Towards the Promotion of Education for Sustainability

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Abstract

Much has been happening in the field of environmental education and education for sustainability over the past few years, with impacts that sometimes go beyond any given country. This is especially so bearing in mind the *UN Decade of Education for Sustainable Development (2005-2014, DESD)* for which UNESCO is the lead agency and whose goal is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This paper presents a review of some past and future international developments in the field of Education for Sustainability (EfS). It first of all presents an analysis of the international debate on EfS. This follows with a description of some items that need to be considered in order to achieve sustainability and an overview of some strategies and techniques for optimal learning about sustainability. The main conclusion of the paper is that if children and adults are to develop interdisciplinary, systems-based knowledge of the natural and built environments and the skills to participate actively in developing a sustainable society and economy, education for sustainability should be infused into more subject areas and at all grade levels. It also should be reinforced in post-secondary institutions and outside the walls of the classroom. Fortunately, education leaders in many states are working toward these goals.

Key words: environmental education, education for sustainable development, interdisciplinarity, higher education.

Introduction: What is Education for Sustainability

On an international scale, interest and investment in environmental education are long-standing. The literature contains a wide range of publications addressing it (e.g. Leal Filho et al 1995, Leal Filho, MacDermott, Padgham 1996; Leal Filho and Murphy 1996; Leal Filho and O´Loan 1996) and looking at the links between education for sustainable development and various contexts (e.g. Leal Filho and Ahlberg 1998; Leal Filho and Schleicher, 1998).

Historically, governmental and non-governmental agencies have delivered a spectrum of programmes and directed resources to advance environmental careers, as well as to protect and enhance human health and the environment. In addition, such agencies, sometimes with the assistance of foreign donors, have invested in promoting the increase in knowledge and skills needed for the public to make informed decisions about the use and conservation of natural resources. Encompassing the broader, overarching vision of sustainability will require partners in government to develop effective approaches to education (Leal Filho, 2000) and public understanding (Leal Filho, 2002).

Limited resources have hindered government efforts to support opportunities in the field of education for sustainability in the past. They largely continue to do so now. Even when resources are available, there are no guarantees from year to year that the support will be continued. Nor are available resources adequate to support agency missions and meet the public's need for education and training in this area (Azeiteiro, Goncalves, Leal Filho, Morgado and Pereira, 2004).

A coordinated effort among the relevant governmental and non-governmental agencies to foster collaboration, engage in long-term planning and sharing of resources has long been deemed as important both at the national and at the regional level (Leal Filho, Ubelis 2004; Leal Filho, Ubelis, Berzina 2006) at which they should be pursued. One consequence of an uncoordinated single agency mission approach is duplication of efforts and overlap in programmes. Enhancing cooperation and

coordination will help in designing effective programmes and materials that broadly reflect an agency´s mission and respond to the public's needs.

Although exemplary collaborative projects at the state and federal levels are underway in various parts of the world, the resources needed to sustain such efforts and maintain ongoing communication is a challenging undertaking. The result is a limited number of sustained quality programmes and insufficient evaluation and promotion of the success of these programmes.

Education for Sustainability (EfS) is meant to be a lifelong learning process that leads to an informed and involved citizenry having the creative problem-solving skills, scientific and social literacy, and commitment to engage in responsible individual and cooperative actions. These actions will help ensure an environmentally sound and economically prosperous future. Education for Sustainability has the potential to serve as a tool for building stronger bridges between the classroom and business, and between schools and communities.

The term «education for sustainability» or «sustainability education», has evolved from environmental education. Indeed, despite the fact that it is considered a polemic topic and seen by some as an attempt to change the name of *environmental education*, EfS complements a number of other fields such as environmental education, global education, economics education, development education, multicultural education, conservation education, outdoor education, global change education and others. Education for sustainability is considerably broader and encompasses many aspects of these respected and established fields of study. It may embrace components from traditional disciplines such as civics, science, geography and others.

The Education for Sustainability Movement

The Education for Sustainability (EfS) movement began building momentum in the early 1990s, shortly after the Rio Conference. It gained strength in the period 1994-1998 and continues to the present day, although it no longer has the degree of impact it had in 1995-1996. Diverse groups of individuals and organisations have come together under the common goal of reaching the vision of living in a sustainable world. The movement broadens the reach of a more traditional approach to environmental education by its inclusion of various stakeholders within society, such as business, industry, government, communities, foundations and education. The participants of the movement each have different goals and strategies to attain the vision; however, the synergy that comes from collaborating and sharing resources is reflective of the values of sustainability.

Meeting basic human needs now and in the future requires a major shift in the thinking, values, and actions of all individuals and institutions in their relationship with the natural environment. This shift in mindset must be led by the higher education system because it prepares most of the people who develop and manage society's institutions, and who serve as teachers. It will require comprehensive short- and long-term educational change, necessitating unprecedented leadership and commitment by colleges, universities and professional schools.

This definition of Education for Sustainability has been adopted from the report from the *National Forum on Partnerships Supporting Education about the Environment,* a demonstration project of the Education for Sustainable Development, held at the Presidio, San Francisco, California, in the Fall of 1994 ((Hulbert *et al*., 1996).

Much of the population has little idea about where goods come from and where they go, the destructive impact of pollution on human health, and the importance of maintaining biologically diverse, productive ecosystems. A belief that natural and physical resources are free and inexhaustible and that the environment can assimilate all our pollution and waste has led to unsustainable use of renewable resources such as fisheries, forests, agricultural land and fresh water, and overuse of non-renewable resources such as minerals and fossil fuels. This belief also results in overuse of the land, atmosphere, and bodies of water as repositories for pollution and waste. A lack of knowledge often results in inappropriate use of technology, as well as inappropriate concern about some environmental hazards while other, more critical ones go unattended. It also supports the erroneous belief that there needs to be a trade-off between economic development and environmental protection. And, most

importantly, the general public has little idea that it is not just industrial enterprise, but the aggregate of all human activities-all the individual and the collective daily decisions-that are irreversibly changing the earth, or that environmental degradation can be both a cause and a consequence of poverty, especially in the poorest countries.

Several structural aspects of the educational system contribute to the problem. Interactions between population, human activities and the environment, and strategies, technologies and policies for an environmentally just and sustainable future are amongst the most complex issues with which society must deal. UNESCO has tried to address the problem by means of structural change in their operations. The *Environmental Education Unit*, which until the early 1990s was the main contact point for environmental education and development issues, was transformed into the *Environment, Population and Development* (EPD) programme, in charge of all matters related to sustainable development.

The issues related to EfS cross disciplinary boundaries, making it very difficult to convene the skills necessary for effective teaching and research in educational institutions that are organised into highly specialised areas of knowledge and traditional disciplines. Specialists are produced with little feeling of connectedness, and little understanding of the workings of natural systems, or even the place of their own discipline in the larger human and non-human world. For example, neo-classical economics views the economic system as separate from the biosphere rather than one of its subsystems. Narrowly focused experts often generate information that is of limited utility and authored for a minute number of readers. Interconnecting patterns and relationships which govern all natural and most human interactions are largely left to the student to discern on his or her own. In *Earth in the Balance: Ecology and the Human Spirit*, Vice President Al Gore (1992) argues that: «we organize our knowledge of the natural world into smaller and smaller segments and assume that the connections between these separate compartments aren't really important... (On the other hand) the ecological perspective begins with the view of the whole, an understanding of how the various parts of nature (including humans) interact in patterns that tend toward balance and persist over time».

Designing a sustainable human future requires a paradigm shift toward a systemic perspective which encompasses the complex interdependence of individual, social, cultural, economic and political activities and the biosphere. This shift emphasizes collaboration and cooperation, while current higher education stresses individual learning and competition, producing managers ill-prepared for cooperative efforts.

FIGURE I. Some environmental and related matters students and adults should be aware of

- The natural and physical environment is the platform which supports all communities and institutions;
- Sustainability depends on ecological design inside and outside communities;
- Feedback loops operate in different time frames in intra-person, intra-company, intra-industry and intra-society situations; short feedback loops are key to effective change and must be designed into institutions;
- Environmental management must be decompartmentalized-e.g., it should be a function distributed throughout government, not solely delegated to a Ministry; and consideration of environment/sustainability issues should be a normal part of government programs and those of community-based organizations;
- Institutions must upgrade their understanding of their relationship to the planet;
- Institutions should encourage empowerment through incentives, such as reorganizing for optimal outcomes, increasing access to community resources, and symbiotic local relationship building; and
- Decentralization and flexibility are generally desirable.

Figure I shows that, in order to enable the wide dissemination of EfS, a balance between what children and adults need to know, has to be reached.

The UN Decade of Education for Sustainable Development

In 2002, the United Nations General Assembly, recognizing that sustainable development is an urgent social and ecological need, and that education is an indispensable element for achieving it, declared the 10-year period beginning 2005 as the *Decade of Education for Sustainable Development*. UNESCO has been designated as the lead agency for the promotion of this Decade. As the lead agency, UNESCO was required to develop a draft *International Implementation Scheme* (IIS) which would establish the DESD's relationship with other global initiatives already in existence, especially the *Education for All* (EFA) Dakar Framework for Action, the *UN Literacy Decade* (UNLD) and the *Millennium Development Goals* (MDGs).

UNESCO is also expected to provide recommendations for governments on how to promote and improve the integration of education for sustainable development (ESD) in their respective educational strategies and action plans.

The UNESCO strategy for the *Decade* states: «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. Building the capacity for such futures-oriented thinking is a key task of education.»

This statement reinforces the notion that progress toward sustainability requires education that cultivates respect for diversity, more caring relationships between humans and the natural world, and more environmentally and socially responsible forms of development.

A Framework for the *Draft IIS* was prepared, and over 2,000 responses to it were received from many stakeholders. The IIS was presented and approved by the General Assembly in 2004. UNESCO has also set the frame for national launches and regional strategies and developed a range of communications materials.

Half-Way through the Decade: success to Date

At the 63rd General Assembly in 2003, the German Commission for UNESCO decided on the *Hamburg Declaration*. The Declaration calls on all stakeholders at Federal, State and local level and economic, research and educational and civil society institutions to join together in an «alliance for learning sustainability». The intention was to jointly develop a plan of action for the UN Decade, as well as programmes and coordination mechanisms to implement it.

According to UNESCO (2006, pp. 4-5), ESD demonstrates the following characteristics:

- Interdisciplinary and holistic: learning for SD embedded in the whole curriculum, not as a separate subject;
- Values-driven: sharing the values and principles underpinning sustainable development;
- Critical thinking and problem-solving: leading to confidence in addressing the dilemmas and challenges of SD;
- Multi-method: word, art, drama, debate, experience . . . different pedagogies which model the processes;
- Participatory decision-making: learners participate in decisions on how they are to learn;
- Locally relevant: addressing local as well as global issues, and using the language(s) which learners most commonly use.

ESD is for everyone, and it takes place within a perspective of lifelong learning, engaging all possible spaces of learning, formal, nonformal and informal, from early childhood to adult life. ESD calls for a reorientation of educational approaches--curriculum and content, pedagogy and examinations. Spaces for learning include nonformal learning, community-based organizations and local civil society, the workplace, formal education, technical and vocational training, policy-making bodies . . . and beyond.

The book *Education for Sustainable Development* (Chalkley, Haigh and Higgit 2008) presents a review of the *Decade*. This and other experiences show that the success of the DESD depends, in part, on the extent to which we share a common vision of the meaning of sustainable development (SD), and the educational content and processes which are effective in achieving it. As UNESCO notes, «the concept of SD itself is vast and vague--anyone can fill it with their own meaning.» To date, the following developments have been achieved in Germany, as an example of the action taking place at the national level:

- 2005: Publication of the 1st *National Plan of Action*
  The *National Plan of Action* defines embedding the idea of sustainable development in all areas of education as the overarching aim of the *UN Decade*. It is supplemented by more than 60 concrete education policy measures and inspection criteria for implementation. The *Plan of Action* and catalogue of measures are regularly evaluated and updated.
- 2006: International Workshop on the *UN Decade of Education for Sustainable Development*
  50 experts from all over the world met at the invitation of the *German Commission for UNESCO* and the *Ministry for the Generations, Family, Women and Integration* of the German state of North Rhine Westphalia in Bonn from 28th – 29th November to exchange views on the state of play of the implementation of the *UN Decade of Education for Sustainable Development*. The conference proceedings are available in English and group together the most important outcomes.
- 2007: International Conference and launch of the Internet portal
  The International Conference *«UN Decade of Education for Sustainable Development – the Contribution from Europe»* took place on 24th – 25th May in Berlin in the scope of the German Presidency of the EU Council. The primary objective of the Conference was to identify the European contribution to the global *UN Decade of Education for Sustainable Development* project and to thus consider Europe's global responsibility. The event was organized by the *Federal Ministry of Education and Research*, the *Senate Department for Economics, Technology and Women's Issues*, Berlin, *the Senate Department for Education, Science and Research*, Berlin, and the *German Commission for UNESCO*. More than 200 representatives from all the EU countries, other world regions and international organisations took part in the conference.
- 2008: *Nationwide Days of Action* and new version of the *National Plan of Action*
  For the first time ever, the nationwide *Days of Action* have been taking place as a *German National Committee* initiative with more than 320 different events. The new version of the *National Plan of Action*, which was published in 2005, appeared in September 2008 with 66 measures for implementing the *UN Decade* nationally.
- 2009: World Conference
  By the time this paper is published, the *World Conference on Education for Sustainable Development – Moving into the Second Half of the UN Decade* will have been in Bonn, Germany, from 31st March to 2nd April 2009. UNESCO and the *German Federal Ministry of Education and Research*, organized the conference in cooperation with the *German Commission for UNESCO*. 700 participants from all world regions came together at the Bonn Conference.

The lessons to date allow some conclusions to be made. First of all, it is seen that five crucial steps need to be taken to achieve sustainability as outlined in some recent publications produced in support of the *UN Decade* (e.g., Leal Filho, 2006; Leal Filho and Salomone, 2006; Azeiteiro, Goncalves, Leal Filho, Morgado, Pereira and Pererira, 2008). These are:

- an increase in personal accountability;
- involvement of all sectors of society
- financial support;
- vibrant environmental conservation efforts
- long-term perspectives

It should be stressed that if politicians were disappointed with the slowness with which environmental education produced results, they are likely to face a similar problem in relation to education for sustainability: it is a slow, long-term process which entails a broad education and building preparedness among individuals to be involved in the drive towards a more sustainable words. We should be aiming at not –only- more beautiful words, but to real commitment and engagement.

Both students and schools and adults must understand:

- How the natural world works.
- The interdependence of humans and the environment.
- How to assess the effects on humans and on the biosphere of human population dynamics; energy extraction, production and use; and other human activities such as agriculture, manufacturing, transportation, building and recreation.
- The relationship of population, consumption, culture, social equity and the environment;
- The interdependence of human health and the environment.
- How to apply principles of sustainable development in the context of their professional activities;
- Technical, design, scientific and institutional strategies and techniques that foster sustainable development, promote energy and natural resource efficiency and conservation, prevent and control the generation of pollution and waste, remediate environmental problems, and preserve biological diversity.
- Social, cultural, legal and governmental frameworks for guiding environmental management and sustainable development.
- Environmental and health risk assessment, communication, perception and management.
- Strategies to motivate environmentally just and sustainable behaviour by individuals and institutions.

In a framework for pedagogical approaches for sustainability education, it may be said that sustainability is best understood by exploring the intersection of a number of different dimensions, such as the biophysical, cultural (including linguistic), economic, social, institutional, aesthetic and spiritual. This framework is not meant to be static; it must evolve as we improve our understanding of what sustainability entails. The real world changes, and our understanding of it is full of uncertainty. Instead of only conveying facts, true education entails a process of iterative questioning and probing.

Students should learn that systems thinking provides understanding rather than explanation, and that it emphasises:

- Wholes over parts.
- Relationships over objects.
- Contextual over objective definitions.
- Patterns over contents.
- Quality over quantity.
- Process over structure.
- Dynamic equilibrium over stability.
- Development over growth.
- Inclusiveness over exclusiveness.
- Non-linear dynamics.
- Complex cause-effect relationships.

Systems thinking is a mode of cognition that exists in us all, but tends to be de-emphasized and overshadowed by linear thinking within formal education. Failure to apply systems thinking when it is required often results in incomplete or erroneous solutions to problems. Systems thinking can lead to the understanding of the root causes of problems and lead to more lasting, holistic and equitable solutions.

Communities and institutions play a critical role in sustainable development, the same being true to both industrialised and developing countries. Students must understand the principles by which communities and institutions operate and can contribute to bringing about a sustainable future.

Students should especially be guided to discover and understand the focus and operations of the communities and institutions to which they themselves belong or which impact them significantly, and to participate in these communities and institutions in order to assure their contribution to a sustainable future.

Conclusions

If children and adults are to develop interdisciplinary, systems-based knowledge of the natural and built environments and the skills to participate actively in developing a sustainable society and economy, education for sustainability should be infused into more subject areas and at all grade levels. It also should be reinforced in post-secondary institutions and outside the walls of the classroom. Fortunately, education leaders in many states are working toward these goals. The *UN Decade of Education for Sustainable Development* is also a positive step in the right direction.

The challenge today is to encourage and support comprehensive programs that result in learners with a commitment to sustaining ecologically sound and economically prosperous communities, cities, and regions. To date, work has been largely focusing on education for the environment. Tomorrow, such work should be focusing on global education where sustainable development is a central component.

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