine the problem from different points of view and in diverse ways. They visited the factory and inspected its surroundings, talked to the manager of the factory and a woman living in the neighbourhood of the factory to hear different points of view regarding the problem. In the process of seeking solutions to the problem, they used the information collected in the field as a basis for their conversation. They used role-play to better understand the various points of view and used visual art to try out possible solutions. The solutions that the children came up with showed their rich imagination, and gave insight into how they think about these things. They suggested putting plugs into polluting smoke stacks, bringing in pumps to pump away bad odours and putting waste into a washing machine to wash it. In this project, the children agreed on a solution to the stench problem and decided to move the processing plant to the pier so the sewage from the plant would run straight into the sea instead of through the residential area where it left the bad smell. Then they decided to make an arts centre out of the old factory where everybody could come to paint, sing, laugh and dance as they wanted (see Appendix).

This and other examples in the MUVIN project show that young children at 5 to 6 years of age could discuss and explore problems in society, which initially the teachers did not think the children were able to do. This illustrates the need to have faith in children. They need to be trusted and viewed as capable learners in order to give them opportunities to experience and investigate their surroundings. Children should be encouraged to discuss and form their own opinions on matters that concern them, regardless whether the problems are big or small. It is easy to engage children in addressing their own environment, e.g. how their playground can offer more enjoyment, beauty and learning opportunities, and thus give them something they can affect and act upon.

Conclusion

Education for sustainable development is about helping children to become active citizens contributing to a sustainable society. This can be done by giving children opportunities to experience community and nature, and to develop their knowledge, values and concern for each other and nature. Children need to learn critical and creative thinking, to listen to others, and to express themselves. Children should not be expected to solve the environmental problems for which adults are responsible, but rather be given experience and tools to use in decision-making and action taking for a sustainable future.

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Appendix: The prawn stench

Sigríður Aadnegard, preschool teacher in the preschool Children's Town
Gestný K. Kolbeinsdóttir, developmental therapist in the preschool Children's Town

In 'Children's Town', which is a preschool in Blönduós, a small town in the north of Iceland, fourteen children aged 5 to 6 years of age studied the operations of a prawn processing plant in the town. The plant is located in a residential area, and the waste or sewage from the plant has produced a bad odour in the area – a smell known as 'prawn stench' – which at times can be quite strong.

This project was selected with the idea that the children should become familiar with the different interests of the various parties involved. They were to examine whether this problem might involve conflicts of interest between the parties involved, and if that was the case, the children were to be encouraged to look for solutions that might prove acceptable to all those involved.

The first step was to go on a field trip to the prawn processing plant. In this trip the children were asked to observe closely what they thought was good or bad about the plant and in its immediate environment. As they came closer to the plant, they noticed the smell. At the plant they were met by the foreman who showed them the processing stages. They also inspected the immediate environment of the plant and observed how sewage is piped through the residential area and into the sea. As a follow-up on their visit, the children drew pictures of the plant and discussed its pros and cons. Here are some examples of what the children had to say about the merits of the prawn processing plant:

Child: It produces food.
Child: Then you can make prawn salad.

To begin with, the children did not see the plant as a place that provides jobs, but after a little discussion, they also realized that this was a positive factor. Here are some examples of what the children did not like about the prawn processing plant:

Child: The smell, it's bad.
Preschool teacher: For whom?
Child: For the people who live next door to the prawn processing plant.

In order to make it easier for the children to understand the conflicts of interest that this situation involved, the preschool teacher decided to try to get the children to put themselves into the roles of the different parties. Two children were given the role of the owner of the prawn processing plant (one of them was actually a girl who had found the smell at the plant so unbearable that she had cried the entire time that she had been there). They received instructions to the effect that they were in the business of producing food and providing jobs for people and that that was a good thing. Two other children were told that they were unhappy about the smell from the prawn processing plant and that they would like to get rid of it.

Child: You have to stop processing prawns, the smell is so bad.
Child: We can't do that, because then people won't get food and they'll die.
Teacher: What do you think about that? What can you do?
Child: We'll just move.
Teacher: Don't you think it might be possible to find another solution? Perhaps no one wants to buy the houses that you live in.
Child: They'll just have to hold their noses when they go out.
Teacher: But what if they have their windows open, then they're going to have to hold their noses for a very long time.
Child: They just don't open any windows; they just stay inside and take it easy.
Child: But then we can't go out to buy food.
Child: We'll just give you food.
Child: No, we have to get to the shop, because one buys the prawns at the shop, and then we also need something to drink.
Child: Then you just go out by the back and walk down the other road where there is no smell.
Teacher: But what if the people want to spend some time in their garden during the summer?

This effectively killed the line of approach that the children had been pursuing. They could not see any solution and gave up.

The preschool teacher now decided to make a map of the town; one that showed the prawn processing plant, streets, houses, the sewer system, the pier and the sea. This set the discussion going again, and new ideas surfaced.

Child: We'll just put a lid on the plant chimney.
Teacher: But then all the fumes and the smell will go into the plant, and that can't be good for the people who work there, can it? And let's not forget the smell that comes from the sewage pipes; it is not going to go away even if we did this.
Child: I know. We'll just take the plant and move it.
Teacher: And where are we going to move it to? Where's the best place to have a prawn processing plant?
Child: To the mountains, far away.
Child: But then Santa Clause will be stuck with the stench.

Many solutions were debated back and forth until one of the children shouted: 'I know! We'll put the plant on the pier. Then it's by the sea, and when the boats come in, the prawn catch doesn't have to be transported by lorries, it just goes straight into the plant.'

The children made a model of the environment of the prawn processing plant in the new place to see how the new location of the plant would work out. As they were doing that, the preschool teacher asked the children what could be done with the old plant building.

Child: We can use it to store rubbish.
Teacher: But won't the rubbish smell?
Child: Yes, then we can have some other kind of fish there.
Teacher: Yes, but don't we then have the same kind of problem as before?
Child: Then we can have it like for painters; everyone can come and paint pictures. Yes, and dance too.
Child: Yes, like, like art.
Teacher: You mean an arts centre.
Child: Yes, and then we'll put up a wall and dance on this side and paint on the other side.
Child: Yes, and then we can have all kinds of activities.

The children now interviewed a man who lived in the vicinity of the prawn processing plant to see how he felt about it. In the interview, it emerged that the man found the smell from the plant bad and complained that often there was too much noise coming from it late at night. This was new information for the children. The man who the children interviewed thought that it was a great idea to convert the plant into an arts centre, and said that he would quite like to have an arts centre like this in the neighbourhood.

The children composed a poem about the arts centre.

The Arts Centre

We paint the arts centre
and dance.
We paint pictures
and dance.
We shall be happy
and dance.
We laugh
and dance.
We sing
and dance.

This project was carried out by two groups of children, and both the groups came to the same conclusion; i.e. that the prawn processing plant should be located as closely as possible to the pier. The description that we have been following reflects how the debate developed within one of the two groups. In the other group, the debate was of course not identical, and various other solutions to the problem were proposed in addition to the ones that we have already mentioned. Here are some examples:

Child: We would bring in a pump and pump the smell away.
Child: We could put the rubbish, i.e. the waste from the processing plant, into a washing machine and then dump it into Draugagil [The Ghost Canyon] (Draugagil is the waste disposal site for the town of Blönduós).
Child: I also know what we could do to get rid of the smell. We get a big prawn boat and have the machines on board. Then the prawn could go straight to the shop (i e. process the prawns at sea).

Other ideas about what could be done with the old prawn processing plant:

Child: Shut all windows and doors and fill the plant with water to wash it out. Then we open out the place and water will run into the river.
Child: Maybe somebody might want to move into it.
Child: Turn it into a castle.

The progress of this project was recorded in a special book of events in the form of pictures, stories, poems and discussion of the children as they worked on the project.

The results came as a pleasant surprise to the preschool teachers, because they were used to giving solutions to their pupils and playing a leading role in giving them cues when debating problems. They did not expect the children to be as active as this, nor that they could discover such practical and clever solutions.

The role of early childhood education in establishing a sustainable society

Siren Qemuge, Inner Mongolia, China

Abstract

Sustainable development on the part of individuals is both a prerequisite for enabling people to live harmoniously together in the world and a constitutional right. Early childhood education should play an important part in building a sustainable society because it can be seen as a first stage in fostering a sustainable lifestyle, respecting others and developing a non-ethnocentric perception. It is particularly important to educate children who are from undeveloped places. This presentation will attempt to outline some approaches to children's sustainable education and the challenges in undeveloped regions.

Introduction

Urad Front Banner is a small, remote, poverty-stricken town in Inner Mongolia in North Central China with a population of 574,000.[24] It provides an insight into difficult situations as far as sustainable development is concerned. This includes a series of problems that the rapid desertification of the grasslands has caused, such as sandstorms and natural disasters. Economic development is increasingly challenging lives due to higher energy consumption, the discharge of polluted water and the threat to the most important water source in the region, the Yellow River. At present, only a small portion of the citizens worry about it. There is no urgent sense of crisis yet.

Sustainability should not be considered an Abstract concept but a common way of action of our daily life. The problem, then, is whether our education system can contribute to helping our citizens to develop the notion of sustainable development. I am personally convinced that, if we cannot spread the idea of sustainability, we will not succeed in establishing a sustainable and harmonious society.

All the problems mentioned above should remind us to look at and explore our educational systems and programmes, including early childhood education (ECE). We should also see if they could make some contributions towards continuing with sustainability.

24. This figure includes the total population of the centre town, rural areas and villages.

The importance of education about sustainable development

It is an inescapable dilemma that this planet cannot sustain people living in the style of today's middle classes in some rich places of the world. In just a few decades, we would use up fossil fuels that took about 400 million years to accumulate. This would change the Earth's climate as a result. Sustainable development is a kind of measure of humanity's development, confronting major issues and calling for difficult decisions. We must pay more attention to the negative influences brought about by the trend of globalization and all other changes, including population growth, economic development, climate changes, and chemical imbalances in nature, oceanic abnormalities, and atmospheric changes. However, what have we done so far about sustainable development? Sustainability may be a grey and boring word, but achieving it is the biggest single challenge to all of us today. Education is a way to get rid of development gaps to help alleviate poverty, and it is indispensable in building a sustainable society as well.

What we are discussing is not just to know about the conception of sustainability, but to finding out how to cultivate appropriate skills in supporting it among young people and future generations. We are especially keen to target those from undeveloped regions, and assist them to develop into individuals with lofty social duties who respect cultural differences. We should try to increase their enthusiasm and co-operation so that they will be capable of making effective use of their knowledge to solve new problems of sustainability. We should start as soon as we can. We teachers know that ECE is an important stage.

The role of ECE in establishing a sustainable society in Urad Front Banner

Over the last decade, the early childhood education sector in Urad in Inner Mongolia (China) has shifted from focusing on childcare to concern for children's education and development. The early childhood education (ECE) from ages 3 to 6 has been instrumental in realizing this transformation that, in the long term, will have a powerful impact on the lives and opportunities of all children.

The rapid economic progress has not only helped the majority of citizens overcome poverty but has also made people here realize the importance of knowledge. We need knowledge to understand the connections between quality of life and social development and ecology. Meanwhile, the current nine-year compulsory education (from primary grade 1 to grade 9) has been changing the attitude of rural parents, who saw it only as a chance for their children to go to school, but are now beginning to realize that their children are enjoying the same high quality education as urban children. For the above reasons, people also have fewer economic worries and less pressure when planning their children's education.

Thus, the attitude towards ECE has changed rapidly in recent years. At the beginning of the 1980s, because of poverty and low levels of adult literacy, there were some misunderstandings about ECE. For example, people thought it was a waste of money and useless for young children to enter kindergartens. However, from the 1990s most urban children have had their extended family members, for example, four grandparents, to take good care of them while studying. Families had more disposable income. Parents sent children to kindergartens early, at the age of 3. These actions of the urban elite have influenced the more rural populations. Now they believe ECE is a very important phase for children's long-term development, and that it is more professional compared to that of home education.

The ECE programme has been developed through the support and assistance of the government and community. There were only two preschools in the 1980s, but now there are two public kindergartens and 11 private ones. Ten primary schools all have preschools in our county, which has a population of

only 90,000.[25] In rural areas, other kinds of preschool education systems are used. There is a one-year ECE programme from age 5 to 6 before primary grade one.

In addition, preschool teachers' professional qualifications have been greatly improved. For example, in the Mongolian kindergarten in Urad, out of eighteen teachers and nine assistants, twenty have finished college, and three have finished undergraduate study, one is going to finish undergraduate study soon, one assistant's education background is high school, while two other assistants have graduated from teachers' normal school.

Sustainable development should be taken into consideration in the development of a world, a continent, a country, a nation, a region, even a small unit. Besides, everyone should ponder his or her own small-scale sustainable development, as well as sustainable development on a larger scale within society. Thus, the theory and conception of sustainable development should bring some fresh thinking and behaviour to early childhood education as well. Our kindergarten fosters ideas that target the children's own small-scale sustainable development and environmental protection attitudes. These involve the children's five fields of education, making them interact differently in daily pedagogical activities.

Unsustainable behaviours. These are taken from daily life in the kindergarten to change and influence each family, the neighbours, the community and the whole society. We believe children have such power.

- Water wastage: when children need to wash their hands, we pour water into washbasins instead of directly from the tap. Some instructional pictures are put on the wall to show how to avoid wasting water. Children also discuss water problems in different groups. They collect information through daily experiences and with the help of their parents. This information is then brought into the classroom for discussion: this includes the use of water, and polluted water.

- We constantly encourage students to give up bad habits (such as randomly throwing away rubbish). The general method we use is to give a lecture. However, we also emphasize praising well-behaved children in order to encourage the others. We want each child to influence and encourage other children, while taking part in the daily life of the kindergarten. Another method is to use the teacher's behaviour as the model example, because children often believe in their teachers more than their parents, and therefore frequently and unconsciously imitate them.

Recycling. Our teachers always do their best to reuse materials.

- After drawing on both sides of the paper, some of it is kept and collected. These pieces can then be folded to make all kinds of items in the daily hand-making programmes for the children.

- All kinds of containers (such as crayon boxes, plastic bottles, etc.) are collected. In each corner of the classroom, we put those materials collected by both teachers and children. Each corner has a theme, such as construction section and art section, so that children can use their imagination to make things out of those recycled materials, perhaps structures in the construction section, or handcrafted figures of people or animals in the art section corner. They can also make picture puzzles, Frisbees and many other toys to play with. We use plastic bottles to make toys such as flowers, and then ask children to decorate them. While this can help children to improve their finger muscles, it also makes them think creatively. Through such activities, children always help each other, have discussions and learn how to co-operate with each other. These abilities are good for the sustainable development of the children themselves.

25. The population of the centre town.

- All classroom groups collect different seeds or fruit stones (peach, apricot, plum, sunflower, bean). Some groups use them in home role-playing, while other children pretend that they are food. Some use them in the maths section corner for counting. Others plant them in soil and record their growth and by taking care of them.

Creating a democratic environment and respect for individual cultural differences.

- Culture is public behaviour that must be for the good of all. We can say with some certainty that it is through the flow of behaviour (or more precisely, social action), that cultural forms find articulation. Our preschool is not only available for our Mongolian minority group, but also for the Chinese (Han) and Muslim children as well. The different ethnic groups found amongst the children use the Mongolian or Chinese language to communicate, thereby using multiple cultural environments to meet and be able to communicate with different people. This strengthens their positive attitudes towards more cosmopolitan lifestyles.

- Schools encourage wearing different national clothes on special days to celebrate the festivals, thus providing chances for Han, Muslim and Mongolian children to play, dance and have some special food together. Mongolians are fond of dancing and singing. Therefore, we take advantage of this to organize all children to do a kind of gymnastics with chopsticks taken from Mongolian traditional dancing. We play traditional physical wrestling games, which are a Mongolian cultural activity. Through such kinds of activities, the children can understand some of their neighbours' cultures, so that they can develop healthy minds and bodies and will not feel strange or isolated and discriminated by others. This is especially important for some Mongolian children who have lived in the remote mountainous regions, who have had no chance to play with other children but have had to make do with lambs, calves and puppies and whose environment is also just destroyed nature. When they participate in our preschool activities, it is a great opportunity for them to communicate with other children. Consequently, they are not too shy to express themselves. At the same time, their love of animals, nature, independence and bravery can greatly influence some of the other children who have been spoiled by their parents too much in town.

Promoting children's love of nature.

- Seeing the kindergarten as a small world is a way to motivate the children's enthusiasm for nature. We only have one big world and the kindergarten has an intimate relationship with the young ones in this world. By promoting love of the world first, we hope children will protect their own small surroundings. There are horticulture areas and poultry gardens for children in the schoolyard to promote such feelings. Children can try to understand and develop an interest in nature right in the schoolyard.

- Nature is always in the background, which can help children widen their vision of the world, and learn to appreciate it. Just as a famous Chinese, Cheng He Qin, once said, … nature and society are the best teaching materials …'. We bring our schoolchildren to see nature and play in it so that children may know and appreciate it. They can get close to nature and benefit from nature while being aware of the need to protect and treat it well. We use storytelling to help them understand the true causes of sandstorms and the importance of planting trees.

- Sandstorms are of particular importance to the Urad Banner area. It has become a common problem for us. Due to these increasing sandstorms, some new habits have arisen. The most obvious one is that no matter which season, more and more people wear masks and glasses when they are on their way to work. We organize activities for children in accordance with that situation. The oldest children calculate the frequencies of the sandstorms and participate in the tree-planting activities.

The challenges

- The enrolment in preschool education in Urad is still low. Only around 40 per cent of the children are enrolled in ECE from age 3 to 6. Around 80 per cent are enrolled for only one year in ECE programmes before primary school.

- In advanced education, there are many historical and current reasons for the current responses to this problem. The main reason is that the national college entrance examination focuses on examination-oriented education, which significantly affects the early education phase. Some parents do not want their children to be defeated at the beginning of their educational odyssey, so they emphasize the traditional academic education too much. They prefer the old training methods of recognizing words, calculating and memorizing because they think this basic knowledge is beneficial to children entering primary school. However, this method is not good for children's self-sustainable development. It can actually make children hate school life. Even though some parents are aware of this, they still say that if they ask their children to follow the sustainable methods, they do not feel sure about being able to change anything.

- We must find some effective methods of teaching sustainable development that can make children understand deeply, and even shock them out of their unawareness. We often lecture during pedagogical activities, but this, of course, is not very effective. We take children to see nice places and bad places in and around our town so as to help them develop their awareness about sustainable development. We can say that these kinds of activities show that the teachers are preaching about sustainability, but children are unable to understand deeply. One thing we found is that the weather is really getting worse and worse as sandstorms are increasing yearly and there is no rain in the spring. Our children are used to this situation and have no other kind of experience for comparison. What they watch on television is like a fairy tale to them. Additionally, even though it is an undeveloped area, here each family does their best to bring up their only child. Most children have nice clothes to wear and they have many toys to play with. They can get everything they want from their families so they believe there is nothing better than what they have in their hands and in their minds. How can we educate children to make them realize that the changes threaten them? We want them to see that destroying nature is just like when children's favourite toys are destroyed. We want to develop the same feeling of loss. This is indeed a puzzling problem for preschool teachers here.

- In some ways, sustainable development is not only a very Abstract, strange, confusing and ambiguous concept to children but also to most adults in rural area as well. Some of the ideas teachers have, such as the notion that classrooms are the appropriate places to go for all education, have their roots in old habits and traditional thinking. Even highly knowledgeable preschool teachers need outside experts who have experience in this area to guide them. With only the theory of sustainable development to guide them, teachers are unable to choose the most suitable methods related to the local reality that can help them directly.

- Preschool teachers are usually from the lower social class, and at the same time are overloaded with work, and this can affect learning. Since we have such large numbers of children of the same age in each classroom (generally 30-35, with only two teachers and one assistant), it is difficult for one teacher and an assistant to organize the activities.

Conclusion

As far as the part of individuals is concerned, sustainability is a prerequisite and a constitutional right, to enable all people to enjoy their life in the present and the future. In order to keep pace with the continuous reform of education in Inner Mongolia, especially the renewing and increased emphasis on early childhood education and their sustainable development, we should spread out from the few kindergartens to all institutions, and then from school education to home education, until we have achieved a widespread use and acceptance by everyone.

A silkworm is a fascinating insect for children

Osama Fujii[26] and Chise Izumi,[27] Japan

Abstract

Japan has a long history of *kimono*, its traditional clothes. There were many famous kimono industries in Kyoto, including the Nishijin quarter of the city. Farmers used to grow and take care of silkworms for kimono in Kyoto. But nowadays, people do not wear kimono any more. So almost all the kimono industries have closed down. At the same time, silkworms and fields of mulberry trees – the natural food plant of silkworms – disappeared from Kyoto. Osamu Fujii, the director of Takatsukasa Hoikuen Childcare Centre in Nishijin, has set up a special environmental project called the Silkworm Project. This paper shows the four year achievement of this innovative project involving children of the Childcare Centre, farmers and other community members. Silkworms play a great part in education for sustainable development for young children. We shall show this through pictures.

This is the four-year achievement of the special environmental education project that has been undertaken at Takatsukasa Hoikuen Childcare Centre. Silkworms play a great part in ESD for small children. We shall show this through pictures. This article was presented at the OMEP Congress in 2007 in Mexico (Fujii, 2007).

Takatsukasa Hoikuen Childcare Centre places high value on environmental education and 'hands on' experience for young children within the natural environment. Opportunities for interactions with nature are provided in the centre's garden and special emphasis is placed on discovery learning about living creatures and care for plants.

26. Takatsukasa Hoikuen Childcare Centre, Kyoto.
27. Osaka Prefecture University, Osaka.

In 2004, silkworms were introduced as a way of further connecting children to the natural world, and over the past few years, this learning has become central to the curriculum and to the children's experience at the centre.

The centre has over 100 different species of trees in the yard, even though it is located near the centre of Kyoto City (population 1.4 million).We provide many kinds of fruit every season to the children.

The previous user of the land where we established this centre was an advanced institution of the silk industry, attached to a university. This was one of the reasons why we had the idea to have the children nurture silkworms. Many mulberry trees were growing around the centre.

The Japanese have had a long association with the production of silk, and up until the end of the twentieth century, learning about silkworms was considered important enough to be included in the elementary school curriculum. Although silk production has declined in contemporary Japanese society, we believe that learning about the life cycle of the silkworm is very beneficial for young children, especially in relation to teaching and learning for sustainable development.

Why teach about silkworms?

First, nurturing silkworms is an activity that can be undertaken by children of all ages. As a valuable learning experience it teaches about a unique transformative life cycle that can be observed over a short period; in fact the caterpillars transform into cocoons in about twenty-five days, and each year we nurture three full life silkworm cycles at the centre.

Hatched, 25 April

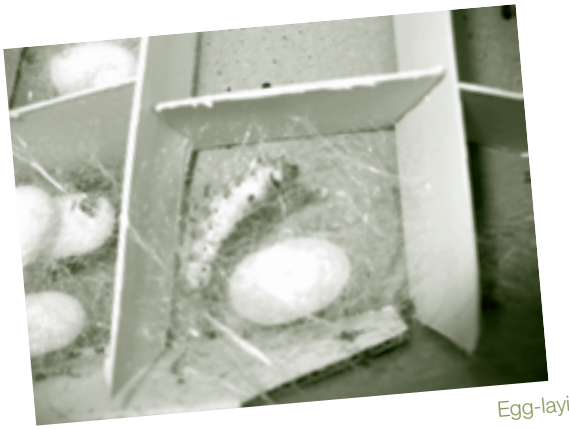
The first stage worms have black fur

The beginning of the fifth stage, 17 May

One worm eats up to 8 grams of leaves a day

Just before making the cocoon

They like to watch the worms moving through a magnifying glass, 4 June



Egg-laying, 21 June

Secondly, caring for silkworms is accessible for young children. Taking care of the silkworms is very simple and clean, and all that is required is a cardboard box, which becomes the 'home' for the silkworms, and a supply of mulberry leaves that are not polluted with agrochemicals. Children take responsibility to feed the worms each day and clean out the dry droppings from the box.

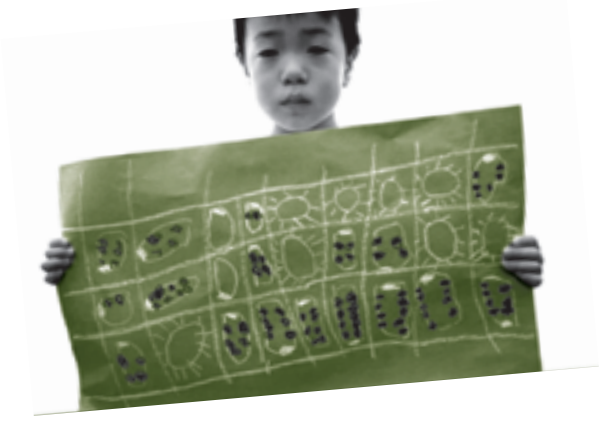
Children of all ages can be involved at their own level. These are 3 years' old.

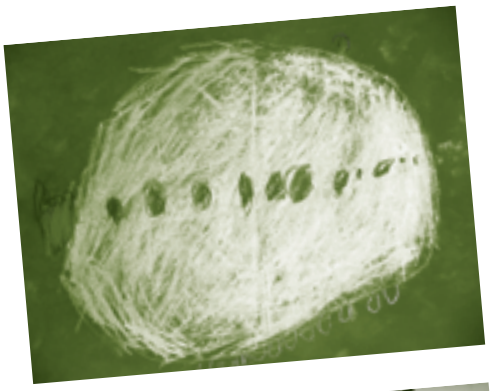
They can observe how quickly the caterpillars grow and marvel at 'Mother Nature' as the silkworms transform from one state into another.

Thirdly, the silkworm project can be extended by the involvement of individuals who have specialized knowledge and experience within the silk industry. These people can help the children to remove the silk fibre from the cocoons that are produced.

5-year-old children can weigh worms on the balance.

These are ardent artists.





One frame can provide 120 ‘rooms’ for worms to make their cocoon.

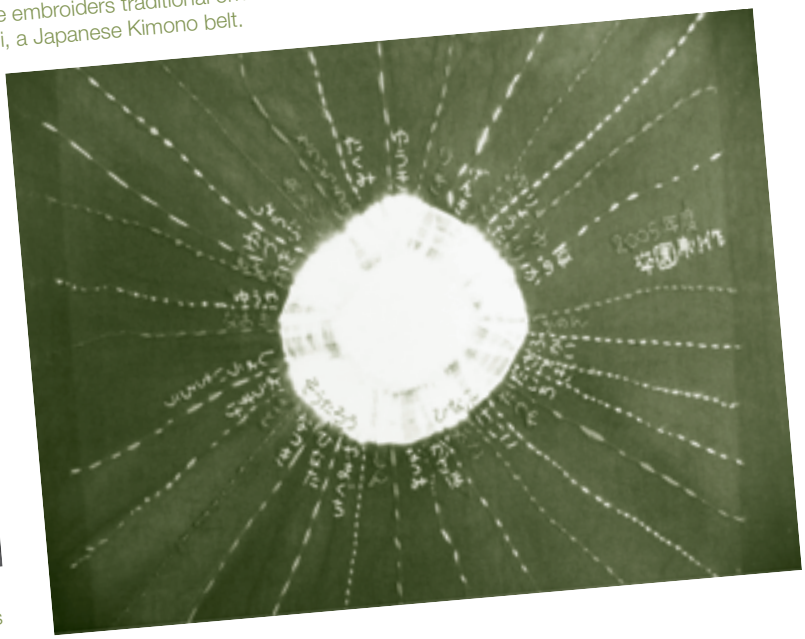
Milk packages are used for containers

Milk packages are used for containers

Children in the 5-year-old’s class made finger dolls of cocoons, which were then colourfully dyed.

Ms Ooishi, whose grandson attends Takatsukasa Hoikuen Childcare Centre, shows us her expertise in making silk fibre. She embroiders traditional ornaments on Obi, a Japanese Kimono belt.

In 2005, children made this tapestry using silk fibre made in the Takatsukasa Hoikuen Children's Centre.



Mr Takahashi, whose granddaughter is now in the centre, was a sericultural expert who offered advice to sericulturalists. Although now retired, he still has many tools at home. He recently lent some traditional tools to the centre.

Osamu planted many trees, including mulberry trees, in the centre. Greenery in spring works on people who come to the centre like adrenaline. The colouring leaves in autumn calm down their minds. Many kinds of local plants and animals that once lived here were reintroduced. The silkworm is one of them.

We conclude that activities with silkworms should have a larger share in the education of preschools or elementary schools in Japan. We believe that nurturing silkworms always animates children, and is the one of the best ways of knowing Japan.

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Cultural considerations in early childhood education for sustainable development

Lorraine Otieno, Kenya

Abstract

Education is at the heart of sustainable development and is therefore a key means to achieving lifestyles harmonious with nature. The concept of sustainable development continues to evolve. In pursuing education for sustainable development (ESD), there must be some clarity in what sustainable development means and what it is aiming at. The plan for ESD presents three key areas of sustainable development – society, environment and economy – with culture as an underlying dimension.

Culture influences how families raise children and how a child behaves, communicates, and learns. Conversely, culture is a powerful tool for dissemination of long-practised principles of ESD. In essence, the distinct similarities between traditional education methods and ESD make the latter a strategy of 'going back to basics'.

The Kenyan scenario, where communities play a pivotal role in the design, implementation and monitoring of early childhood education and development programmes, provides a glimpse of the influence of culture in young children's lives. The enabling environment in terms of government support and provision of necessary frameworks has led to the success of early childhood development programmes as a whole. However, issues of access to quality education and care, as well as reorientation of the educational focus for sustainable living, are yet to be dealt with.

This article contends that there is a need for the incorporation of positive and relevant cultural aspects in education from early childhood, in embedding principles of sustainable development in lifestyles for optimal synergy with nature and human well-being.

Introduction

Education, both formal and non-formal, public awareness and training are key processes by which human beings and societies can reach their fullest potential. The Plan of Implementation, agreed at the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002, recognizes two key aspects of education in relation to sustainable development. First, education is the foundation for sustainable

development, and much of the work on Education for Sustainable Development (ESD) must be closely linked to the pursuit of Education for All (EFA). Second, education is a key instrument for bringing about changes in values and attitudes, skills, behaviours and lifestyles consistent with sustainable development within and among countries. Thus, it is a tool for addressing such questions as gender quality, environmental protection, rural development, human rights, health care, HIV/AIDS and consumption patterns as these intersect with the sustainable development agenda.

The overall aim of ESD is to empower citizens to act for positive environmental and social change by giving people knowledge and skills to help them find new solutions to their social, economic and environmental issues. It is a vision of education that seeks to balance human and economic well-being with cultural traditions and respect for the Earth's natural resources.

Millennium Development Goals (MDGs) provide clear development goals that can be measured, including education as a significant input and indicator. EFA focuses on issues of access and equity in education while the United Nations Literacy Decade (UNLD) concentrates on promoting literacy as the key tool for all types and levels of learning. The Decade of ESD (DESD) provides context and relevance for learning and addresses all levels and modalities of education, including technical and vocational education, higher education, quality media and corporate training programmes. Moreover, the DESD promotes the societal goal of sustainable development, which results from responsive education programmes. By engaging in all four global commitments (EFA, MDGs, UNLD, DESD) actively and simultaneously, and by co-operating closely, all regions and countries will be able to move, through better education, towards sustainable development (UNESCO Nairobi Office, 2006).

Back to basics

Research shows that quality early care and education programmes improve young children's capacity to develop and learn (CBASSE, 2001). A child who is ready for school has a combination of positive characteristics – such as being socially and emotionally healthy, confident, and friendly; having good peer relationships; tackling challenging tasks and persisting with them; having good language skills and communicating well; and listening to instructions and being attentive. The early years are important for building cultural identity, and distinguishing gender roles. Early childhood programmes also offer very good opportunities for mobilizing and empowering parents and local communities. In addition, parental and community mobilization programmes provide good opportunities for creating awareness of other development issues, such as water, sanitation, waste management, housing, health and nutrition, energy and poverty.

The values, diversity, knowledge, languages and worldviews associated with culture predetermine the way issues of ESD are dealt with in specific national contexts. In this sense, culture is not just a collection of particular manifestations (such as song, dance and dress), but also a way of being, relating, behaving, believing and acting, which people live out in their lives and which is in a constant process of change and exchange with other cultures. We must remember that culture is dynamic and alive, hence its potency as a tool for propagation of new information and lifestyles that promote the principles of sustainable development.

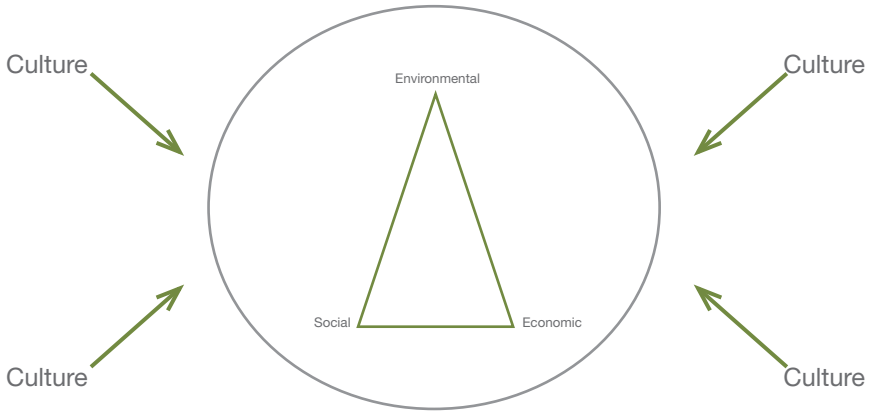

Figure 1. Conceptual model of interaction between sustainable development pillars and culture.

The traditional African system of education provided practical and theoretical training for the learners. In conceptual terms, education and culture can be grouped together into a single field defined as the creation, transmission and preservation of the knowledge, know-how and value system of a given society, or of many different societies, past and present. Culture influences child rearing and, as a result, people from different cultural backgrounds have differing ideas about what constitutes quality childcare.

Table 1. Comparison between traditional education and ESD

Traditional education	*Education for sustainable development (main thrusts of ESD)*
Practical and theoretical learning for basic survival and synergy with various aspects of development	Basic education that focuses on imparting knowledge, skills, values and perspectives that lead to supporting people to lead sustainable lives
Value-based learning with emphasis on principles of sustainability in all spheres of life by community elders, for harmonious living	Includes principles, skills, perspectives and values related to sustainability in social, environmental and economic realms for lifelong learning
Transmission of information on matters of concern to communities through village council meetings, songs, dance and role-play	Informed citizens and knowledgeable communities
Apprenticeship to enhance knowledge and skills in professions such as masonry, carpentry and traditional medicine	Training all sectors of the workforce to impart knowledge and skills necessary for them to perform their work in a sustainable manner
Strong roots in indigenous knowledge systems, tried and tested over time, and dynamic to incorporate emerging issues	Meet diverse social, economic and environmental conditions in relevant and culturally appropriate ways, taking into account indigenous cultures and knowledge systems

Source: Lorraine Otieno, 2007.

Parents and other family members will continue to be the main influences on young children's lives for the foreseeable future, especially for children under 3 or 4 years of age. Perhaps the greatest and most lasting effect on a child's learning and development can come from improvements in the capacity of parents to provide a supportive environment for learning and development. Therefore, all development efforts geared towards children should be channelled through their parents and caregivers.

ESD's characteristics of being interdisciplinary, holistic, values-driven, problem solving, multi-method, participatory and locally relevant mirror the principles of traditional education as dictated by culture. It can therefore be said that ESD is really a strategy of 'going back to basics'.

The Kenyan situation

The demand for Early Childhood Care and Education (ECCE) services has increased considerably in Kenya as a result of changing family structures and lifestyles. The number of extended families continues to decrease, and more parents are working outside the home. Single parents, primarily mothers or

grandmothers, head many households. Women head one-third of rural households (Kabiru et al., 2003). These rural households, as well as those on agricultural plantations and in some urban areas, have the greatest need for alternative childcare. Mothers are away from home most of the day, often having no choice but to leave their children without adequate care. The once powerful family and community structures and traditions are slowly disintegrating in the face of urbanization and globalization. The following case studies illustrate the various ways in which cultural aspects can positively influence early childhood education.

Case study 1

The Kenya Preschool Education Programme was expanded through the creation of a National Centre for Early Childhood Education (NACECE), established in 1984. This was followed in 1985 by implementation of District Centres for Early Childhood Education (DICECE), responsible for training teachers at the district level, inspection, community mobilization, and the evaluation of local programmes. In terms of the actual preschool programme, NACECE/DICECE has adopted a holistic approach to the support of children's growth and development. That means that it seeks to include health, nutrition, growth monitoring and promotion as well as educational activities within the programme.

The Kenya Preschool Education Programme is unique in that it encourages partnerships, at all levels. Parents and local communities are the most important partners. They have started and currently manage over 75 per cent of the preschools in the country. Decentralization of the programme to the district level has provided flexibility and variation in terms of facilities provided and activities undertaken. The preschool setting and curriculum materials, for example, differ from place to place depending on the resources available, leadership abilities and motivation of the communities. Decentralization is a healthy feature of the programme. Communities are allowed to develop appropriate, affordable and relevant services without external pressure and competition, and at their own pace.

The incorporation of tradition and folklore into the curriculum makes the community members feel proud of their contribution to the learning and development of their children. There has been a significant impact on the communities, with intellectual development and health of children improving, and some parents even saying that they can now care for and manage their own families better because of the knowledge gained from their work in the preschool programmes.

Case study 2

The El-barta Early Childhood Programme, which works with parents and caregivers in the Samburu community on childcare practices and early stimulation, has facilitated the establishment of several community-run centres in Samburu District. The centres are filled with homemade toys and play equipment. Parents and grandparents play with the children, sing songs, tell stories, recite poems, etc., to stimulate their mental capacities. These activities also help to preserve and strengthen local culture and tradition (Mwaura, 2004).

Case study 3

The home-based early childhood development centres supported by the Christian Children's Fund (CCF) in western Kenya. The structure of the Jirani or neighbourhood groups is being used to implement

activities such as health education, home-based care, nutrition, support of child headed households and home-based Early Childhood Development (ECD) centres. Each Jirani group is made up of 20-25 parents or caregivers of orphans/vulnerable children. Mobilization of this structure has ensured that CCF programmes are respectful of prevailing beliefs and local culture and that positive traditional child rearing practices are utilized and strengthened, and harmful practices addressed.

Conclusions and recommendations

From the case studies above, one key lesson learnt is that communities and their social structures play an important role in the success of early childhood care and education programmes. It is clear that, for the implementation of ESD to be successful at the early childhood level, an integrated approach that embraces positive cultural practices and influences needs to be taken. Traditional childcare and education practices need to be documented, community structures strengthened and community mobilization further enhanced to achieve the objectives of ESD at early childhood level. One thing that must be emphasized is the adoption of relevant positive aspects of culture within specific contexts to make education valuable and the strongest possible channel for positive societal change.

One approach that could be taken to build up parents' capacity to take better care of their children while passing on the principles of ESD for lifelong learning could be parenting education, through new curricula that cover current pertinent development issues while incorporating ESD thrusts. Modelling lifestyles for parents is imperative, as children learn from watching the actions of adults around them.

Practical methods of promoting sustainable living should be introduced, for instance, the recycling of various materials for use as play toys, using media around children to increase their awareness, understanding and prevention knowledge on local issues. Listening to children and allowing/encouraging their participation in discourse on ESD issues is a key step, as children have the capacity for understanding and innovations on ESD. This is also based on the fact that children are strong motivators and agents of change in communities.

The reorientation of existing curricula used in DICECEs to promote ESD, focusing on improving the quality of learning for teachers, children and parents at the early childhood level to address the relevant economic, social and environmental needs of communities will also be a key step towards integration of ESD into ECCE programmes in Kenya.

The government should fast-forward the implementation of the national early childhood development policy framework and the early childhood development service standard guidelines for Kenya, in order to improve access to quality education and care.

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Korean early childhood education for sustainable development from an ecological and social/cultural perspective

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Abstract

This article describes the ecological and social/cultural aspects of early childhood education for sustainable development in the Republic of Korea. Most kindergarten teachers still use formal, information-oriented methods to teach about the environment. In contrast, an example of an eco-centred early childhood education preschool is given and its links with traditional Donghak thought and Life thought are pointed out. It is suggested that a slow-pace approach to learning in close contact with nature and living things is the right way to make children aware of their responsibility to work together for sustainable development.

Current Korean society is facing serious environmental problems, excessive competition and growing materialism. People are responding to these issues in several ways. There is an opposition movement that advocates alternative ways of living, such as well-being, and eco-centres for sustainable society.

The definition of sustainable development was formulated by the World Commission on Environment and Development as 'sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987). Even though this concept may be conceived as an integration of ecological, social and cultural, and economic factors, it is complex and uncertain, especially in the Republic of Korea. However, the definition of education for sustainable development from the Council for Environmental Education (CEE, 1998, p. 3) is much clearer:

> Education for sustainable development enables people to develop the knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both globally and locally, that will improve the quality of life now and without damaging the planet for the future.

It appears to tell us what we are doing here and what they are doing on the other side of the world is interconnected. Therefore, we, as teachers, practitioners, or parents need to teach children to understand that we are all affected by any changes in the world.

Ecological sustainable development in early childhood education

In the Republic of Korea, environmental education for young children began with the National Curriculum for Kindergarten in 1992. In the sixth National Curriculum for Kindergarten (Ministry of Education and Human Resources Development, 1998), environmental education was included in four of the five educational areas, i.e. in the health area, social area, expression area, and an exploration area. The content of environmental education is as follows: 'preventing environmental pollution and disaster', 'paying attention to the conservation of the environment', 'taking an interest in living creatures,' and 'learning about the phenomenon of nature.'

The method for teaching environmental education should focus on providing opportunities for children to experience nature itself in order to bring out sensitivity to nature so that the children act voluntarily to preserve it. However, most of the kindergarten teachers have mainly used information and knowledge-oriented teaching methods through group discussions and story-telling regarding these topics; for example, finding out safe living strategies in contaminated environments, preventing disaster, and recycling garbage. Therefore, researchers have emphasized that environmental education for young children should be eco-oriented, that the children should enjoy nature, meet nature, have sufficient playtime outdoors, and have pleasant field trips (Huh, 1992; Lee, 2004; Shin, 2005).

If more faith were placed in the education for sustainable development (ESD) than in the current environmental education, eco-centred environmental education would be a good cultural example for ESD in the Republic of Korea. The principle of eco-oriented education in the Republic of Korea is that it follows the rationality of nature instead of following artificial education. The eco-oriented environmental education has been considered far from the very human centred perspective, rather it is believed that the human is a part of nature, and should follow the laws of nature and harmonize with the ecosystem (Suh, 1999).

Still, most of the educational effort for sustainable development, which focuses on not only 'now here' but also 'future there' for all the people and the planet, mainly takes place in the field of environmental education or environmental studies. However, one local preschool recognizes the importance of environment in children's life, and takes responsibility for educating children to be responsive and respectful towards nature. Since 1995, the number of eco-oriented kindergartens and child-care centres has also increased, where children have plenty of opportunity to experience their five senses in natural settings.

The eco-centred early childhood education programme developed by the preschool comprises life education, labour education, relationship education, wisdom education, sensibility education, susceptibility and spirituality education (Kwon and Kim, 2005). Children learn from their experience of daily activities that are deliberately kept slow-pace so that children can enjoy their own times in outdoor settings and find their own personal pace in their constructive learning process. The programme encourages children to engage head, hands, heart and spirit. The slow pace is related to the life movement or live thought. In comparison to modern Korean society's virtue of 'speed', it focuses on small and less is beautiful, and respects all living creatures.

Social/cultural sustainable development in early childhood education

'There is no such thing as human nature independent of culture' (Geertz, 1973, p. 49).

At the root of eco-oriented early childhood education lies traditional Eastern thought, which comprises Taoism, Confucianism, Buddhism, Donghak thought, and Life thought. Specifically, Donghak thought is traditional Korean thought, which views the sky, Earth, and the parent as one, in that the universe can be a parent and a parent can be the universe (Lim, 2002, as cited in Ha, 2002). 'Serve a person like you do for Heaven', 'your heart is nothing but my heart', which illustrates the traditional philosophy in Donghak thought. It highly regards people and nature, and emphasizes understanding of different perspectives. It seems that this thought is related to the values of early childhood for sustainable society, such as empathy, humility, respect for others, and understanding about diversity. Respect for different people, their culture and tradition is called for in Korean society today where rapidly increasing numbers of foreign workers from East Asia are contributing to a sustainable society for future generations.

The main idea of Donghak thought continued to the movement of Life or Life thought. It believes all lives are valuable and interdependent, and that all living creatures in the universe are interconnected; therefore, it perceives that even a grain of rice contains the universe, Life thought is converged there (Chang, 1997). Also, it sees all lives not only as a part of the whole, but also as the whole as it is, in contrast to the whole as divided into many parts like a machine with spare parts.

From this point of view, eco-oriented early childhood education in the Republic of Korea teaches children to be aware that a human being is interconnected with all living creatures as well as the universe. Traditionally transmitted thoughts regarding respect for life enable the children to think about and understand the importance of sustainability for the future. Eco-oriented early childhood education can provide a foundation for the children to develop sensitivity and harmonized thoughts to live with all life and to work together to preserve nature. However, for the global perspective of sustainable society, the current education for sustainable development for Korean children needs to build on the foundation of eco-oriented education, in which children have opportunities to have experiences in daily life, connect with their own actions, and learn the environment-friendly educational contents in the context of ecological, social, cultural and economic surroundings (WBGU, 1999, as cited in Brunold, 2005).

Conclusion

Each nation's effort to encourage sustainable development is based on its particular social and cultural background; therefore, an understanding of the authentic traditions and culture and distinctive social situations of each country is a prerequisite for discussion of sustainable development. What we need to do is to underscore recognition of cultural or any kind of difference within Korean society, and to avoid any discussion of whether one or other of them is right or wrong. Moreover, it is necessary to encourage the Korean parents who believe that life is a race and that their children must win to take the long view, and let their children enjoy a slow learning process in a life journey of learning for sustainable society.

Therefore, we need to teach children about Korean traditional Life thought with hands-on learning experiences in nature and get them to take responsibility for preserving the environment for the next generation. We expect Korean children to step forward to acknowledge their inner strength and traditional beliefs in sustainability so as to be fully aware of their active role in a future sustainable society.

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Early childhood education for a sustainable society

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Abstract

Every human being has the desire to lead a happy and secure life in the future. Sustainability has to do with education, or being given the essential tools for leading a whole life. Many people believe that the only hope is education. There are many who have succeeded. However, the process still continues today. As the global environmental crisis deepens, children are most vulnerable. Consider over-age children. Over age 15, a child finds himself in primary school. Another child of the same age is not in school at all (a primary school dropout). The children of today are the adults of tomorrow. The children of today are the leaders of tomorrow. History stands witness to the fact that no tribe or nation survives for long when it neglects to pass on its values – that store of treasured beliefs and practices that it holds dearer than life. If there is agreement that children need our central attention, it is not so easily demonstrated that they are getting our best. We may spend ludicrous sums of money to feed, clothe, and entertain them, but these expenditures hardly make them human. In addition, it is this humanizing energy they need most, for children derive their genuine character as human beings chiefly through learning, rather than through heredity. The frightening effects produced by isolation and sense starvation, found in deserted and abused children, remind us of their need for tenderness, intimacy with adults, and teaching. *An old religious proverb says: 'Train up a child in the way that he should go, and when he is old he will not depart from it'.*

The real ideas

At the Gothenburg workshop, addressing 'The Role of Early Childhood Education for a Sustainable Society', a higher level of understanding was reached. The workshop identified and formulated important ideas to help parents, teachers and caregivers to create new ways of helping children learn and think faster, which are known as 'minds-on and hands-on'. Parents, teachers and caregivers may look at young children's learning from different perspectives, but they share a common goal, making sure that children receive the best possible education.

Early childhood education for sustainability involves meeting the present and the unfolding needs of children, in order to bring them to self-fulfilment and maturity.

To meet the challenge of providing quality basic education for all, an attempt must be made to summarize current knowledge of the benefits and promising policy and strategic options of early childhood development (ECD), and the way in which ECD can contribute to the improvement of the quality of basic education for all peoples.

ECD includes early socialization, education and readiness for school, as well as the provision of basic health care, adequate nutrition, nurturing and stimulation within a caring environment. Those responsible for Early Childhood Education in Africa underscored the importance of ECD in human resource development.

The first strand is based on the fact that the period up to 8 years of age is of supreme importance for emotional, intellectual and social development, that interventions at this stage can have strong and lasting impacts on the health and welfare of adults, and that opportunities foregone at this stage can rarely be made up for at later stages.

The second strand is the non-educational impact of ECD that leads to better employment records, increased family formation and a reduced likelihood of engaging in criminal activities. The evidence is strong that these effects are greater for girls and children from poor or disadvantaged communities. Consequently, ECD can have a generalized positive impact on economic development and the reduction of gender, income and cultural inequities.

What early childhood education looks like

Even before kindergarten, parents should be aware of ways to make the most of learning opportunities for their young children. One important choice for many families in their child's early years involves preschool or childcare.

The first years of a child's life are a crucial development period, and children who are nurtured and stimulated during these years are much more prepared for formal reading and maths and are more likely to have the social skills they will need when it is time for kindergarten. Parents are a child's first teachers, but early childhood education programmes are also important, especially with the growing number of families with one parent, and families where both parents work full time.

Preschool and childcare programmes should focus on children

- Watch to see that children interact with other children and adults, so they can build healthy relationships.
- Ask about the curriculum, which should include a variety of activities appropriate for the children's ages and needs.

Preschool and childcare programmes should have qualified staff

- The staff should have the educational background to promote your child's learning and development. Ask what degrees and training teachers have.
- Ask how long teachers and staff have been with the programme. Teachers that stay in the programme longer are more able to focus their attention on the children and establish bonds with them.

Preschool and childcare programmes should build relationships with families

- Programme staff should work with families to meet their child's needs. Ask how information and concerns are communicated between staff and families.

- Check that the programme's policies allow families to visit their child during the programme day.

Preschool and childcare programmes should be well run

- Check that the programme is licensed by the state. The facilities need to be age-appropriate and well maintained, both indoors and outdoors.

- Check whether the programme has policies and practices to help keep children safe from preventable illness and injury.

- Ask about the child-to-teacher ratio, which helps determine how much individual attention your child will get. For example, there should be at least one adult for every ten 4-year-olds.

Helping children to resist bias

The early years are the time to begin helping children to form strong, positive self-images and grow up to respect and get along with people who are different from themselves. We know from research that children between 2 and 5 start becoming aware of gender, race, ethnicity, and disabilities. They also begin to absorb both the positive attitudes and negative biases attached to these aspects of our identity by family members and other significant adults in their lives. If we want children to like themselves and value diversity, we must learn how to help them resist the biases and prejudices that are still far too prevalent in our world. Bias based on gender, race, disability, or social class creates serious obstacles to all young children's healthy development. In order to develop healthy self-esteem, they must learn how to interact fairly and productively with different types of people. Naturally, children's curiosity will lead them to ask questions: 'Why is her skin so dark?' 'Why does he speak funny?' We may hide our own negative feelings, or hope that children simply will not notice, but our avoidance actually teaches children that some differences are not acceptable. We must face our own biased attitudes and change them in order to help foster all children's growth. The most dangerous is race segregation.

What parents and teachers can do:

- Recognize that because we live in a world where many biases exist, we must counteract them – or else we will support them through our silence.

- At home or at school, give children messages that deliberately contrast stereotypes by providing books, dolls, toys, wall decorations, television programmes, and records that show: (a) men and women in non-traditional roles; (b) people of different colour in leadership positions; (c) people with disabilities doing activities familiar to children; and (d) various types of families and family activities.

- Show no bias in the friends, doctors, teachers, and other service providers that you choose, or in the stores where you shop. Remember what you do is as important as what you say.

- Make it a firm rule that a person's appearance is never an acceptable reason for teasing or rejecting them. Immediately step in if you hear or see your child behave in such a way.

- Talk positively about each child's physical characteristics and cultural heritage. Help children learn the differences between feelings of superiority and those of self-esteem and pride in their own heritage.

- Provide opportunities for children to interact with other children who are racially/culturally different from themselves, and with people who have various disabilities.

- Respectfully listen to and answer children's questions about themselves and others. Do not ignore, change the subject, or in any way make the child think she is bad for asking such a question.

- Teach children how to challenge biases about who they are. Give them tools to confront those who act biased against them.

- Use accurate and fair images in contrast to stereotypes, and encourage children to talk about the differences. Help them to think critically about what they see in books, films, greeting cards, comics, and on television.

- Let children know that unjust things can be changed. Encourage children to challenge bias, and involve children in taking action on issues relevant to their lives. Building a healthy self-identity is a process that continues all our lives. Help children get a head start by teaching them to resist bias, and to value the differences between people as much as the similarities.

Conclusion

Education is an inalienable right – one that all children, including those caught in natural and human-made emergencies, must be able to access. This provides the challenge of how to provide education to children experiencing these difficult circumstances.

Education is not a relief activity; it is central to human and national development, and must be conceptualized as a development activity. In emergency situations, educational activities must be established or restored as soon as possible. In any country, education can also serve as a mechanism for contributing to the prevention of emergencies.

Research has consistently shown that access to high-quality early childhood education can have a positive impact on the school careers of children.

Global pandemics, climate change, natural disasters, poor soil conditions, deforestation – these issues are at the heart of sustainable development.

Sustainable development is defined as 'meeting the needs of the present without compromising the ability of future generations to meet their own needs'. Global warming is an example of what happens when we do not develop sustainably.

Today, over 1 billion people live on less than $1 a day, and the actions of the rich world, such as loading the atmosphere with carbon dioxide, are compromising the well-being of future generations and pushing our planet towards an uncertain future.

Ignoring the issues of sustainable development has many possible consequences, such as rising sea levels, extreme droughts, erosion and loss of forests, increases in slum populations, species extinctions and collapsing fisheries. There is also increasing evidence that issues such as water scarcity play a role in internal violence and regional conflict.

Our young children are the real issue. They should be developed in such a way that the future, the real future that we all dream about, will come about. The sustainability of any society lies in young children. There can be no sustainability without a quality early childhood education.

Cultural issues related to sustainable development in the Nigerian experience

Abimbola Are, Nigeria

Abstract

This article begins by pointing out the changing landscape of Nigerian culture, particularly the family structure and childcare knowledge and practices, which necessitates the development of early care and education services that can meet the needs of families and their young children. It describes a major collaboration with the Bernard van Leer Foundation and UNICEF on early childhood that emerged in the 1980s, and the early childhood education programme, developed in Nigeria under the leadership of the Federal Ministry of Education, with the aim to achieve the EFA Dakar Goal 1 on early childhood care and education and Millennium Development Goals. It puts forward some challenges in providing quality early childhood in Nigeria.

Introduction

First and foremost, what is culture? Culture is a way of life that affects all aspects of human behaviour. In Nigerian traditional societies, all members took interest in the welfare of all the other members, which in turn gave everyone a great sense of belonging. One of the traditional structures of family life in Nigeria is that the child is regarded as the responsibility of all the members of the family. Neighbours were also expected to show interest, care and love towards the children within the neighbourhood. So, in the past, relatives were always at hand in many Nigerian cultures to take care of young children and to teach them the things they needed to know to live a healthy and sustainable life.

Grandmothers often took pleasure in looking after their grandchildren. Young mothers received training from more experienced mothers; it has also been noted by Ajayi (2006). Even though they were ignorant of the values of Western education, the older women passed on the wealth of experience at their disposal to the next generations. Grandmothers are still reservoirs of traditional knowledge, and they teach children songs and poems, and tell them folktales. They make toys from local materials for the children, too. The children are intellectually stimulated through these songs, poems and folktales. They also learn social morals, and are able to distinguish right from wrong through these traditional activities.

However, such traditions have almost disappeared, because social development and changes in lifestyle, together with increasing urbanization, are forcing mothers – and even the grandmothers – to become engaged in economic activities outside the home. Consequently, many households are finding it difficult to get care for their young children. As a result, they are also losing the opportunities to learn in traditional ways, and are losing the cultural knowledge that has been handed down from generation to generation. Much of this cultural knowledge focused on humans (and their relationships with each other), and with the natural environment. As this is lost so, too, are these important relationships, considered vital aspects in helping societies live in sustainable ways.

What is early childhood education?

Early childhood education is referred to as the foundation for the growth and future development of all children. It is generally accepted as the education given to children under 6 years of age. This education precedes the start of formal primary schooling or before the age at which children are generally expected to attend schools (Maduewesi and Agusiobo, 2005). Early childcare is therefore conceptualized as encompassing the care, development and education of children below the age of 6 (NERDC, 1996). It also refers to the provision of basic needs, such as nutrition, warmth, health, security, affection, interaction and stimulation for social, emotional psychological, physical and cognitive development. This care is very essential for survival, development and later education.

However, the operation of programmes for preschool children in Nigeria is largely in the hands of private institutions and, in certain cases, with non-government organizations (NGOs). The role of the government is mainly limited to setting standards and inspecting institutions to make sure these are observed. In the 1980s, a formal, albeit global, perspective of childhood care, development and education (ECCDE) was introduced through the collaboration and support of Bernard Van Leer foundation and UNICEF. Among the activities of the Bernard Van Leer Foundation were programmes that support social, cultural and sustainable development, which included the following:

- Care for the handicapped, in terms of their education and rehabilitation of the physically challenged, so that they can be independent and useful members of society.
- Assistance with grants and donations including to the Atunda Olu School, Plateau State Education Service, Otun Ireti, in Akoko, Ondo State.
- The Van Leer Readers in three main Nigerian languages that prepare mothers and mothers-to-be, to be better ‘first’ teachers of their children and to sustain literacy.
- Training of home-based caregivers in Kano, Imo and Osun. States aimed at curbing youth violence through seminars, workshops, life skill training and Peace Club formation.
- Lastly, but not the least, the design of a caregiver training manual.

As a result, these innovations have helped to support the Nigerian child to thrive to adolescence.

Objectives

The basic essence of the Nigerian programme derives from the global objective of ensuring that the child survives, grows and develops. First and foremost, ‘survival’ is the central element of sustainable development in Nigeria. Then, in the context of international protocols and conventions (such as the Rights of the Child Education for ALL (EFA) Goal 1, and the Millennium Development Goals), every child must be allowed to grow well, develop to full potential, be protected, and allowed to participate in society. In essence, the Bernard Van Leer programme took a rights-based and life-cycle approach.

The Federal Ministry of Education provided the umbrella for the programme while other organizations (such as the National Commission for Colleges of Education (NCCE), Universal Basic Education Council (UBEC) and civil society organizations) played supportive roles. The Nigerian Educational Research and Development (NERDC) was mandated to deal with the novel programme as a pre-primary project. Now, in Nigeria, we have the following to boast about in relation to Early Childhood Development Programme (Adara, 2006):

- National ECCD curriculum for nursery education.
- Caregivers and preschool readers and manuals.
- Child Assessment Instrument (CAI).
- National Minimum Standard for ECC centres in Nigeria.
- Culturally sensitive National Integrated Early Childhood Curriculum for ages under 5-year olds.
- Inclusion of a 'Nursery' section in the 2004 National Policy on Education for children aged 3- 5 years, in existing public primary schools in Nigeria. (Federal Republic of Nigeria, 2004).
- Guarantee of 5 per cent of budget allocation within the Universal Basic Education Act, specifically for Early Childhood Care Development and Education.
- Empowerment of state universal education boards to utilize UBE funds for ECCD in all states of the federation.
- National policy of early childhood care and development.
- Preschool readers' series.
- Training and retaining of caregivers across Nigeria.

Challenges

Even with all the aforementioned – and many more initiatives – there is still poor participation in preschool education in Nigeria. Only 15 to 25 per cent of Nigeria's population (140 million) of children is enrolled in ECCE. Furthermore, gender issues still need to be attended to. In addition, there are the emerging issues of HIV/AIDS education, and the care of orphans and vulnerable children (OVC) need to be addressed. The need for training of specialist pre-school educators in the country's colleges of education is overwhelming.

The federal government needs to commit more resources – both human and capital – to the early childhood development programme, while dedicated parental and community involvement in the early childhood development programme is essential, along with adequate supervision of early education centres. Strict implementation of the national policies should be taken seriously and holistic intervention on behalf of the child must be pursued.

Conclusion

With all relevant issues concerning Early Childhood Education and Care properly attended to, the child's holistic development would be enhanced, their future would be improved, and the future development of society would be supported. It is important that this early education also draws on the important cultural knowledge that has sustained the society in the past. These are important 'first steps' in helping Nigerian society to develop in sustainable ways into the future.

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Young children learning for sustainable development through traditional culture

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Abstact

This article focuses on the development of understandings for sustainable living, and the role of holistic development of young children in traditional cultural contexts. It is important to use traditional knowledge, activities and resources to help in the holistic development of children in early childhood. Such development includes physical, conceptual, social and spiritual/ emotional development. The holistic development of young children provides a foundation for the development of strong citizenship. This is important not only for the present, but also to build the attributes needed for future sustainable societies. In the past – and also today in some places – there were no early childhood development centres available in our societies. Caring for young children was accomplished within the extended family, as the rearing of young children was considered a duty as well as a responsibility of parents, grandparents and other family relations. These family resources were very rich: (a) in the knowledge of their society, which was used to support the welfare and happiness of young children; (b) in songs and stories for joyful listening, and the development of imagination in young children; (c) in skills to create equipment and toys utilizing plants and trees in familiar environments; and (d) in attitudes related to culture, for effective rearing and caring of young children. It is our duty and responsibility to emphasize the importance and value of traditional cultural practices in early childhood education. This helps to strengthen family links, keeps traditional practices alive, supports children's development and builds resilience. These are characteristics needed to build a sustainable society.

Background and issues

In this section, I outline how traditional cultural practices can be incorporated in educational programmes to support the holistic development of young children.

Physical development

Physical Development contributes greatly to the well being of children in the early childhood stage. Nutritionally rich food preparation methods – which were available in traditional society – contributed to the maintenance of proper nutrition levels of young children. In the same way, traditional physical activities have contributed to the development of psychomotor skills, manipulative skills and stability skills. These skills were used to provide a strong foundation for maturation (ageing) and experience (learning).

Traditional foods for physical development

Example:

Wholesome meal of rice and curry with seven ingredients

Seven natural food items consisting of yellow and orange coloured vegetables and herbs are included .This menu is rich with many vitamins and minerals. This curry and rice combination nourishes young children in the present as well as in the past. This traditional meal is sustainable because it is suitable for all groups of society irrespective of socioeconomic level.

Traditional physical activities for physical development

Examples:

'Giants and dwarfs' game

In this activity, when children hear the word 'giants' or 'dwarfs', they need to behave as giants or dwarfs. This activity reinforces historical stories about giants and their productive contribution to ancient society.

'Run and find …'

This is a traditional activity for giving and following instructions. Here one person gives instructions for various enjoyable activities such as, 'Run and find a herbal leaf for me'. This activity reinforces learning about herbal plants in a physical and joyful way.

'Climbing on coconut shells'

This activity is for large muscle development. The children climb a vertically fixed rope by using regularly spaced coconut shells. The coconut tree is a very useful tree for day-to-day life. Past generations have taught us how to utilize used coconut shells to make toys and various play items for young children.

'Making snakes'

For the development of fine muscles, young children make 'snakes' using coconut leaves with their fingers. In the past, mothers made these coconut leaf snakes with young children as a joyful, sharing activity. Currently, this activity helps develop early writing skills, as it develops fine muscles and eye/hand co-ordination.

'Traditional dancing'

Young children are exposed to various basic rhythms and poses in traditional dancing. These dances belong to various traditional groups in different provinces and transmit cultural traditions to the younger generation.

'Natural imitations'
Children learn to imitate animals in their natural environment, such as 'a crane waiting for a fish'. Young children listen to traditional stories and perform these imitations, which assist in their understanding and recall of the characters in traditional stories.

'Tree jumping'
A number of children get together near some trees so that the number of trees is always one less than the number of children. Children change position by moving from tree to tree, always on the lookout for a vacant tree. This activity helps to develop a traditional bond between humans and the environment.

Conceptual development

Important aspects of children's development are their early language and early mathematical conceptual development, and their environmental conceptual development. Through such development, children acquire the foundations for a balanced and holistic life for the future, which are essential for sustainable development. The foundation for such holistic development occurs through effective early childhood education. Some examples of traditional activities that develop early language, early mathematical and early environmental skills are outlined below. Note: It is customary to use traditional activities and games using natural materials and natural environments for these experiences. In this way, they attempt to provide a strong foundation, essential for the building of more abstract concepts needed for sustainability.

For language concept development

Examples:

'Finger rhymes'
This involves the rhythmical movements of the fingers to stimulate the senses. The eyes move from left to right. Traditionally, grandmothers use this finger activity to make eye contact with young children.

'Traditional games': 'Water and ground'
Two areas are specified as 'water' and 'ground'. One child orders the others to take one of these positions, interchangeably. Those who fail to take the correct position are 'Out!' Traditional games such as this develop attentive listening skills of young children.

Another traditional game is 'Asking for the comb from the sister-in-law'. A game such as this provides for the repetitive use of words that leads to vocabulary development. Other ways that language development is encouraged is using traditional learning aids, such as the traditional sand board for writing with the finger in the sand. This helps to develop psychomotor skills needed for writing.

For mathematical concept development

'Traditional play equipment'
Early mathematical concepts such as 'centre, radius and circumference' can be developed using a piece of equipment used to filter oils in traditional rural areas. This is made from coconut leaves and used coconut shells, and is rotated.

For environmental concept development

'Traditional songs'
Use of traditional songs that relate to the natural environment supports the development of values and attitudes for the protection of nature.

Social development

To have a well-balanced life in the future, it is expected that children have a positive self-concept. Three important aspects of this are: belonging, competence and feeling worthwhile. These aspects support the development of self-esteem. To achieve development in these aspects, traditional games can be important. Group games are particularly worthwhile because they provide each participant with feelings of belonging, while also contributing to self-evaluation and feeling worthy as a contributor to the group. In addition, each child's contribution can be evaluated by others in the group. In this way, children can develop a realistic sense of their competence and contribution level for the group.

Examples:

'Traditional group games'

'Tiger and goat game'
In this game, there is a tiger and a goat. A group of children attempt collectively to safeguard the goat from the tiger. This game indicates the importance of a collective approach to safeguarding innocents.

Spiritual/emotional development

From the very beginning of the human life span, the holistic development of the young needs to focus strongly on children's spiritual and emotional development.

For spiritual development

Simple traditional meditation activities
Children close their eyes and listen to the voices of nature. As they do this, they pay attention to their breathing and perform simple meditation processes. These are the foundations for basic activities that develop a peaceful mind. Including meditation in day-to-day life is a culturally appropriate activity for developing a peaceful life.

For emotional development

Traditional rhymes
Children engage in activities where they play with dolls using traditional rhymes. Grandmothers and mothers sing these rhythmical lullabies to help children to fall asleep.

Conclusion

This article provides examples to explain the way that using traditional learning and traditional cultural practices helps to build a strong child. If children have a strong foundation in early childhood, they are more likely to have the qualities needed to support sustainable development into the future. In summary:

- The holistic development of young children is very important for building citizenship in a sustainable society.

- The holistic development of young children can be supported by using traditional knowledge in existing contexts.

- Learning resources made from natural materials contribute to sustainability because they are economical and readily available.

- The use of traditional materials and traditional cultural practices bridge the generations and bring them together.

- The use of traditional materials and traditional cultural practices in early childhood education will help to transfer cultural uniqueness and contribute to cultural maintenance.

A traditional cultural education is not enough to help societies live sustainably on the planet, but it is important that cultural traditions are not lost. There are many aspects of traditional life that are instructive for all of us in terms of sustainability – holistically developed people, careful use of resources, strong families and sharing communities. These important features should start in early childhood and should be a part of early childhood education, everywhere.

Swedish preschool children show interest and are involved in the future of the world – Children's voices must influence education for sustainable development

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Abstract

The Swedish preschools offer full-day programmes for children aged from 1-6 years. They have a long tradition of outdoor education and a curriculum that specifies goals concerning the environment, the nature and democratic values. The national curriculum especially stresses the importance of children's influence in the daily activities and the task to promote gender equity for girls and boys, and for their teachers. In this article, we will first describe the specific task for Swedish pre-schools, as it is stated in the national curriculum. Then we will describe a theme-based project about life, hens and eggs from Långvik's preschool outside Stockholm, Sweden, and a research project with a gender perspective on outdoor education from Mälardalen University. Finally, we point out the very important role that teachers play, and thus suggest reformed teacher education programmes incorporating questions linked to education for sustainable development and to the importance of children's influence and participation.

Previous work in Sweden

After a decade of ecological education and policy-making, inspired by the Agenda 21 Rio-resolution, a committee was appointed in 2001 to summarize the process (Government Communication 2001/02:172). In 2004, the Swedish parliament formed a policy for global and sustainable development, a policy to steer all aspects of the society (SOU 2004:104). All parts of the educational system, from preschool to university, have a specific responsibility to educate for sustainable development (ESD). ESD is described as having three components – ecological, social and economic – which are intertwined. The education also has to be performed in a democratic

way, ensuring participation and influence for all learners. ESD for small children has a dual task, both to lay the foundations for a democratic approach and to establish a genuine interest in nature, in the environment and in natural science (Pramling Samuelsson, 2005).

The Swedish preschools offer children, aged 1-6 years, a full day programme, and have a long tradition of outdoor education. Learning and playing in natural outdoor environments are daily activities, and the curriculum specifies goals concerning the environment, nature and democratic values. With a holistic approach, Swedish preschool education considers play, care, nurturing and learning as a coherent whole. The Early Childhood Education (ECE) task emanates from fundamental democratic values, including striving for sustainable development.

In Sweden, the right of the public to have access to the countryside makes it possible for everyone to enjoy it. Although it is not a law, it may rather be regarded as an opportunity. However, it is an opportunity that requires responsibility, consideration and good judgement. The right of public access can be concisely expressed in the phrase: 'Do not disturb – do not destroy'. The origins of the right of public access can be traced back to laws and customs of the Middle Ages. For example, anyone travelling through a forest was entitled to gather a hatful of nuts for nourishment along the way. Such customs survived through the centuries, and have influenced today's right of public access – a cultural heritage worth preserving for the future (The Swedish Environmental Protection Agency, 2003). Following this tradition, Swedish preschools consider questions linked to nature and to the environment to be fundamental for daily activities.

National curriculum

The first Swedish National Curriculum for the Pre-school was passed in 1998. It is a decentralized curriculum, well aligned with the curricula of the compulsory schools. In the first chapter, the task and the fundamental values are stated, and in the second chapter, about twenty overall goals to strive for within preschool education are specified. How to fulfil the task and achieve the goals is to be locally decided by teachers, head teachers in collaboration with the children and their parents. Some smaller additions have been made and the Swedish national curriculum is translated into English (Ministry of Education and Science, 2006). Some examples of fundamental values and goals to strive towards are given:

> Each and everyone working in the pre-school should promote respect for the intrinsic value of each person as well as respect for our shared environment. (Ministry of Education and Science, 2006, op cit., p. 3).

> The pre-school should put great emphasis on issues concerning the environment and nature conservation. An ecological approach and a positive belief should typify the pre-schools' activities. The pre-school should contribute to ensuring children acquire a caring attitude to nature and the environment, and understand that they are a part of nature's recycling process (Ministry of Education and Science, 2006, op cit., p. 7).

> ***Goals to strive towards.*** The pre-school should strive to ensure that each child develops:

- Their ability to discover, reflect on and work out their position on different ethical dilemmas and fundamental questions of life in daily reality (Ministry of Education and Science, 2006, op cit., p. 8).
- Respect for all forms of life as well as care for the surrounding environment (Ministry of Education and Science, 2006, op cit., p. 8).

- Develop an understanding of their own involvement in the process of nature and in simple scientific phenomena, such as knowledge of plants and animal (Ministry of Education and Science, 2006, op cit., p. 10).

Preschool teachers have a responsibility to develop conditions in the preschool so that children are involved and actively participating. Through an approach where the variety of voices from the children are listened to, and where their interests are taken into account, the pedagogues can arrange for and support learning processes which deepen their knowledge and at the same time stimulates their desire for further learning.

> A sense of exploration, curiosity and desire to learn should form the foundation for pedagogical activities. These should be based on the child's experience, interests, needs and views. The flow of the child's thoughts and ideas should be used to create variety in learning. (Ministry of Education and Science, 2006, op cit., p. 9).

Theme-based projects cover all aspects of ESD in a Swedish preschool

In Långvik's preschool (2002), outside Stockholm, twenty-two children, aged 5-6 years, have been working for five months on a theme that covers all aspects of ESD. The starting-out point, after working with Dinosaurs for three months, was the simple and fundamental question about life: 'What is alive, what carries life and what is not alive?' followed up by the question, 'Is there life within an egg?'

The teachers interviewed the children who came up with a great variety of thoughts. The children's answers pushed the project along and they used many different kinds of languages to learn more about eggs, hens and life. The illustrations, drawings and texts, to the questions: 'How come some eggs carry chickens and some don't?' and 'Which animals are born from eggs?' were exposed in the preschool, and thus involved all children, all teachers and staff, and all the families. As in all-important research, new questions came up continuously, which gave inspiration to a (videotaped) study visit to a nearby farm.

When the children made their own hens in natural size with paper, the project really caught every child's interest. They identified themselves with the hens, and they were really upset when they built cages and houses for their hens, and found out how small they really were. With the help of applied mathematics, they copied the 'real' conditions for hens, those that had free movement or were in cages, with or without ecological certification. They discussed existential and ethical aspects of being a hen and our shared responsibility as humans for nature.

Finally, they asked the preschool's cook what eggs she used and were appalled by the answer – eggs from hens in cages. They started a political process involving the municipal office, the directors of education and finance and the local egg producers. They were successful – the rules were changed, preschools in this municipality were allowed to buy eggs from ecologically certified farms. All teachers, the children's families and relatives also switched to eggs from hens with the best living conditions!

The theme really covered the three ESD components – ecological, social and economic – and it was initiated and conducted by the children, thus performed in a democratic and empowering way, ensuring participation and influence for all learners, which is also a fundamental aspect of ESD.

The conscious attitude of the teachers during the project was very crucial. The teachers' roles can best be described as interested co-learners, and all the pedagogical documentations that were made and used during the project were really helpful during the play and learning processes.

Gender issues found in preschool children's learning and playing outdoors

In the Swedish preschool curriculum, fundamental values, such as gender equality, also play an important part, and this issue must be included in all parts of the preschool programme (Ministry of Education and Science, 2006; Educational Act, 1985).

Thoughts about nature as an environment and as pedagogical content and practice have not been discussed and examined to a larger extent in scientific research, and especially not from gender, play and learning perspectives. This study is a part of a research project with a focus on fundamental values at Mälardalen University, the Teacher Education Programme. The aim of the study is to investigate natural outdoor environments (forest play) connected to girls' and boys' learning and playing with a gender perspective. Generally, the Swedish preschool children and teachers go outside into natural environments once or twice a week. During the spring of 2006, eighty-six Swedish preschool children (forty-six girls and forty boys), aged from 3 to 6 years, were interviewed to investigate if there were any qualitatively different understandings of outdoor learning and play from a gender perspective. The research questions were broad spectra of questions about natural outdoor playing and learning. An interesting question is whether girls and boys describe their learning in the forest in different terms.

This article focuses on the children's concepts, interpretation and answers about what they learn in the forest. The result can be understood with the help of three different categories; 'norms', 'physical and practical knowledge' and 'natural science'. The girls are represented in all categories, but the boys are only represented in the categories 'norms' and 'physical and practical knowledge'. Both girls and boys refer to norms, the boys more often, and this category was the largest.

The norms mentioned were divided into (a) norms about spatial behaviour (to be close to the teachers and not to run away); (b) norms about how to behave towards each other; and (c) norms about the attitude to nature and the environment (not to break or destroy things). In the category 'physical and practical knowledge', both girls and boys describe physical learning as motor play, running, climbing and jumping with stones and trees. 'Practical knowledge' includes, for example, building huts and snow chairs, and how to start a fire. In the category 'natural science' only girls refer to learning, e.g. about insects in the grass and bird's nests. The result indicates that girls' and boys' learning seem to be based on different constructions of gender in outdoor natural environments. There seems to be a hidden curriculum of an admonishing practice focusing on norms, learning a lot about what not to do in nature.

The complexity in analysing and understanding children's learning can be understood in the light of hidden cultural, social and historical structures of femininity and masculinity. The children's actions and relationships are important aspects of their understanding of the world in a complex holistic sense. Children learn, develop and understand their own gender identities in relation to others as playmates, teachers and parents, but also as parts of the community (Browne, 2004; Johnson et al., 2005; MacNaughton, 2006; Nordberg, 2005; Ärlemalm-Hagsér, 2006).

Sustainable development and gender equity are important tasks in the Swedish preschool, creating a need for basic research in educational science. The pedagogical practice as it appears in the preschools' everyday life has to be examined and theorized. Further research about the teachers'

concepts, teaching styles and organization of the pedagogical practice, but also about the interactions between pedagogues and children and between children during outdoor learning and play is essential. Learning studies (Marton, 2005) and pedagogical documentation are challenging methods to reveal hidden curricula and agendas, making them visible for reflection, promoting knowledge and improving everyday pedagogical practice.

Discussion

The Swedish policy on sustainable development and the task specified in the national curriculum are written texts directing early childhood education by pointing out goals to strive towards reaching high quality in all preschools. However, our article indicates that the texts of the national curriculum do not give sufficient guidance. Early childhood education has a pedagogical tradition well aligned with ESD. However, there is a need for a conscious choice, made by teachers, directing the pedagogical activities towards overall goals aligned with ESD.

A team of teachers working with ESD needs to build their pedagogy based on the children's ideas, interests and thoughts, and it is also crucial that the teachers themselves have a curious and humble approach to their own work, and about what actions and what to offer in the everyday life in the preschools. ESD in Swedish preschools could be interpreted as:

- ***Ecological sustainable development.*** This means being in nature, to develop a feeling for nature, and focusing on nature and the environment as objects for learning, problem-solving and challenges in play and learning and with a gender perspective as well.

- ***Social sustainable development.*** This means to get to know each other, and the different conditions for children in Sweden and around the world, and to challenge traditional gender roles and gender patterns in the preschools. Here children's influence and participation are essential and based on equal rights, possibilities and obligations.

- ***Economic sustainable development.*** This ensures that each child's learning and development is actively supported and challenged, and girls' and boys' full potential can be met through broad and wide options, which will enable the children to take full responsibility as citizens and to make the most appropriate decisions, now and in the future.

In order to reach these ambitions, we need well-educated teachers, prepared to make conscious decisions about the preschool programmes. Our results indicate a need for reforms within teacher education programmes, incorporating questions linked to education for sustainable development and to the importance of children's influence and participation.

Teachers should promote a curriculum for early childhood education (ECE) based on holistic and interdisciplinary project-based learning, in which question-based methods make children active participators. ECE must be contextual; there is no universal model, although the United Nation's Convention on the Rights of the Child (UNCRC) serves as a good common foundation. ECE can tell about the world and help children to know about each other's conditions; this is a good basis for feeling, caring and empathic empowerment. ECE will recognize gender issues, and the rights for girls and boys to equal possibilities and responsibilities, and to teach the basic life skills.

Teachers play a decisive role for children to learn about sustainable development, and to help them find the most appropriate solutions. However, the children represent the future, and it is our obligation to empower them for the challenged future of Earth.

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Talking about science from the child's perspective as an important feature of early childhood education for a sustainable society

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Abstract

The demands for people who have the knowledge and capacity to make effective positive decisions and choices for a sustainable environment put early childhood education in a central position. From a sociocultural perspective, the child develops and learns from birth and throughout life through interaction with other people. Therefore, in order to support the child's development of science knowledge as well as how to make decisions and choices and to take responsibility, it is essential that adults interact with children about what concern children the most. When highlighting adult-child interaction and communication in different contexts, as in this article, it becomes clear that young children often pay attention to phenomena in the environment and everyday surroundings that parents, teachers, and other adults, mostly do not consider important to notice. That means that they do not take the child's perspective but give priority to their own goals and implicit contextual rules. When the adult interacts and talks with the child about the natural phenomena that the child pays attention to, the adult gives signals that the child's choice of observation and communication foci is important. In such cases, the adult can also support the child in discovering particular aspects of nature. Of vital importance for the children's experiences of the meaning of their own perspective in early childhood education is to give priority to collaborating with parents, and to avoid introducing a more academic, formalized approach to children's learning experiences.

Introduction

For a sustainable society, the education of children, and in particular young children, is an important tool for individuals as well as for the public. The growing generation will gradually take over responsibility for decisions in all parts of society. The future global society will have increased demands for citizens who have essential knowledge and are capable of making decisions and choices that will have an effect on the environment (Roth and McGinn, 1998). Marcon (2002) argues that there is a relationship between young children's child-initiated learning experiences from preschool and school success later in the school system. The results of the research studies reporting these long-term effects were based on the class as a statistical unit of analysis, and include knowledge such as arithmetic, reading, spelling, health citizenship and science. Thus, it is most important to highlight education for young children where the individual child is given the opportunity to make self-initiated learning experiences. Critical arguments maintain that it is mostly a pedagogical idea to appeal for taking the child's perspective in an institutional education (Liedman, 1999). That point of view may be valid for the school. According to Mercer (1995) teachers in a school context, are mostly goal-oriented and are to a high degree guiding children to give the right answers by asking them certain kinds of questions. This article focuses on one of the most salient features on the agenda of early childhood education for a sustainable development, namely the importance of taking the child's perspective. The main emphasis is on interaction and communication between adults and young children observing science phenomena together.

Talking about science from the child's perspective

The early years for the child are, according to Siraj-Blatchford (1999, p. xi), 'a period of development in their own right'. Consequently, a crucial task for the educator of young children is to engage actively with what most concerns the child. From a sociocultural perspective, the child develops and learns from birth, and throughout life, in social interaction with other people (Säljö, 2000). Therefore, in early childhood education, priority should be given to partnerships with parents in order to ensure coherence and continuity in children's experiences (Siraj-Blatchford, 1999). The guidelines for the staff in the Swedish preschools state, among other things, that they have responsibility to co-operate with the home concerning the child's upbringing and attitudes to school. The ability to take the child's perspective is dependent on teachers' own opinions of children's development as well as on their knowledge about learning processes and the growth of knowledge (Pramling, 1994; Sheridan, 2001).

From a sociocultural perspective, you always have to describe knowledge, practical attainments and understanding from a certain perspective, and locate them in the frame of an activity (Goffman, 1959; Säljö, 2000). When talking about science from the child's perspective this points to the necessity of taking into consideration the whole situation, where the child interacts and communicates with the teacher and other adults. Knowledge about science, as a scientific domain, is socially situated and developed by people in the system of activity as such (Säljö, 2000). When people outside such systems – teachers on different levels in the education system as well as members of the family, politicians, etc. – are talking about science in different contexts, they do so in many different ways. For them, important parts and perspectives of the surroundings will deliberately be enlarged and brought out in relation to other less important ones. Of vital importance when focusing on the question of taking the child's perspective on science into account is the attitude of the adult, the parent and the teacher, respectively, to children's observations of natural phenomena in their everyday environment.

Three examples of child-adult interaction

The discussion in this article will take its point of departure from three authentic episodes derived from observations of adult-child interaction in three different situations. The first episode comes from a mother-child interaction on a boat trip over a fiord in the northern part of Norway. The second episode comes from a child-teacher interaction during a mealtime at a preschool, and the last episode comes from a 5-year-olds' visit to a science-centre as part of their theme studies. The article includes some final conclusions regarding long-term effects of highest importance for a sustainable society that children can develop when adults take the child's perspective in early childhood education.

Episode I: Mother-child interaction during a boat trip

A number of people are travelling with a rapid passenger boat over a fiord on a sunny day in the northern part of Norway. Among the passengers are a mother and her young daughter, about eighteen months old, who live in the archipelago. The little girl climbs up on to the wide window shelf beside the sofa. Sitting there, she looks out at the spray of water along the bow, when the following conversation takes place:

The girl: 'Look, look!' (pointing to the water)
Mother: 'Come down, immediately!'
The girl: 'Look …'
Mother: (pulls the girl down from the shelf on to the sofa). 'Here you are, look here!' (putting a weekly magazine on the girl's knee).

After a short while, the girl starts to tear pages out of the magazine, and then she throws it away, stands up on her knees and looks out through the window again. Once again, the mother pulls the girl down from the windowpane.

When looking at the interaction it is obvious that the mother did not take the child's perspective. The child paid attention to the phenomenon of water and invited her mother to share the experience. By diverting the child's attention from the water and directing it to the magazine, the mother's intention was probably to get the child to behave on the boat according to the implicit rules in that context. The child rejected her mother's intended goal when tearing pages out of the magazine and returning to the scenery of water. By neglecting the child's observation of the water when sitting by the window, the mother gave clear signals to the child what was and what was not important in the situation (Säljö, 2000). Priority was the child's proper behaviour, according to the mother's intention and rules. The episode demonstrates almost a competition between the child's curiosity of an environmental phenomenon and her mother's effort on teaching the child to behave properly on the boat.

Let us, as a thought experiment, change the condition in favour of the child's perspective. By interacting and talking to the child, from the child's perspective, the mother could have also fulfilled her own feelings by giving support to the child's own observation and experience of the environment. Then the episode is turned into a situation whereby the parent supported the child by paying attention to a science phenomenon in the everyday environment. With such an interaction, the mother also gave support to the child's development of her own responsibility of behaving properly when travelling by boat – something that really concerns the child (Siraj-Blatchford, 1999).

Episode 2: Ordinary talk at mealtime at a preschool

The episode is framed by ordinary talk taking place between two children, Carl (2 years' old) and Liza (3 years' old), and their teacher during mealtime in the preschool context. The table is placed in front of a large window. They converse as follows:

Carl: 'Oh, it is the sun!'
Liza: 'There is no sun here!'
Teacher: 'No, there are no rays of sunshine coming in just now.'
Liza: 'Maybe later? '
Teacher: Yes, the Earth moves, so later today the sun will be shining into this window.'

Some days later Carl walks to the window, stands close to it saying to himself: 'The sun shines on me. Out there sun ….' Then he sits down on the floor saying: ' … now it disappeared.'

The situation started with Carl looking out through the window and putting his observation of the sunshine into words. According to the reply made by Liza, the fact about the sun was, in her opinion, not described in a correct way. The teacher interacted in the conversation and gave support to Liza's reply as well as making the fact about the sun clearer. Carl remained silent while Liza asked a relevant question. The teacher answered accordingly and as the simplest fact, she added a scientific explanation of the natural phenomenon of sunshine.

By taking the child's perspective, the teacher puts focus on the content in the children's statements, not on Liza's disagreement with Carl. Such a focus could have turned into another social situation on how to behave well at the mealtime. The teacher's attention to the children's way of talking made their decisions and choices of communication focus important. At the same time, the teacher took the opportunity given at the mealtime, to support the children to notice an important part of nature. She gave structure to the simple relation between the everyday experiences of the sun as a nature phenomenon and a more scientific way of talking.

Some days later at the preschool (Sträng and Persson, 2003), Carl became the central part of the attention. Suddenly he was investigating the relation between words and observations of sunshine. His action can be described as a proof of a high degree of communication and cognitive co-ordination (Säljö, 2000) with reference to the child-teacher interaction during mealtime.

Episode 3: Communication during a visit to a science centre

A group of preschool children and their teacher are visiting a science centre during the theme study period. The communication below occurred when two children, John and Clara (both 5 years' old), and their teacher are standing at a basin with a great crested grebe swimming in the water. The children are looking at the bird in the basin from the side (i.e. from under the water line), whereas the teacher, who is taller, is looking from above.

Clara: 'Look … what's that?'
Teacher: 'Oh, how close it comes … look at the bird …. look at the great crested grebe here … how close … and it swims with its feet … look!'
John: 'Look, look …'
Teacher: 'What are you looking at?'
John: 'The feet.'
Teacher: 'Ok, yes you see it under the water like that. Can you see how it moves?'
Clara: 'I can.'

Teacher: 'Yes, look, you can see the feet under the water when it is swimming. Do you see the pearls on the sides of the bird? The water is shaped like pearls.'
Clara: 'Hello there' (the child is almost touching the bird through the glass).

Without taking any notice of Clara's question the teacher directed the children's attention to the great crested grebe swimming with its feet. Then John invited the others to share some experiences. When the teacher found out that the children were looking at the feet as she did, but from another perspective, she insisted they should look at what concerned her. Then she continued pointing out things for them to observe but from her angle, the upper side of the basin. The children remained observing the bird from their position at the side of the basin. The teacher tried to help the children to observe interesting visible parts of the environment, but from her own perspective. It is obvious that she did not succeed in taking the child's perspective but acted well in line with common rules for interaction and communication in a classroom context, according to Mercer (1995), by following her own intentions and guiding the children by questions. That resulted in two different activities more or less running parallel with each other, that of the teacher and that of the children. Siraj-Blatchford (1999) calls attention to the fact that adults often see things from a different perspective than children do. That includes both physical and mental aspects. The children's height gave them another angle on the environment, or, as in Episode 3, quite another location from which they see a bird swimming and the water around it.

Final conclusions

Young children pay attention to phenomena in the environment and everyday surroundings that adults, parents and teachers, from their perspective, do not recognize as important. When the adult, in the social interaction with the child, neglects what concerns the child, the adult gives clear signals to the child what is and is not of importance to pay attention to. The more the adult interacts and communicates with the child in activities of importance and interest to the child (as for instance, looking at the water spray on the bow of the boat, talking about the sun shining at mealtime, or observing the bird's feet when it is swimming), children learn by being supported by the adults. The support includes how to act, and also to make one's own decisions and choices, taking responsibility, and to think more independently. At the same time, children learn that observation of all kinds of phenomena in the environment is important, and they learn how to look for changes, differences and similarities in the surroundings. These comparisons are important basic attitudes in learning science later.

The follow-up study made by Marcon (2002) of children at year six in the school, and the influences of different preschool models, shows that experiences of child-initiated preschool classes in the long-term had outstanding long-term effects in comparisons with an academically directed model. When schools required the children to think more independently and take greater responsibility for their own learning process, those who had experiences from child-initiated education in the preschool seemed to have developed tools according to these demands. We could say that Carl, in Episode 2, gives us an example of developing tools for responsibility for his own learning process.

As predicted in this article, one of the most important roles of early childhood education for a sustainable society appears to be the necessity to take the child's perspective. This seems to be fundamental in order to develop citizens who have essential knowledge and are capable of making decisions and choices that will have an effect on the environment (Roth and McGinn, 1998). When taking the critical arguments by Liedman (1999) into consideration, two challenges must be on the agenda of the teacher's educational development. One is the importance of taking the child's perspective, and to avoid introducing a more academic, formalized approach to children's learning experiences. According to Pramling (1994) and Sheridan (2001) the approach that takes the child's perspective depends on the teachers' own views of children's development. The other challenge is to give priority to collaboration

with the parents in early child education. Siraj-Blatchford (1999) regards partnership with parents as the most effective way of ensuring coherence and continuity in children's experiences.

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Sustainable development – language, and a sense of belonging

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Abstract

The aim of this article is to discuss sustainable development in terms of children's learning, and the development of an identity, a sense of belonging to a specific discourse. The background is the Swedish curriculum that stresses children's learning about different contents. This article is based on a study with the purpose of describing and analysing how preschool teachers and children address content matter within a science context that includes learning for sustainable development. Preschool children 3 to 6 years' old and preschool teachers where observed by video. The results show that all themes that were spoken about include anthropomorphic statements and that it is the teacher who introduces and uses this speaking style. The discussion focuses on the value of using an anthropomorphic style of talking in the light of sustainable development for children's´ learning. Questions about teachers' attitudes towards the mission of the preschool and teachers' knowledge are raised. Children's possibilities to learn in context with meaning and communication are problematized. The development of identity separated from development and learning about specific content is noted.

Background

The quality of preschool has to do with the teachers' attitudes towards the mission of the preschool (Hundeide, 2003). Another important quality factor is to what extent and in what way teachers use their competence (Sheridan, 2001). Preschools that show a high level of quality are characterized by teachers who have a capacity to interact with the children from a democratic-pedagogic perspective. What distinguishes those teachers from others is that they have a clear purpose about what they expect children to learn and understand. Group activities have a direction. Children's learning, however, does not only depend on how teachers use their competence. An aspect of learning that perhaps has been given less attention in the rhetoric of preschool is the teacher's competence in relation to different content. What children learn is largely dependent on

whether the teacher understands and has knowledge about the content that is in focus (Siraj Blatchford et al., 2002; Björneloo et al., 2003). In order for a person to learn something, the content must have some meaning for the individual. This meaning can be attained if the content or concept can be tested out in different contexts and experienced as having a consistent meaning, even if the situation varies (Marton et al., 2004; Pramling Samuelsson and Asplund Carlsson, 2003).

During the course of its development, the Swedish preschool has been a part of the social sector. In 1996, the preschool was incorporated into the education system and a new curriculum for the preschool was enforced on 1 August 1998. In this preschool curriculum, different content aspects have been moved forward. One of these aspects concerns nature and the environment (Ministry of Education and Science in Sweden, 1998). The Swedish preschool has a mission in society to contribute to creating an environmental awareness among children, and an ability to look upon things from an ecological point of view. Children's understanding of interconnections and possibilities to discover new ways of understanding the surrounding world constitute an important part of learning for sustainable development.

My interest focuses on how content is treated in the preschool. From this point of view, I propose to contribute to the discussion of sustainable development in early childhood education. This article is based on the results of my study, 'What happens with the object/the content of learning in preschool?' (Thulin, 2006).

The purpose of the present study was to describe and analyse how preschool teachers and children address content matter within a science context. The study took place at a preschool with three teachers and twenty-one children aged from 3 to 6 years. Situations where children and teachers acted together were videotaped. The teachers' intention was to enable the children to grasp the great variety of life in a tree-stump. The activity began in a situation when the children and teacher all sat around a black sack. Inside the sack, there was a stump of a tree, some leaves, and soil. The teacher opened up the sack and said: 'Here is a secret . . . almost as if Santa Claus has been here. Do we dare to open it up?' In the beginning, the children were free to discover life in a stump, and then later the focus was directed more to the woodlice. Experiments (in pots) were carried out with woodlice and different kinds of food. Focus for the analysis of the video observations was to discern the communication related to the 'object of learning' and 'ways of acting'. Communication here means vocal speech. The phrase 'object of learning' is used by Marton and Booth (1997) as a concept for the 'know-what' aspect / the content of learning. The phrase 'the act of learning' is also used by Marton and Booth (ibid.) as a concept for the 'know-how' aspect of learning, for example how to communicate.

Results

The results show a variation of conversation themes in the learning group. Three central themes are identified: 'stump', 'leaf', and 'animals in the stump'. The results also show that conversations take place at different levels. One level is at the direct, concrete level of the stump, animals and different materials, where concepts are problematized and attention is directed towards differences and changes. For example, differences between animals – in size and construction, and changes as the leaves change colour and form. At another level, the conversation directs attention towards general structures and connections, such as the food chain and circulation. Life in the stump is highlighted from several different perspectives. The analysis of the act of learning shows that all themes include anthropomorphic statements. To express something anthropomorphically means to transfer human attributes to something else other than human beings. This discovery caught my attention, and merits some further discussion.

When all anthropomorphic statements are analysed, it becomes clear that most of them come from the teacher. The results show that it is the teacher who introduces and uses this kind of 'language', and that it is used for a special purpose. The example that follows is from a discussion when the teacher wants the children to think and talk about what the woodlouse is doing on the leaf.

Teacher: 'Yes, what is he [the woodlouse] doing on the leaf?'
Carl: 'He stands on the leaf.'
Teacher: 'Is he doing gymnastics or some physical training on the leaf?'
Carl: 'Yes I think so.'
Teacher: 'I think so too. Maybe he's playing with the toy train.'

The teacher also asks questions about the character of animals' relations with other animals:

Teacher: 'Do you think they like each other, the different animals?'
Per: 'Yes …'
Teacher: 'Do you think they have a fight when they find each other here?'
Teacher: 'Do you think that this beetle and your woodlice like each other?'
Disa: 'Mmm …'
Teacher: 'Do you think they are friends?'

In another situation, the children and the teacher look down at the leaf in the pot. The teacher wants the child to discover how much of the leaf the woodlouse has eaten:

Teacher: 'There is a fat one. Look! This leaf was such big as this one! What has happened? '
Fia: 'They [the woodlice] have eaten them up.'
Teacher: But ugh! What a party they have had – they've eaten and eaten!

The results also show that the teacher uses the anthropomorphic way of speaking when she wants the children to do something. One example is when they look at a snail. The teacher asks the children to be careful and not to touch the snail by relating to the snail's feelings:

Teacher: 'You may not touch it [the snail] as that makes it afraid, doesn't it?'
Fia: '[The snail] has to come out [of the pot].'
Teacher: 'Yes, it has to but then you can be careful with it. You can talk to it.'

This example shows that the teacher uses the anthropomorphic 'language' as a tool to direct the children's attention, to strengthen and develop their discussion, and to get them to act in some way. In these situations, the natural science context seems to develop along with the communication that uses human concepts and references.

When the children use anthropomorphic words, two different purposes can be discerned. Children use this kind of language when the teacher uses it. One example is when a child is talking about what the woodlice are doing in the experiment pots:

Teacher: 'Soon it is time for dinner; maybe it [the woodlouse] sits there and eats?'
Disa: 'They probably run around and play in their little wood.'
Teacher: 'Maybe they have free play; do you think they have a preschool they go to?'

The children also use this kind of speech when they try to give something a name. One example is when the teacher wants to draw attention to the different sizes of woodlice:

Teacher: 'Why is this one so big and the other so small?'

Disa: ‘It must be the dad.’
Teacher: ‘Is it the dad in the family?’
Otto: ‘No, it can be the mum.’ (He looks at the animal in the pot.)
Teacher: ‘Can it be the mum?’
Disa: ‘Mums often are smaller.’
Per: ‘But dads …’
Teacher: ‘Then you mean that there is a dad and a mum?’

The results show that these children use anthropomorphic language when they want to put a name to something. They answer the teacher by using the same language, and they use words and concepts that are well known. Almost every time the children use the anthropomorphic language, the teacher takes notice and continues with it. The teacher does not always do this when a child asks clear questions, for example, about whether the animals need air in the pot. In this example, Eskil says that he wants to open up the pot because the woodlice need fresh air:

Teacher: ‘Hasn’t it fresh air in the pot?’
Eskil: ‘Where is the air (he holds up the pot and look inside it)?’

The teacher starts asking questions about where the air can be found. The situation ends up with the teacher saying that all living creatures need air.

Teacher: ‘The question is, “Where can your woodlice get air from?”.’

Early researchers (Piaget, 1968; Carey, 1985; Helldén, 2005) have ascribed to children the use of an anthropomorphic way of talking, but my study shows that it is the teachers who introduce and use it.

Discussion

What about the value of using an anthropomorphic style of talking in the light of sustainable development for children’s learning? I am conscious that the question can be discussed from different perspectives; here I only want to choose one of them. I return to the democratic-pedagogy perspective and the importance of meaning in understanding the context of which you are a part. Carey (1985) indicates that the use of an anthropomorphic style can be a sign of lack of biological knowledge. One reason for teachers to choose other subjects/topics, or a way of talking other than the appropriate one for the content in focus, might be because they have a lack of knowledge. Teachers in preschool might not have access to the natural science vocabulary. Perhaps they do not own the ‘right’ concepts, or feel comfortable with them. Teachers in preschool have some knowledge about nature and natural science phenomena, but they do not feel like scientists. Lacking scientific language, they use the language of daily life in preschool ‘the care- play- and learning language’. Situations were not used to challenge the children’s thinking and statements from a natural science perspective. At the same time, the study shows that the children wanted to know, they asked questions. Comparison can be made with the zone of proximal development theory by Vygotskij (1995). By asking questions, the children were on their way to understanding something, but where were the teachers?

Earlier research (Marton, Runesson et al., 2004; Pramling Samuelsson and Asplund Carlsson, 2003) shows that if children can learn the meaning of a specific content, this content has to be tested out in different contexts, and then experienced as constant, even if the situations vary. I mean that the danger of letting the speech be dominated by an anthropomorphic talking style is that the teacher contributes to erase differences and patterns children need to discover in order to reach a deeper understanding about concepts and phenomena, which for example belong to science. Awareness about the meaning of

the use of language is an important aspect, both of children's learning from a perspective of sustainable learning, and in learning about the meaning of sustainable development. If a learning situation points towards an expressed aim and goal, the content in focus needs to be allowed to step forward in terms of concepts, speech, knowledge and competence that belong to the specific content area.

Do children in preschool need access to a specific communicative discourse that relates to the content in focus? Which assumptions have teachers in preschool taken for granted about what is the right approach? According to the results of this study, and previous findings, teachers in preschool look at their mission in different ways (Hensvold, 2003), one can suspect that there are different opinions, too, about the approach to science. Dewey (1997) maintained that if a child or an adult is to learn a concept and the meaning of it, it is necessary to have the opportunity to use it. It is exactly the same as with other tools: the function has to be experienced in a context. This study takes its starting point in natural science. If children are supposed to have access to a science discourse, they also need a language so that they can talk to 'the others' who already are members of this discourse. Schoultz (2002) discusses the meaning of learning science. He suggests it is about becoming socialized into a discursive tradition, to be enabled to use science concepts and terms as tools in context with meaning and communication. Comparisons can be made to other content areas. Smith (2000), who is a language scientist, says that if children are supposed to be members of 'the reading and writing club', we as members have to show how good it is in this 'club'. We have to communicate the benefits of being a member – the point, the use of being a reader and a writer. A membership in this club does not demand any member charge or entrance examination. The members are simply concerned about the interest and success of each other. An assumption for success with this is shared, mutual communication ability. It is important to know what you become a member of, and to feel a sense of belonging.

Children are born with a will to explore the world. From the beginning, they are focused on understanding and participating. From the results of my study, I infer that teachers in preschool need to be conscious of the assumptions they take for granted, which underlie the speech codes and in the prevailing cultural practice. Preschools in Sweden are deeply committed to an ideal of education that predicts 'who you are going to be'. However, the question about children's development of identity has been separated from the question of children's learning about specific content. I mean that sustainable learning and development from the perspective of an individual relates to both questions. Who you will become, what you believe you are able to know and do, very much depends on where you are invited to participate. If children can understand the meaning of science and sustainable development, they have to know what characterizes this discourse, and distinguish it from others.

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