

Environmental Education and Sustainable Development: A Further Appraisal

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Abstract

According to UNESCO's recent documents, sustainable development is the "ultimate goal of the Man-environment relationship"; thus, the whole educational process should be "reshaped for sustainable development." In view of the extreme importance of their educational impact, such statements need to be discussed. To which conception of environment, of education and of sustainable development does the concept of *environmental education for sustainable development* refer? This article presents theoretical tools that can be used to undertake a critical analysis of these constructs. Finally, the idea of including environmental education in the broader scope of an *education for the development of responsible societies* is considered.

Résumé

Selon de récents documents de l'UNESCO, le développement durable doit être considéré comme la finalité de la relation de l'être humain à l'environnement; à cet égard, il importe d'entreprendre une véritable "refonte" de tout le processus éducatif, où l'éducation relative à l'environnement (ERE) deviendra l'un des outils du développement durable. En raison de son ampleur et de son extrême importance, cette prescription ne doit-elle pas être rigoureusement analysée et discutée? Entre autres, à quelle conception de l'environnement, de l'éducation et du développement le concept d'*éducation pour le développement durable* réfère-t-il? Cet article présente des outils conceptuels et théoriques susceptibles d'aider à entreprendre une analyse critique de cette proposition éducative. Constatant les pièges d'une éducation pour le développement durable, de même que les limites inhérentes

à l'éducation relative à l'environnement en regard de la globalité des problématiques contemporaines, l'auteure propose enfin d'inscrire cette dimension de l'éducation (l'ERE) dans le contexte plus global et plus riche d'une *éducation pour le développement de sociétés responsables*.

The principles of environmental education (EE) as set forth in the Tbilissi Declaration (UNESCO-UNEP, 1978, pp. 26-27) already include the fundamental elements of sustainable development: the need to consider social aspects of the environment and take into account the close links between economy, environment and development; the adoption of both local and global perspectives; the promotion of international solidarity, etc. Scoullos (1995), a pioneer of EE from the pre-Stockholm generation, notes that "the idea of environmental protection was never cut off from the idea or the need for a particular type of development." Nevertheless, interest for a "new focus" in environmental education and the need to define the concept of *environmental education for sustainable development* (EEFSD) have emerged over the past few years. This orientation does not seem to add new objectives or principles to EE, nor to propose a different educational approach. The characteristics of EEFSD as defined by Daniela Tilsbury (1995) are the same as those of EE identified by Hart (1981) and the United Nations Educational, Scientific, and Cultural Organization (in UNESCO-PNUE, 1986): holism, interdisciplinarity, value clarification and integration, critical thinking, issue-based and action learning, etc. What, then, is really new?

No doubt, it was necessary to counter a certain conception that EE was focusing too narrowly on the protection of natural environments (for their ecological, economic or aesthetic values), without taking into account the needs and rights of human populations associated with these same environments, as an integral part of the ecosystem. Likewise, it was also necessary to update the EE discourse by emphasizing aspects related to contemporary economic realities and by placing greater emphasis on concerns for planetary solidarity.

The concept of sustainable development has thus been associated with environmental education to promote development

models based on the wise use of resources, with concerns for equity and durability. Within the framework of its international environmental education program, the United Nations Educational, Scientific, and Cultural Organization (UNESCO, 1995a) even proposes sustainable development as the ultimate goal of "Man's" relation with the environment. It is therefore suggested to "reorient" environmental education (1995b) and moreover, to "reshape" the entire educational process to meet this end (UNESCO, 1992).

Obviously, the concept of sustainable development, promoted by the World Commission on Environment and Development (WCED, 1987) and popularized by the Rio Conference (UNCED, 1992), has been successful in starting a dialogue between economic and environmental worlds. Yet it is still subject to challenge and contestation (Disinger, 1990, Slocombe and Van Bers, 1991; IDRC, 1992; Orr, 1992; Mead, 1994; Plant, 1995, etc.). Moreover, the adoption of the sustainable development "credo" in education seems to present a major problem. In his article entitled "Why I don't want my children to be educated for sustainable development," Bob Jickling (1992) denounces undertaking educational actions based on such dubious conceptual and ethical foundations. He argues: "Education is concerned with enabling people to think for themselves. Education "for" sustainable development ... or education "for" anything else is inconsistent with this criterion" (p. 8). The goal of education is the optimal development of people, with an emphasis on autonomy and critical thinking. As we shall see, this reaction seems all the more justified considering that until now, certain discourses on EEFSD have been rather inadequate, if not somewhat unenlightened.

The aim of this article is to pursue critical reflection with regard to the links between EE and sustainable development. We will see that behind the notion of *environmental education for sustainable development* lie differing conceptions 1) of the environment, 2) of education, and 3) of sustainable development; we will also observe that these underlying conceptions determine the different discourses and practices of EEFSD. This seems quite obvious. Nevertheless, though they form the basis of any decision regarding educational action, these conceptions are rarely clarified (as noticed by Jickling, 1993, 1994). Emphasizing the urgency of taking action, there is even a tendency to reduce to a minimum any

“useless discussion” (UNESCO, 1995b, p. 3) on this topic.

In order to move forward in a pertinent manner, it is of prime importance to reveal and confront the underlying conceptions shaping the construct “environmental education,” whether the perspective of sustainable development is fully adopted or is considered from a critical point of view. This process of clarification concerns both our own representations and those expressed in the practices and the discourse of others. The following typologies are presented as tools for the analysis of these representations.

A typology of conceptions of the environment

A phenomenographic study of discourses and practices in EE (Sauvé, 1992) identifies six paradigmatic conceptions of the environment. The influence of these different conceptions can be observed in the pedagogical approaches and strategies suggested by different authors or adopted by educators (Sauvé, 1994).

*Environment as **nature** ... to be appreciated, respected, preserved*

This is the original, “pure” environment, from which humans have dissociated themselves and to which they must learn to relate in order to enrich their quality of being (qualité d'être). For some, it is nature-as-a-cathedral, that we must admire and respect. Nature exhibitions (i.e. Montreal Biodôme) are an example of an educational strategy adapted to this view. For others, it is nature-as-a-uterus in which we should “fuse” so as to be reborn. To this purpose, Steve Van Matre (1990) and Michael Cohen (1989) promote nature-immersion strategies. According to Cohen, only an experiential approach of nature - “how nature works” - allows us to interact with it in an appropriate manner.

*Environment as a **resource** ... to be managed*

This is our collective biophysical heritage, which sustains the quality of our life. This limited resource is deteriorating and wasting away. It should be managed according to the principles of sustainable development and equitable sharing. The goal of sustainable development, according to the WCED (1987), refers to

this conception of environment-as-a-resource: we must make the necessary decisions to ensure adequate resources for our, and future, generations. Among the teaching/learning strategies adopted in this view, are those related to resource or heritage interpretation in parks and museums (to ensure that the public acknowledges and appreciates the resource) and campaigns for the wise use of resources (such as recycling). An interesting pedagogical strategy also proposed is the environmental audit which can be applied to energy consumption or waste management (Panneton, 1994; Baczala, 1992).

*Environment as a **problem** ... to be solved*

This is the biophysical environment, the life support system, which is threatened by pollution and degradation. We must learn to preserve its quality and restore it. Educational strategies that help develop problem-solving skills (as proposed by Hungerford et al., 1992) are often favoured. Essential learnings include how to identify, analyze and diagnose a problem, how to search for and evaluate different solutions, how to conceptualize and execute a plan of action, how to evaluate the process and ensure a constant feedback, etc. A pragmatic approach is adopted here.

*Environment as a “**place to live**” ... to know and learn about, to plan for, to take care of*

This is the day-to-day environment, at school, at home, in the neighborhood, at work and at play. This environment is characterized by its human, socio-cultural, technological and historical components. This is *our* environment, one that we should learn to appreciate and one towards which we must develop a sense of belonging. We should learn to plan and take care of our “place to live.” From this perspective, André Vernot (1989) associates EE with the development of a theory of daily life. The pedagogical process aims to transform each of us so that *we* may transform our daily reality: each person must become a creator of, and actor in, his or her own environment. David Orr (1992, p. 131) (inspired by Thoreau) proposes an *education for reinhabitation*, which favours developing the art of living in harmony within our place. *L'étude de milieu* as proposed by Bernard Dehan and Josette Oberlinkels

(1984), appears to be an effective model for education about and for the environment-as-a-place-to-live.

Environment as the biosphere ... in which we all live together, into the future

This is Buckminster Fuller's "Spaceship Earth" or the "finite world" of Albert Jacquard (1991); the "Terre-Patrie" of Edgar Morin and Brigitte Kern (1993), and James Lovelock's (1986) self-regulating organism called GAIA. This is the object of a planetary consciousness. It is a world of interdependence between beings and things, calling for solidarity among all peoples. The conception of environment-as-the-biosphere is favoured by the *Global education* movement (Pike and Selby, 1990), or the *Earth education* movement (*éducation dans une perspective planétaire*, following the CIDA appellation; *éducation dans une perspective mondiale*, as proposed by IDRC). These educational movements aim to develop an understanding of the multiple dimensions of the world and to stimulate effective participation in dealing with salient issues. Among suggested teaching/learning strategies, we can find case studies applied to global issues or an audit of consumer goods produced in different parts of the world. Caduto and Bruchack (1988) propose learning activities beginning with the telling of Amerindian tales and legends where different cosmologies reveal the close links between human beings and the Earth.

Environment as a community project ... in which to get involved

This is the environment of a human collectivity, a shared living place, a political concern, the focus of critical analysis. It calls for solidarity, democracy and personal and collective involvement in order to participate in the evolution of the community. Here we find many preoccupations of the *socially critical environmental education*, as identified by Robottom and Hart (1993). We also find the characteristics of the *grass-roots environmental education* proposed by O'Donoghue and McNaught (1991) and Ruiz (1994). The pedagogical model developed by William B. Stapp and his team (1988) has proved relevant to this outlook: it proposes a research-action process for community problem solving. Also pertinent is the Environmental Issue Forum's strategy (NAAEE, 1993) which invites citizens, as members of a community, to study

Environment...	type of relationship	principal characteristics	examples of teaching / learning strategies
as nature	to be appreciated, respected, preserved	the original, "pure" environment; nature-as-a-cathedral; nature-as-a-uterus	<ul style="list-style-type: none"> • nature exhibitions; • immersion in nature
as a resource	to be managed	our collective biophysical heritage, sustaining quality of life	<ul style="list-style-type: none"> • 3Rs campaigns; • audit of energy consumption
as a problem	to be solved	the biophysical environment, supporter of life, threatened by pollution, deterioration	<ul style="list-style-type: none"> • problem-solving strategies • case study
as a place to live	to know and learn about, to plan for, to take care of	our daily living environment with its sociocultural, technological and historical components	<ul style="list-style-type: none"> • environmental story of our place • eco-gardening project
as the biosphere	in which we all live together, into the future	the spaceship Earth, object of planetary consciousness, a world of interdependence between beings and things	<ul style="list-style-type: none"> • case study on a global issue; • storytelling illustrating different cosmologies
as a community project	in which to get involved	a shared living milieu; the focus of socially critical analysis; a political concern for the community	<ul style="list-style-type: none"> • integral action-research (participatory process aimed at transformation); • environmental issue forums

Table 1. A typology of conceptions of the environment in environmental education (Sauvé, 1992, 1994).

and discuss a particular problem in order to identify elements of consensus which will lead to identifying, choosing and implementing appropriate solutions.

Although each of these six archetypal conceptions is at the core of a particular social representation¹ of the environment, it can be observed that in each singular representation, the core may be enriched (at the center or in the periphery of the representational scheme) by another conception, or by a combination of characteristic elements of two or three other archetypes. These six conceptions are eminently complementary and can be combined in many ways.

These conceptions of the environment (Table 1) may be considered from a synchronous perspective: they actually coexist and can be identified in different contemporary environmental education discourses and practices. But they can also be approached diachronically, as they are also the result of an evolution in time. For example, we know that certain roots of environmental education can be found, for example, in the *nature education* movement of the 1920's (referring to the environment-as-nature conception) and also in the *conservation education* movement which arose in the middle of this century (referring to the environment-as-a-resource conception). In the early '70's, the environment came to be perceived mainly as a problem. Around this same time, the notion of the environment as a "place to live" was becoming more popular with environmental psychologists (Ittelson, 1973), while certain European educators (Clause, 1977) were moving towards renewal of the pedagogical approach of the study of the milieu (*l'étude du milieu*), as an investigation process about, from and for the *milieu*. Over the last fifteen years, a strong preoccupation with the biospheric dimension of the environment has emerged, particularly in Northern countries. The environment-as-a-biosphere view was triggered by the globalization of information and markets and by the growing awareness of the interrelationship between global and local environmental phenomena. The First world has begun to acknowledge its responsibility towards developing countries and a certain fear of the "boomerang effect" of human misery seemingly adds to the impetus for world solidarity. Meanwhile, in the southern countries, and in some areas of the North, the concept of environment-as-a-community-project is

becoming dominant, echoing Michel Maldague's (1984) concern for a *mesological education* (educating about, within and for a global living milieu, in order to solve community problems).

Ideally, a comprehensive environmental education process should consider each one of these complementary visions of the environment, either cumulatively, through carefully orchestrated interventions, or, preferably, in an integrated pedagogical approach. Unfortunately, certain EE proposals limit themselves to one or the other of these possible conceptions, thus narrowing the scope of educational action: the environment is not perceived globally and consequently, the person-society-environment relationships network (which is the focus of EE) is only partially considered. For example, certain discourses and practices relative to *education for sustainable development* adopt a narrow view of the environment, perceived essentially as a resource, as a big general store to be managed so as to ensure safe supply and long-lasting benefits. In this sense, an intervention focusing on the 3R's, prescribing civic individual behaviours of recycling, may be pertinent in a certain context, but appears limited if considered within the perspective of a holistic process. On the other hand, a democratic forum on waste management within a community group creates a link between the concepts of "environment-as-a-resource" and "environment-as-a-community-project," thus enriching the educational scope of the intervention.

It is essential to critically analyze the educational choices of an environmental education focusing on sustainable development: to what extent do these choices take into account the total environmental reality and to what extent do they favour the development of the different aspects of the person - society - environment network of relationships?

A typology of educational paradigms

The conception of education, as well as that of environment, fundamentally influences and determines educational choices in EE (whether or not there is a focus on sustainable development). In order to explore the diverse conceptions of education, we refer to the typology of educational paradigms developed by Yves Bertrand and Paul Valois (1992)². The main interest of this

typology lies in the fact that the authors show the close and mutually reinforcing links between educational and socio-cultural paradigms. For the purpose of this paper, we will examine briefly three paradigmatic visions of education, using examples of EE discourses or practices related to each.

The rational educational paradigm

This paradigm is associated with the industrial socio-cultural paradigm, which is characterized by the importance attributed to objects of production, productivity, growth, and competition. Society's relation to nature is one of domination. The corresponding educational approach is characterized by the transmission of predetermined knowledge (mainly of a scientific or technical nature) by a teacher in a position of relative authority, to a student who must reproduce it. The teaching strategies of formal presentation, demonstration and task prescription are favoured. For example, consider the Hi-Q Bowl strategy recently proposed in an EE journal (Gwyn & McCabe, 1994): students are encouraged to demonstrate their intellectual capacities by memorizing facts, figures, names and dates relating to environmental issues; they then participate in a contest in which they try to answer (as quickly as possible) the greatest number of questions.

The humanistic educational paradigm

*This paradigm is linked to the existential socio-cultural paradigm, which emphasizes optimal personal accomplishment according to each individual's potential and desires. The relationship to nature is one of respect and harmony. The humanistic approach in education focuses on the learner and the learning process, and subjectivity is taken into account. Optimally, the goal is to develop the many facets of the person. Clifford Knapp and Joël Goodman (1983) adopt this approach in *Humanizing Environmental Education*; the authors emphasize the importance of integrating the affective dimension in EE programs. Many *nature education* activities and *environmental value education* activities are related to the humanistic vision of education.*

The inventive educational paradigm

*This third paradigm is related to the symbiosynergic socio-cultural paradigm, focusing on the symbiotic relationship between humans, society and nature. The inventive paradigm favours critical construction of knowledge (implying a recognition of inter-subjectivity) and the development of relevant and useful actions. This vision calls for new educational practices, such as making schools more open to the “real world,” co-operative learning, concrete problem-solving, etc. Many aspects of the socially critical environmental education, as defined by Ian Robottom and Paul Hart (1993, pp 23-25) correspond to this vision. So does the *pédagogie de projets interdisciplinaires* (interdisciplinary projects pedagogy) as applied to EE by Charles De Flandre (1991).*

Sociocultural paradigm	Associated educational paradigm	Principal characteristics	Examples of EE pedagogical approaches
industrial: nature domination and competition for productivity and growth	rational	transmission of predetermined knowledge (mainly of a scientific and technological nature)	formal presentations or demonstrations; modules approach for training
existential: respect for nature, in search for harmony and personal accomplishment	humanistic	optimal development of the many dimensions of the learner; “freedom to learn”	confluent approach for nature education or environmental value education
symbiosynergic: toward symbiotic relationship between human, society and nature	inventive	critical construction of knowledge for social transformation; cooperative learning	“grass roots” EE; socially critical environmental education

Table 2. A typology of educational paradigms in environmental education (from Bertrand and Valois, 1992)

The analysis of environmental education discourses and practices reveals the influence of one or another underlying educational paradigm, which places emphasis on a more or less explicit set of values. A typology of paradigmatic conceptions of education, related to socio-cultural paradigms, becomes an essential tool for the analysis and clarification of educational choices (Table 2). In the following section, we shall examine how different conceptions of *education for sustainable development* refer to different paradigmatic visions of education.

A typology of sustainable development conceptions

Immediately one recognizes that nothing is longer term in this respect (i.e., the development and institutionalization of practices promoting sustainable development) than environmental education, conducted from preschool age through the university years and all life thereafter, in school and out of school, for all succeeding generations. (UNESCO-UNEP, 1988)

Education is of prime importance for promoting sustainable development and helping people to develop competencies in order to solve environmental and development problems. (UNCED, 1993, chap. 36.3)

Environmental education is thus closely associated with sustainable development. This relationship however can be perceived in different ways. For some, sustainable development is the ultimate goal of environmental education: the term *environmental education “for” sustainable development* (EEFSD) is proposed. For others, sustainable development refers to specific objectives, which should be added to those of environmental education: therefore, they use the expression *education for environment “and” sustainable development*. According to the document proposed by UNESCO (1992) at the ECO-ED Conference, EE is just one of many thematic educations that contribute to the overall *education for sustainable development*. For others still, the term *environmental education* implicitly includes *education for sustainable development* and it is therefore pointless to change the terminology; quite the contrary, this could lead to confusion and might have a negative impact on EE. Finally, the expression

education about sustainable development is found in the literature: sustainable development becomes the focus of a critical analysis. In retrospect, if the debate surrounding the expressions *environmental education* and other terms such as *education for environment* is still going on after more than twenty-five years, it can be expected that the discussion concerning the relationship between environmental education (or education for environment) and sustainable development will not be resolved in the immediate future. As suggested by Bob Jickling (1992), we must however continue to critically review the relationships between sustainable development and environmental education.

In this sense, a typology of conceptions of sustainable development appears to be an interesting analytical tool. The following typology is inspired by the work of the Inter-American Organization for Higher Education and the Calgary Latin American Studies Group (1994³).

Continuous development owing to technological innovation and free trade

This conception of development welcomes free trade on a world scale: it will engender a new equilibrium and generate increased wealth in both First and Third World societies. "Specializing in their areas of advantages (wages, natural resources, technological innovation), nations and regions create more and progressively higher paying jobs, which in turn precipitates a demand for consumer durables and non-durables, engendering in the process an income/consumption spiral which sustains prosperity indefinitely." Environmental problems can be alleviated through technological innovation and legislation can control the consumption of resources and deal effectively with air, water, and soil pollution. This conception implies the maintenance and/or consolidation of a technocratic and market driven society capable of managing both human and natural resources, as well as environmental problems.

According to the Lisbon Group's report (Groupe de Lisbonne, 1995), the advocates of economic competition:

...consider that the struggle against ecological problems can be won if firms can have the greatest freedom with regards to competitiveness. Their argument is simple: if we provide market mechanisms with the

freedom they need, competitiveness will establish a necessary balance between cost and price. Firms will succeed in covering environmental costs. This will result in a just and equitable costing of natural resources. Gradually, both consumer and investor will turn to products and processes that do not harm the environment. (p. 160)

Among the management tools required for increased productivity in a competitive world, Langlois (1995, pp. 61-82) and Orr (1992, p. 161) identify the following: privatization, deregulation, exchange liberalization, less government intervention (i.e., reducing social services), employment flexibility (i.e., precarious jobs), weakening of trade unions, etc. Each player must strive to carve out his or her own market share: this is essential to creating employment and increasing wealth. Neo-liberalism warrants a form of social Darwinism that favours those best “adapted” to this type of competition-oriented development, where the rules of the game are made *a priori* by and for the richest. Moreover, as observed by Harvey Mead (1994), some believe that only significant economic growth in the North can generate the necessary wealth to create a balance between North and South.

The underlying environmental ethic expressed here is the one of “shallow ecology” which, according to Grey (1986), is part of the technocratic socio-cultural paradigm. Joseph Hofbeck (1991, p. 165-181) observes that shallow ecology targets the fight against pollution and waste but does not question our traditional modes of thought and behaviour in the economic, political and social spheres. David W. Orr (1992, p. 91) observes that the use of words such as “resources,” “management,” “environmental engineering” and “production,” are the hallmark of a “Man-Nature” monologue, rather than an exchange or “conversation”⁴.

The economy-society-environment triad, which forms the basis of the theoretical framework of sustainable development, illustrates that the economy is not perceived as an integrating aspect of social reality, nor as an artifact of society, but rather as a distinct entity outside of society. The economy imposes on society just as it imposes on the environment. Here we recognize a manifestation of what McTaggart (1992) calls “the cult of economic inevitability.”

In this context, education is seen more as a process of information transfer (mainly of scientific, technical and

legislative types), which aims to ensure environmental “conformity” to economically acceptable norms.

Government and industrial sectors defined guidelines and policies relative to environmental protection and economic planning. Technological innovations were devised as the means to find the necessary solutions. In the long run, however, change and renewal will depend on the support and acceptance of an informed public, willing to collaborate. (LST, 1993, p. 8)

Surprisingly, the first UNESCO documents concerning *education for sustainable development* (UNESCO, 1992) reflected these paradigms of development and education. The goal of the proposed educational change is explicit:

to build a sustainable future based on the fragile balance between competing needs. This balance should not be based on the principles of a universal moral, but rather on negotiated compromises between an active, informed public and decision-makers from both political spheres and the business world. (UNESCO, 1992, p. 1)

Further, education for sustainable development must promote “creative and effective use of human potential and all forms of capital to ensure rapid and more equitable economic growth, with minimal impact on the environment” (p.3).

The analytical framework provided by Yves Bertrand and Paul Valois (1992) is useful to critically examine this discourse surrounding *education for sustainable development*: “competitive needs,” “education for productivity,” “human capital,” etc. It can be observed that the socio-cultural industrial paradigm and its corresponding educational paradigm (rational paradigm) are predominant. Here, education is first and foremost perceived as a “central economic investment for the development of creativity, productivity, and competitiveness,” and as a transfer process where scientific and technical knowledge is favoured (UNESCO, 1992, p. 14). The image of a young black African woman seated in front of a computer is presented as an illustration of education for development.

This *environmental education for sustainable development* framework refers to the paradigmatic conception of environment-as-a-resource and to the conception of education as a technological information transfer process: it is mainly education *for* the

environment, aiming to support a certain economic conception of the quality of life. The development notion (adopted here as the basis for *education for sustainable development*) refers to the “techno-economic conception of development.” This very notion, according to Edgar Morin and Brigitte Kern (1993, p. 89), remains tragically under-developed as it “ignores issues of human identity, community, solidarity, and culture ... It infers the notion of under-development, which is itself a poor and abstract product of this poor and abstract notion of development.”

Development as dependent on world order and production modes

This conception holds that free market and technological innovation bring development. However, it must be recognized that the distribution mechanisms of the “new wealth” (employment, quality of life) are anachronic and under-developed. Because of this, social polarization is increasing in the North as in the South. “While policy makers employ the rhetoric of sustainability, freer markets undermine government’s ability to regulate consumption and pollution.”

For example, Richard Langlois (1995, p. 72) notes that from 1960 to 1990, world wealth increased more than fivefold, while the number of poor people continued to rise: there are currently more than 1.4 billion people in the world earning less than \$1 US per day. Therefore, in addition to technological innovation and market liberalization, there is a need to consider restructuring political, economic, and social organizations (through pacts, agreements, legislation, co-ordinating structures, etc.): top organizations at world or macro-regional level should provide the essential conditions for sustainable development.

This conception of sustainable development leads to the same educational proposals that characterized the previous conception. Nevertheless, there is room for a certain critical appraisal of contemporary realities. This critical approach could lead us for example to ask questions such as: would not such an order, emanating from a decision-making elite, gradually lead to the creation of what Maya (1993) calls “dependent cultures”?

The dependent cultures have lost the initiative of investigating their environment and of developing technological supports or solutions.

They apply technological kits offered on the international markets by those who have the privilege of the scientific initiative. (p. 11)

Alternative development

This development model simply proposes that we learn to live within our means. Sustainable development is perceived as an endangered concept, which does not stand up to analysis. It sanctions the *status quo (business as usual)*, sustainable profit, and it therefore cannot allow for a radical reform of relationships between people and between humans and Earth-Nature (Nozick, 1992, p. 13).

Perhaps most disturbing is the sense that neither equity nor the environment itself are the concerns that underlie the recent Northern interest in "sustainable development." Rather, primary concerns continue to lie in sustaining Northern consumption levels and maintaining the conditions necessary for economic growth. Notwithstanding growing skepticism about the adequacy of the "techno-fix" approach, the associated position is that economical problems can be technologically controlled in a market system, provided only that some adjustments are made to ensure that prices include environmental externalities. Even the depletion of natural resources is not viewed as a fundamental problem - it is assumed that new technologies will allow for continuous substitution. (Although there are fears that the growing Southern population and its increasing resource demands will mean less for the North and for the future generation.) (IDRC, 1992, p. 37)

Here we find a severe critic of the "triumphant economy" (Jacquard, 1995), where increased productivity supports massive unemployment and wage stagnation. Langlois (1995, p. 63) indicates that over the last ten years, "the world's 500 largest firms have laid off an average of 400,000 employees per year, despite a sharp increase in their profits." Along with Jacquard, Langlois observes that competition (which by definition creates exclusion) does not seem to correspond with human development. As an example, the *Rapport mondial sur le développement humain* (PNUD, 1994), cites the case of Singapore which ranks second world-wide for competitiveness but 43rd with regard to human development (in Langlois, 1995, p. 73).

Consumption should no longer be the primary social and cultural objective: it should be replaced by improved quality of

social relations, a closer relationship with nature, a spiritual existence and the pleasure of physical activity. It is crucial to replace non-renewable resources by renewable ones, such as solar, wind, or muscle power. This conception of alternative development also refers to a type of decentralized society that is less a "global village" than a globe of interrelated villages (Morris, 1982, in Nozick, 1992).

The Global Village is an insidious cultural force which is erasing cultural diversity and threatening the integrity of communities by bringing monotony, meaninglessness and more of the same. (Nozick, 1992, p. 11)

Top down organizations ... are characterized by the pursuit of their own goals, which, when examined closely, are perceptibly related to controlling people (government), managing their affairs (bureaucracies) and dominating marketplaces (transnationals). (Nozick, 1992, p. 13)

Here, the idea of the *development of sustainable communities (or sustainable societies)* replaces that of sustainable development (Slocumbe and Van Bers, 1991). This type of development emphasizes a bioregional economy based on the following principles (according to Orr, 1992, p. 161): distinguishing real needs from desires, reducing dependence and increasing autonomy, favouring renewable resources, using available resources locally, rebuilding regional and local economies, putting in place the social conditions for strong communities, and promoting participation and solidarity. The ethical foundations of such an orientation is linked to the *deep ecology* movement which advocates the interdependence of beings, diversity and symbiosis, equality of social classes, a global fight against pollution and waste, and local autonomy and decentralization (Hofbeck, 1991).

Education is seen as a process of critical investigation and transformation of the environmental and social realities of a community by people from this community (Greenall Gough, 1993; Valverde, 1995; Ordonez, 1993). Javier Reyes Ruiz (1994) proposes a *grass-roots environmental education* not aiming only to balance economic development and environmental constraints, but also concerned with change in the political structures, and promotion of social values that favour optimal harmony among people.

It is no longer a question of transmitting exogenous knowledge: “education starts from the community experiences and search for possible solutions to significant problems” (Maya, 1993). Augusto Angel Maya (1993) advocates an environmental education:

... related to the construction of a participatory society. A society where science ceases to be a weapon for competition, and becomes a tool for transformation, for social change. The process of education based on participatory investigation brings to the community scientific information and methodological tools so as to help people construct their own development. (p. 12)

The discourse on environmental education that was expressed in the NGOs' *Treaty on environmental education for sustainable societies and global responsibility* (Earth Council, 1993) relates to this conception of education and development. The *Treaty* puts forward the expression *Environmental education for sustainable societies and global responsibility*. The emergence of a new universal ethic is emphasized, which calls for the “respect of all forms of life.” The main themes are solidarity, freedom from alienation, profound social transformation, questioning of the dominant socio-economic systems and the current growth-based development models, etc. The ultimate goal of education is the development of harmonious, responsible societies.

Many characteristics of the symbiosynergic socio-cultural paradigm and of the corresponding inventive educational paradigm (Bertrand and Valois, 1992) can be found here. According to this paradigm, education is not associated with the transmission of predetermined knowledge, but with the production of new knowledge in a co-operative and critical process. Environmental education is linked to the conception of environment-as-a-community-project. Emphasis is placed on an educational perspective (education for personal and social development in relation to the environment) rather than on exclusive environmental preoccupations (as in some discourses promoting *education for environment*). Development is not perceived from a resource management perspective according to a rational and exogenous economic logic. Instead, it is defined as “the community's competency to interpret its own problems, natural resources, needs and aspirations and to develop creative projects that minimize social and environmental costs” (Ossa, 1989).

It may be observed that many discourses on *environmental education for sustainable development* subscribe to the alternative development conception. Nevertheless, the notion of sustainable development appears inadequate to express the main characteristics of this development type. Sustainability is just one (and not the first one) of the many aspects of the alternative development.

Autonomous development (or indigenous development)

The development conception adopted by indigenous communities constitutes an alternative to development itself, which is perceived as an inadequate and undesirable enterprise. "For many representatives of indigenous communities, the notion of development is irrelevant." Cultural identity, associated with the occupation of a territory, as well as the integrity of the territory's resources (preservation or regeneration), constitute the only sure values to guarantee true development.

According to the Coordinadora de las Organizaciones Indígenas de la Cuenca Amazonica (COICA, 1994), indigenous populations want their own distinct model of development based on the respect of their cultural identity and their quest for greater autonomy. They foresee a form of collective subsistence economy, based on solidarity, associated with one's territory and drawn from a distinct cosmology. This kind of development promotes traditional knowledge and techniques. It envisions the gradual entry into regional and subsequently, broader markets, as well as an openness to new technologies. But the preservation of indigenous cultural integrity remains of crucial importance.

Here, education finds itself on particularly difficult or hostile ground concerning any sort of exogenous literacy. It is important to take advantage of the traditional knowledge and to promote autonomy in the construction of significant, critical and useful knowledge. Finally, because of the specificity of the context (namely, the close relationship between community and nature), we can hope that in the indigenous communities innovative educational strategies will emerge that could become sources of inspiration for educational action among communities that have adopted other paths of development.

Sustainable development conceptions	Principal characteristics	Associated conception of the environment	Associated educational paradigm
Continuous development owing to technological innovation and free trade CREDO: economic growth following neoliberal principles will solve social and environmental problems.	Productivity and competitiveness within a market-driven society; free trade on a world scale; scientific and technological innovation for economic growth; legislative control	Environment as a resource to be developed and managed; rational use of resources for sustainable profit, and thus sustainable quality of life	Rational paradigm: education as training, as an information transfer process (mainly of a scientific, technological and legislative nature)
Development as dependent on a world order CREDO: economic growth will solve social and environmental problems if a world order (from top organizations) regulates consumption, pollution and mechanism of distribution of wealth.	Free trade on a world scale; scientific and technological innovations for economic growth; restructuring of political, economic and social organizations: world or regional-wide pacts, agreements, legislation, etc.	The whole biospheric environment, as a pool of resources to be globally managed by top organizations	Rational paradigm: same approach as in previous SD conception, but acceptance of a certain critical approach of the failures of the neo-liberal system
Alternative development CREDO: only a complete global shift in social values and choices will permit the development of sustainable communities.	Development of bio-regional economy: distinguishing real needs from desires, reducing dependency, increasing autonomy, favouring renewable resources, stimulating democratic process, participation and solidarity, etc.	Environment as a community project	Inventive paradigm: a community-led process of critical investigation toward the transformation of social realities
Autonomous development (Indigenous development) CREDO: development is valued if it is rooted in cultural identity and if it preserves territorial integrity.	Collective subsistence economy based on solidarity, associated with one's territory and drawn from a distinct cosmology	Environment as a territory (a place to live) and as a cultural community project	Inventive paradigm: construction of contextually significant and useful knowledge, taking into account traditional values and know-how.

Table 3. A typology of conceptions of sustainable development (from the Calgary Latin American Studies Group 1994).

Table 3 presents a summary of the Calgary Latin American Study Group typology of different conceptions of sustainable development, with the associated conceptions of the environment and paradigmatic visions of education.

Conclusion

Different conceptions of environment, education and sustainable development coexist. These conceptions influence the way educators define and practice EE. Should this diversity be perceived as a problem? Should it be ignored in the search for standardized definitions? On the contrary, as suggested by Jickling (1995), Hart (1990), Robottom (1990) and others, this diversity needs to be acknowledged and considered as “fuel” for critical reflection, discussion, contestation, and evolution. It should be taken into account in a clarification process aimed at helping educators develop their own relevant EE theory. Research shows that despite formal theory, in the end, it is the educator's personal theory, self constructed, whether explicit or not, that influences his or her daily pedagogical choices (Donnay and Charlier, 1990, pp. 95-96; Hart, 1990).

Hence, as put forward by Jickling (1994), before attempting to design an environmental education program or activity, it is important to clarify our underlying essential representations. Such a process should be encouraged within the framework of critical discussions concerning significant educational, environmental and social realities. The typologies of conceptions which have been presented here can then be used as tools to challenge initial theories and usual practices. Such a personal and collective confrontation is necessary in order to permit the intervention partners to construct a shared meaning of the desired changes. It appears to be a crucial component of a professional development process for environmental educators concerned with relevance and coherence.

Discourse analysis and the observation of contemporary practices in EE brings us to an even more global consideration. Environmental education, regardless of the manner in which it is connected to sustainable development, must face its own limits. The

complexity of the contemporary problems forces EE to interface with other interrelated educational dimensions: peace education, human rights education, intercultural education, population education, international development education, media education, etc. The list could go on and on.

The ultimate goal of these interrelated dimensions of contemporary education is the development of responsible societies. And sustainability is *one* of the expected outcomes. It appears therefore redundant to speak of responsibility *and* sustainability. Responsible development, which must be defined contextually, becomes the guarantee of a type of sustainability deliberately chosen by the community (*why?, what? for whom? how? ...*). Environmental education would benefit from being included in the perspective of *education for the development of responsible societies*, as inspired by the *Treaty on environmental education for sustainable societies and global responsibility* (Earth Council, 1992) thus surpassing the somehow limited framework of sustainable development.

Henceforth, an appropriate expression might be: *environmental education for the development of responsible societies*. This would give EE a much richer ultimate goal than *environmental education for sustainable development* does. Of course, there would be an initial need to clarify the complex notion of responsibility and to construct the theoretical framework of such a global educational project, another huge field of research.

Notes

¹ Abric (1994, p 11-36) presents the essential theoretical elements concerning social representations.

² The theoretical elements drawn from Bertrand and Valois (1992) are in italic script.

³ The theoretical elements borrowed from the Calgary Latin American Study Group (1994) are in italic script.

⁴ "The language of nature includes the sounds of animals, whales, birds, insects, wind, and water - a language more ancient and basic

than human speech. Its books are the etchings of life on the face of the land. To hear this ancient language requires patient, disciplined study of the natural world. But it is a language for which we have an affinity" (David Orr, 1992, p. 91)

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References

- Abric, J. C. (1994). Les représentations sociales: aspects théoriques. In Abric, J. C. (Ed.), *Pratiques sociales et représentations* (pp. 11-37). Paris: PUF
- Baczala, K. (1992). *Environmental audit. Toward a school policy for environmental education*. Wolverhampton University, West Midlands: North American Association for Environmental Education.
- Bertrand, Y. & Valois, P. (1992). *École et sociétés*. Montréal: Éditions Agence d'Arc.
- Caduto, M. J. & Bruchac, J. (1988). *Keepers of the earth - Native American stories and environmental activities for children*. Golden, Colorado: Fulcrum Inc.
- Clausse, A. (1977). *Le milieu: moyen et fin de la culture*. Paris: Scarabée.
- Cohen, M. (1989). *Connecting with nature, creating moments that let earth teach*. Eugene, Oregon: Michael Cohen, World Peace University.

- Coordinadora de las Organizaciones Indígenas de la Cuenca Amazónica (COICA). (1994). Taller de Economía y desarrollo autónomo de los pueblos indígenas amazónicos. *Nuestra Amazonia*, 3, 12-16.
- De Flandre, C. (1991). *La pédagogie de pédagogie de projets interdisciplinaires applicable à l'éducation relative à l'environnement - Résolution de problèmes réels*. Ottawa: Centre franco-ontarien des ressources pédagogiques.
- Dehan, B. & Oberlinkels, J. (1984). *Ecole et milieu de vie, partenaires éducatifs - Une pédagogie de projet interdisciplinaire*. Cladech, France: Centre interdisciplinaire de recherches et d'applications pour le développement d'une éducation en milieu de vie (CIRADEM).
- Disinger, J. (1990). Environmental education for sustainable development. *Journal of Environmental Education*, 21(4), 3-6.
- Donnay, J. & Charlier, E. (1990). *Comprendre des situations de formation - Formation de formateurs à l'analyse*. Bruxelles: DeBoeck.
- Earth Council. (1993). *Treaty on environmental education for sustainable societies and global responsibility*. Brazil: Non Governmental Organizations (NGO's) International, June 1992.
- Greenall Gough, A. (1993). *Founders in Environmental Education*. Geelong, Australia: Deakin University Press.
- Grey, W. (1986). A critique of deep ecology. *Journal of Applied Philosophy*, 3(2), 211-216.
- Groupe de Lisbonne. (1995). *Les limites à la compétitivité - Vers un nouveau contrat mondial*. Montréal: Boréal.
- Gwyn W. & McCabe, B. (1994). Environmental high IQ BOWL - You too can participate. *Environmental Communicator*, 24(5), 8.
- Hart, P. (1990). Rethinking teacher education environmentally. In D.C. Engleson & J.F. Disinger (Eds.) *Preparing Classroom teachers to be Environmental Educators* (pp.7-17), Monographs in Environmental Education and Environmental Studies, 7. Troy, Ohio: North American Association for Environmental Education.
- Hart, P. (1981). Identification of key characteristics of environmental education. *The Journal of Environmental Education*, 13(1), 12-16.
- Hofbeck, J. (1991). La "deep ecology": essai d'évaluation éthique. In J. A. Prades, J. G. Vaillancourt, & R. Tessier (Eds.), *Environnement et développement*, (pp. 165-181). Montréal: Fides,.
- Hungerford, H., Litherland, R. A., Peyton, R. B., Ramsey, J. M., Tomera, A. M. & Volk T.L. (1992). *Investigating and evaluating environmental issues and actions: Skill development modules*. Champlain: Stipes Publishing Company.
- International Development Research Center (IDRC). (1992). *For Earth's Sake: A report from the Commission on Developing Countries and Global Change*. Ottawa: IDRC.
- Inter-American Organization for Higher Education/Calgary Latin American Studies Group. (1994). *Sustainable development in the twenty-first century Americas*. International Conférence, Calgary, March 1994.

- Ittelson, W. (1973). Perception d'objets et perception de l'environnement. In M. Fluckinger, & K. Klaue, (Eds.), *La perception de l'environnement*, (pp 143-160). Lausanne: Delachaux et Nestlé.
- Jacquard, A. (1995). *J'accuse l'économie triomphante*. Paris: Éditions Calman-Lévy.
- Jacquard, A. (1991). *Voici le temps d'un monde fini*. Paris: Seuil.
- Jickling, B. (1995). Sheep, shepherds, or lost? *Environmental Communicator*, December, 12-13.
- Jickling, B. (1994). Studying sustainable development: Problems and possibilities. *Canadian Journal of Education*, 19(3), 231-240.
- Jickling, B. (1993). Research in environmental education: Some thoughts on the need for conceptual analysis. *Australian Journal of Environmental Education*, 9, 85-94.
- Jickling, B. (1992). Why I don't want my children to be educated for sustainable development. *Journal of Environmental Education*, 23(4), 5-8.
- Knapp, C. E. & Goodman, J. (1983). *Humanizing environmental education: A guide for leading nature and human nature activities*. Martinsville, Indiana: American Camping Association.
- Langlois, P. (1995). *Pour en finir avec l'économisme*. Montréal: Boréal.
- L'Éducation au Service de la Terre (LST). (1993). *Élaboration d'un cadre de coopération ou l'éducation sur le développement durable*. Ottawa: LST.
- Lovelock, J. (1986). Gaïa: the world as a living organism. *New Scientist*, 18(décembre), 25-28.
- Maldague, M. (1984). Éducation mésologique - Finalités de l'éducation mésologique, *De toute urgence*, 15(2), 199-211.
- Maya, A. A. (1993). Perspectivas pedagógicas de la Educación ambiental - Una visión interdisciplinaria. In F. Otalora Moreno, E.Y. Castillo & C.L. Higuera (Eds.) *Cuaderno de Trabajo - Serie Estudios Ambientales* (pp.), 2, Florencia: Universidad de la Amazonia.
- McTaggart, R. (1992). Reductionism and action research: Technology versus convivial forms of life. In S. Bruce, & A. L. Russel (Eds.), *Transforming Tomorrow Today*. Brisbane: Action Learning, Action Research and Process Management Incorporated.
- Mead, H. (1994). Quelques failles dans le Rapport Brundtland - L'évolution du concept de développement durable. In D. Messier, D. DeKoninck, & C. Delisle (Eds.), *Acte du 18e Colloque de l'Association des Biologistes du Québec, 1993* (pp. 21-31), Collection Environnement, 17. Montreal: Université de Montréal.
- Morin, E. & Kern, B. (1993). *Terre-Patrie*. Paris: Seuil.
- Morris, D. (1982). *Self-Reliant Cities*. San Francisco: Sierra Club Books.
- North American Association for Environmental Education (NAAEE). (1993). *Environmental Issue Forum - A Guide to Planning and Conducting Environmental Issues Forums and Study Circles*. Troy, Ohio: NAAEE.
- Nozick, M. (1992). *No place like home: Building sustainable communities*. Ottawa: Canadian Council on Social Development.

- O'Donoghue, R. B. & McNaught, C (1991). Environmental education: The development of a curriculum through "grass-roots" reconstructive action. *International Journal of Science Education*, 13(4), 391-404.
- Ossa, L. A. (1989). Educación ambiental. *Ecología*, 3, 3.
- Ordóñez, E. Y. C. (1993). Educación ambiental y universidad. *Cuaderno de Trabajo - Serie Estudios Ambientales*, 1, Florencia: Universidad de la Amazonia.
- Orr, D. (1992). *Ecological literacy, education and the transition to a postmodern world*. New York: State of New York Press.
- Panneton, F. (1994). *Formation relative à l'environnement: Design de formation d'un module de formation en gestion environnementale intégrée à l'intention des décideurs de la PME*, Rapport de recherche, Maîtrise en sciences de l'environnement sous la direction de Lucie Sauvé, Université du Québec à Montréal.
- Pike G. & Selby, D. (1990). *Global teacher, global learner*. Toronto: Hodder and Stoughton.
- Plant, M. (1995). The riddle of sustainable development and the role of environmental education. *Environmental Education Research*, 1(3), 263-266.
- Programme des Nations Unies pour Le Développement (PNUD). (1994). *Rapport mondial sur le développement humain*.
- Robottom, I. & Hart, P. (1993). *Research in Environmental Education*, Geelong, Australia: Deakin University Press.
- Robottom, I. (1990). Contestation and consensus in environmental education. *Curriculum Perspectives*, 7(1), 23-27.
- Ruiz, J. R. (1994). Grass-roots education and the environmental dimension of development. *Environmental Training, Newsletter of the Environmental Training Network for Latin America and the Caribbean*, 5(11), 10-13.
- Sauvé, L. (1992). *Éléments d'une théorie du design pédagogique en éducation relative à l'environnement*, Thèse de doctorat, Université du Québec à Montréal.
- Sauvé, L. (1994). *Pour une éducation relative à l'environnement*, Montréal/Paris: Guérin/Eska.
- Scullios, M. (1995). Towards an environmental education for sustainable development. In United Nations Educational, Scientific, and Cultural Organization (UNESCO), *Interregional Workshop on Re-orienting Environmental Education for Sustainable Development*, June, 26-30, 1995 (Annex 6, pp. 1-10). Athens: UNESCO.
- Slocombe, D. S. & Van Bers, C (1991). Seeking substance in sustainable development. *Journal of Environmental Education*, 23(1), 11-18.
- Stapp, W. B., Bull, J. et al. (1989). *Education in action - A community problem solving program for schools*. Dexter, Michigan: Thompson-Shore Inc.
- Tilsbury, D. (1995). Environmental education for sustainability: Defining a new focus of environmental education in the 1990's. *Environmental Education Research*, 1(2), 195-212.
- United Nations Conference on Environment and Development (UNCED). (1992). *Agenda 21 - Program of Action for Sustainable Development: Rio Declaration on Environment and Development*, United Nation Conference

- on Environment and Development, June 1992, Rio de Janeiro, Brazil.
New York: United Nations.
- United Nations Educational, Scientific, and Cultural Organization (UNESCO). (1995a). Éducation relative à l'environnement, quo vadis?. *Connexion*, 20(2), 1-2.
- United Nations Educational, Scientific, and Cultural Organization (UNESCO). (1995b) *Interregional Workshop on Re-orienting Environmental Education for Sustainable Development, June, 26-30, 1995*. Athens: UNESCO.
- United Nations Educational, Scientific, and Cultural Organization (UNESCO). (1992). *Refonte de l'éducation pour un développement durable - Reshaping education for sustainable development*, Dossiers Environnement et Développement. Paris: UNESCO.
- United Nations Educational, Scientific, and Cultural Organization - United Nations Environment Programme (UNESCO-UNEP). (1988). Sustainable development via environmental education, *Connect*, 13(2), 1-3.
- United Nations Educational, Scientific, and Cultural Organization - Programme des Nations Unies pour Le Développement (UNESCO-PNUE). (1986). *L'éducation relative à l'environnement: principes d'enseignement et d'apprentissage*, Série Éducation Environnementale #20, Division de l'enseignement des sciences et de l'enseignement technique et professionnel, ED/85/WS-39. Paris: UNESCO-PNUE.
- United Nations Educational, Scientific, and Cultural Organization - United Nations Environment Programme (UNESCO-UNEP). (1978). *Final Report, Intergovernmental Conference on Environmental Education, Tbilisi (USSR), 14-26 oct., 1977*. Paris: UNESCO-UNEP.
- Valverde, H. A. (1995). *El medio ambiente en la educación ambiental*, Document interne, Perú.
- Van Matre, S. (1990). *Earth education - A new beginning*. Warrenville, Illinois: The Institute for Earth Education.
- Vernot, A. (1989). Construcción de la nueva pedagogía, *Ecológica*, 3, 13-15.
- World Commission on Environment and Development (WCED). (1987). *Our Common Future - The Brundtland Report*. Oxford: Oxford University Press.