In Environmental Education: Identity, Politics and Citizenship the editors endeavor to present views of environmental educators that focus on issues of identity and subjectivity, and how ‘narrated lives’ relate to questions of learning, education, politics, justice, and citizenship. What is distinctive about this collection is that it highlights the views of Latin American scholars alongside those of scholars from Spain, Canada, New Zealand, Taiwan, South Africa, Australia, and U.S. The result is a philosophically nuanced reading of the complexities of environmental education that begins to reshape the landscape in terms of ethics, ontology, epistemology, and politics. The collection bears the stamp of the location of its contributors and strongly reflects an activist, qualitative, and ethnographic orientation that emphasizes the ground for action, the identity of environmental actors, and the contribution that education in all its forms can make to sustainability and the cause of the environment. At the same time, contributors go beyond simple slogans and ideologies to question the accepted truths of this rapidly emerging field.
Environmental Education
CONTEXTS OF EDUCATION

Series Editors:

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Scope:

Contexts of Education is a new series of handbooks that embraces both a creative approach to educational issues focused on context and a new publishing credo.

All educational concepts and issues have a home and belong to a context. This is the starting premise for this new series. One of the big intellectual breakthroughs of post-war science and philosophy was to emphasise the theory-ladenness of observations and facts—facts and observations cannot be established independent of a theoretical context. In other words, facts and observations are radically context-dependent. We cannot just see what we like or choose to see. In the same way, scholars are argue that concepts and constructs also are relative to a context, whether this be a theory, schema, framework, perspective or network of beliefs. Background knowledge always intrudes; it is there, difficult to articulate, tacit and operates to shape and help form our perceptions. This is the central driving insight of a generation of thinkers from Ludwig Wittgenstein and Karl Popper to Thomas Kuhn and Jürgen Habermas. Increasingly, in social philosophy, hermeneutics, and literary criticism textualism has given way to contextualism, paving the way for the introduction of the notions of ‘frameworks’, ‘paradigms’ and ‘networks’—concepts that emphasize a new ecology of thought.

This new series is predicated upon this insight and movement. It emphasises the importance of context in the establishment of educational facts and observations and the framing of educational hypotheses and theories. It also emphasises the relation between text and context, the discursive and the institution, the local and the global. Accordingly, it emphasizes the significance of contexts at all levels of inquiry: scientific contexts; theoretical contexts; political, social and economic contexts; local and global contexts; contexts for learning and teaching; and, cultural and interdisciplinary contexts.

Contexts of Education, as handbooks, are conceived as reference texts that also can serve as texts.
Environmental Education
Identity, Politics and Citizenship

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INTRODUCTION

During its thirty years of existence, despite having faced problems and diverse challenges from country to country, environmental education (EE) has acquired a certain influence over the design of educational and environmental public policies on an international level. Throughout these three decades, environmental education has contributed to the configuration of new ontological and epistemological proposals, as well as introducing practices that have become well-established and have made significant contributions to the strengthening of not only the environmental education field but educational processes in general. However, as EE became established a great variety of viewpoints were taken into account and elements incorporated not only from the widest variety of theoretical approaches and philosophical currents, but also from very different schools of thought and action, which established important articulations with complex social movements such as feminism, multiculturalism, peace, democracy, health, consumerism and human rights to mention but a few.

These articulations have originated a new educational field which some have tagged with a variety of appellations to do with sustainability, but those of us who have been personally involved see the maturation of an environmental education field increasingly immersed in the realities of the world (or worlds) we live in. We are therefore dealing with a poly-discursive field that demonstrates significant specific political weight and that is linked not only to prevailing diverse pedagogical concepts (as is the case of all educational fields), but also to how existing environmental problems are defined and prioritized. It is a field that has been increasingly displaced as nature conservation has been deprived of its scientific, ecological funding while social and political considerations receive more attention. This is indispensable for the successful implementation of environmental education in countries where there are enormous segments of the population living in poverty and in other countries where wastefulness is the norm.

This displacement is fragmenting the field and giving it the dynamism that characterizes other currently emerging pedagogical fields. This is important because by means of more conceptually-loaded discourses on the creation of a critical citizenry, it may be possible to offset the tendency to hegemonize the field and to counteract those banal, superficial formulations so popular among certain institutions and organizations that continue to emphasize the problem of rubbish (though without analysing the production, distribution and consumption processes typical of the neo-liberal system in vogue). This may well be the most serious problem to be faced by environmental education and it is hoped that this less
The central role may lead us to discover new ways of constructing an environmental education that responds to our distinctive cultural identities in a global context.

The environmental field, in general, is a complex space crammed with social issues and it comprises an enormous variety of discourses and ideologies of varying degrees of radicalization. Environmental education is also included in this space, often in contradiction to the cultural and economic practices heralded in the mass media, especially as of the growth of free trade that goes hand-in-hand with the neo-liberal economic styles worshipped by globalization.

Environmental education has much to contribute to the process of establishing new social identities in response to the challenges of these difficult times because, as this new pedagogical field becomes established, it is increasingly distanced from the original proposals for an environmental education coupled with naturalism, conservationism and other movements that place importance on preserving the environment without taking into account the needs and expectations for social change of human groups that live in natural spaces.

Although we are witness to an epoch in which the structures of the dominant systems of meaning of the scientific, social and economic worlds have been weakened, thereby contributing to the generalized crisis we are experiencing as a result of the erosion of the foundations on which the edifice of modern times is built, we also see opposing forces that tend to construct new systems to replace the old (complexity, globalization, uni-polarity, etc.). The environmental field is undergoing this process and within it, conventional environmental education, since it constitutes a signifier that has been emptied of meaning to make way, with complete indifference, for the different pedagogical projects that are derived from the various ideological-political conceptions and postures of the environmentalist phenomenon. This gives a floating, fluid characteristic to the boundaries that separate the different approximations and manifest the inexistence of a fixed, immutable centre.

The environmental education that we will see during the next decade will attempt, as in the last three decades, to present a configuration whose constituting elements have apparently been rearticulated to provide ‘better’ answers to the complex and increasingly acute challenges that the world’s environment will face. In consequence, the world’s environmental policy finds itself increasingly subordinate to economic issues.

This book’s purpose is to provide information on the structural complexity of the current situation and to pursue a variety of cross-cutting themes largely from the perspective of the other: theoretical approaches to environmental education, including the blended eco-social environments and, especially, the intersection of eco-info environments; ecological models of thinking and learning; new curricula and policies—their histories and future trajectories; ideological schools and their limitations; environmental education and (post)modernization. The book harnesses the power of the international theorists and practitioners from Latin America, and beyond to provide a state of the art assessment and also new experimental research directions.
Many of the essays of this collection are concerned with questions of identity either of the ecoself, community or social group and of environmental educators, organizers and activists. They are also concerned with questions of science, politics and ethics as they impinge upon various conceptions of the environment, environmental and popular education. At issue for all of these contributors are critical issues not only to do with the definition of the field and also the role of education for sustainability but also those to do with citizenship, ‘ecojustice’, and resistance. A number of the contributors focus on epistemological or ontological questions in relation to the field of EE/ESD to examine various competing visions of sustainability and its role in education. A number also refer to the advent of globalization while at the same time adopting place-based education for a critical perspective on environmental issues. Interestingly, all the chapters are located or situated and of the eighteen chapters half come from Latin America—from Brazil (4), Mexico (2), Uruguay (2), and Colombia—the other half from Spain (2), Canada (2), NZ (2), US, Australia and South Africa. The question of space-place is important as some chapters detail and describe local movements and programs by means of case studies anchored in real communities. There are also those chapters which more expansively seek to define philosophical issues—ontological, epistemological, ethical and political—arising from the field. These seek to clarify underlying foundations, to suggest different and pluralistic conceptions, or to argue for a specific environment contract in education. Some contributors take up more specific issues dealing with qualitative research, the use of protected areas, or the development of community programs. The result is an intellectually challenging and forthright collection of essays that together begin to develop what we have called ‘the others’ viewpoints’, supplemented by critical friends from around the globe.

The word ‘Post-American’ has been used recently by Fareed Zakaria (2008a) to describe a shift in consciousness, power and attitudes: from anti-Americanism to post-Americanism. Zakaria (2008b) argues that we are living through the theirs great power shift in modern history:

The first was the rise of the western world, around the 15th century. It produced the world as we know it—science and technology, commerce and capitalism, the industrial and agricultural revolutions. It also led to the prolonged political dominance of the nations of the Western world. The second shift, which took place in the closing years of the 19th century, was the rise of the United States. Once it industrialized, it soon became the most powerful nation on the world, stronger than any likely combination of other nations. For the last 20 years, America’s superpower status in every realm has been largely unchallenged—something that’s never happened before in history, at least since the Roman Empire dominated the known world 2,000 years ago. During this Pax Americana, the global economy has accelerated dramatically. And that expansion is the driver behind the third great power shift of the modern age—the rise of the rest (p. 27).
Whether one finds this stage theory of world power ultimately satisfying or even helpfully descriptive depends on one’s own political predilections and philosophical outlook. Certainly, the rise of China, India, Russia and Brazil is undisputable and it is not clear how this rise will affect world politics or indeed the Westernized UN, World Bank, IMF or other institutions of the post-Bretton Woods settlement. Ecologically and environmentally, globalization—the rise of the West and the Rest—has also created massive problems and fundamental challenges that demand global action if the spread of modern economic growth is to continue and if we are to craft solutions to problems of extreme poverty, environmental crises of climate change, water scarcity, biodiversity, and energy and resource use.

The end of Pax Americana and the rise of the Rest occur at precisely the same time when fundamental global challenges demand a reform of world organization to increase the representation, involvement, participation and decision-making of countries other than the G8. The decline of the US and the rise of the Rest is not only a shift in power but also of world organization and the end of hierarchical centralized systems of power toward more diffuse forms of power and governance that adopt ecological networked models and systems to harness the new sociality, collaborative innovation, scientific cooperation and creativity. The development of new global sustainability systems in relation to land, water, flora, and energy requires a new approach to global problem-solving based on the participation and collaboration of West and Rest and more representative and powerful forms of cooperation among governments and NGOs. It also indicates a shift in consciousness that repudiates market fundamentalism: markets by themselves left unregulated will not deliver the global public goods or solutions that the commonweal so desperately needs at this time.

Environmental education and education for sustainability have a special role to play in the next great social transformation that is required if we are to increase our survival chances not just for the privileged Western top-third but all peoples around the world. Environmental education offers not only the development of new forms of public awareness, understanding and engagement but also globalizable solutions—the universalization of those programs or experiments that work. Environmental education, of all forms of education, carries this special responsibility and promise that is based on the fact that there is no environmental subject or agent per se, like other great social movement; there is no one active subject or agent that speaks and acts for the environment, but only myriad different groups with different philosophies and aspirations that speak and act for the environment. Accordingly, also there is the inescapable and palpable fact that a growing environmental, social, and economic interdependence and interconnectedness demands global political solutions. Environmental education today, perhaps of all forms of education, is that form most wedded to the eco-understanding of our ‘we-ness,’ our ultimately oneness in face of a relentless globalization that inherently involves strategic choices that will determine our combine future.
INTRODUCTION

THE ORGANIZATION OF THE BOOK

The collection begins with an opening chapter (Chapter 1) by Michael A. Peters and Ruyu Hung who propose a new paradigm for environmental ethics called 'solar ethics' which might also serve as a basis for environmental education. They argue for an account of solar ethics based on the shift from anthropocentrism in ethics to systemism and to recognizing the way in which Homo sapiens are part of the environment and emerged from it over 200,000 years ago. Systemism in their terms is a necessary part of recognizing that human beings emerged from and can be understood only in terms of their environment and that the concept of environment, and therefore its role in the description and programs of ‘environmental education,’ is a space-time dynamic concept that has varied over the course of the establishment of life on earth through to the late evolutionary stage where complex and intelligent life form emerged. Such an approach to ethics not only decenters the anthropocentrism characteristic of western ethical theory but provides strong scientific and empirical support for understanding the place of earth and human beings within the largest meaningful life-giving ecosolarsystem.

In Chapter 2 Paul Hart argues that despite the hegemonizing tendencies of policy accommodation across decades of international government-level compromise, the field of environmental education seems to have retained, even within its latest appellations of sustainability, the ability to move beyond its socially critical charter in hopeful ways. This chapter argues for the need to be more explicit about how useful concepts such as ontological/epistemological pluralism can work within re-articulated social learning processes to generate cultural/context-sensitive social action. It begins by establishing some tracings of elements of social construction that continue to resist as well as initiate change in educational systems (as part of larger systems). It moves beyond previous conceptions of critical ecological consciousness toward some post-informed conceptualizations of the discursive production of identity/agency. And it draws attention to certain post-informed practices and participatory (i.e., social learning) processes that may lead us to ask better questions, as conceived in more diverse ways of knowing and in worldviews that facilitate rather than inhibit social action for environmental change.

In Chapter 3 “Narrated lives” which focuses on the concept of understanding the formation of an ecological self Isabel Cristina de Moura Carvalho discusses the subjective processes implied embodying an ecological orientation, as an important part of the constitutive identify of environmental professionals. The article is based on a hermeneutical approach (Paul Ricoeur and Gadamer), associated with practice theory (Bourdieu). Emphasis is given to the interrelations between the dimension of experience and its symbolic articulation with self accounts, taken down as narrative modalities. These theoretical-methodological considerations are contextualized, at various points in the article, by making reference to a previous study about the invention of an ecological self the basis of which is an analysis of the life trajectories of educators and environmental leaders in Brazil.
Edgar González-Gaudiano directly addresses the question ‘What does environmentally educated citizenship mean?’ in Chapter 4. The chapter approaches the concept of environmental citizenship in terms of its use in international projects in Latin America and the Caribbean, as well as in the formulation of new subjects about ethics and values for basic education. The chapter discusses the controversies surrounding the concept of citizenship and various several theoretical schools are identified. An educational model is proposed which is linked to daily life demonstrating that the exercise of a citizenship involves different spaces of public and private life. It is argued that civic education presents certain features similar to the concept of environmental education; education for environmental citizenship implies a social pedagogy that develops competences to live in a way that implies the deliberate capacity to know how to choose among several options, starting from ethical considerations and community interests. The basis for the construction of a public life is dependent on social forms sustained in a critical exercise of the citizenship that develops within environmental and cultural politics, and mainly in response to the challenges of the consumerism and individualism defining the style of global neoliberalism.

In Chapter 5 Guillermo Foladori asks ‘Should environmental education trust politics more than science?’ arguing that from ecology to meteorology, science has become a spokesperson for discerning environmental policies. It is common thinking that science detects problems and offers alternatives or solutions. It follows from this interpretation that the more scientifically an environmental problem is approached, the better we know it and the more chances we will have to solve it. As a result, environmental education is also supported by scientific findings to justify its next steps. In this chapter Foladori address the following concerns: The concept of the environmental scientific problem depends on the theoretical framework and the ideology of the scientists involved, meaning that there will always be controversy; a scientific problem, and also its alternative or solution, has a time limit, and there is also the consideration that the problem may change or require a different solution; alternatives or solutions do not always benefit everyone, or do not benefit everyone equally, meaning that some will obtain greater advantages than others; there are often uncertainties and unforeseen results that may generate new problems and require new solutions. He concludes by arguing that more science does not necessarily resolve the problems, and can actually make them worse. Instead, it may be that more policy is required; if that were the case, environmental education should be less concerned with “scientific principles” and more with agreements and negotiations between the different actors involved.

In Chapter 6 Alberto Arenas, explores a form of learning called ‘ecojustice learning’, a holistic approach that brings together the individual, community, and nature in ways that respect the integrity of all three. It is based in part on Murray Bookchin’s social ecology, which argues that contemporary environmental problems arise from or are exacerbated by deeply-ingrained social problems. Ecojustice learning rejects the current emphasis on using schooling as a platform to prepare students for the globalized economy; instead, it uses as point of departure
two basic questions: What do students need to learn to take care of themselves, while at the same time displaying respect and solidarity towards others? And, what do students need to learn to be stewards of the earth? To answer these questions, Arenas argues that ecojustice learning is comprised of seven dimensions: (1) It views nature as an alive being that needs to be respected, appreciated, and protected; (2) it considers environmental problems as intimately connected to social injustice; (3) it assumes that “local place” is a key category of legitimate study; (4) it highlights the importance of elders as protectors and transmitters of traditional knowledge; (5) it stresses the value of vernacular and non-commodified knowledge; (6) it deems good work (as opposed to labor) as essential to people’s sense of worth; and (7) it supports a leisurely and healthy lifestyle for the school community.

In Chapter 7 Adilson Januário da Silva and Marcos Reigota investigate the formation and identity of environmental educators. They ask: Environmental Educator: Who is this professional and activist? How does he/she form his/her identity by experiences along his/her trajectories? Homes and schools: how can they affect the process at all? An Environmental Educator biography, as professional and/or activist, starts at home in the childhood, at school and it expands along his/her experiences in everyday life?

Each one of these questions provides connections that will establish his/her professional life and political participation. Searching theoretical sources in the work of Stuart Hall, Manuel Castells, Pedro Goergen, Marcos Reigota, Andréa Pelicioni and Marilia Tozoni-Reis, the research embraces subjects as identity, home, school, scientific knowledge and social representations. Research with students of Environmental Education Specialization Studies at UNESP (Universidade Estadual Paulista - Botucatu- São Paulo-Brazil), provides the authors with elements of their biographies in connection with their social and pedagogical activities, in order to answer identity questions.

In Chapter 8 Alicia de Alba looks at the constitution of the field of environmental education research (EER) in Latin America and the Caribbean as a discursive response to the constitutive dislocation provoked by the environmental crisis. The chapter takes Laclau’s dislocation concept as its starting point, specifically his ideas on the ontological constitution of reality expounded in his book New Reflections on the Revolution of Our Time (1990). The field’s constitution is assumed to have a dual, complex, chronotopical nature. Within this framework, twelve theses are advanced on said constitutional process. In conclusion, it is suggested that environmental education research in general, and particularly in Latin America and the Caribbean, is becoming a constitutive factor in new paradigmatic articulations in natural and exact sciences as well as social and human sciences, and also in Twentieth Century social subjects.

In Chapter 9 José Gutiérrez Pérez maintains that IberoAmerica appears in the new train of thought as a paradigmatic example of an area of the planet that has been ignored by the conventional hegemonic forms of approaching development and measuring it. The basis of the organisation, production and consumption of the First World nations bears a never-ending list of contradictions and has given rise to
the concept of environmental crisis. He urges us to re-examine, redesign and enlarge all the conceptual basics and methodological instruments that refer to the economy of development and which are commonly accepted as standards for international comparison. The discourse that revolves around sustainability and the integration of natural resources and territorial values has played an important rôle in re-conceptualizing the field. The fact that the region’s results contradict this standpoint only goes to underline the models’ inability to reflect realities other than those of the dominant standards. This chapter makes a critical evaluation of concerns within the frame of the objectives, fundaments, challenges and opportunities established in the government initiatives and diplomatic speeches through analysing the principles, goals and indicators included in their texts. Evaluating the scope of these initiatives using adequate control instruments is one of the concerns most often voiced in international forums and among communities of both government and non-government experts on environment and sustainable development. But the first-generation indicators to evaluate these programmes ignore the quality factor from the outset. A contemporary challenge for social sciences research open the use of a new generation of sustainability indicator systems, which attempts to overcome the limitations of its predecessors quantitative methods, and includes such qualitative conceptualizations as the poverty line or the begging line, aspects that considerably expand the notion of satisfying human needs; all this advocate a conceptual and political shift from the idea of a minimum life to that of a decent life.

In Chapter 10 Jorge Rivas Diaz examines the possibility of a new environmental contract in education. He argues that facing the present global environmental challenge, we need to find, to the greatest extent possible, another form of education. We present here some strategic lines to take the existing media and educational systems as experimental fora towards a new environmental contract in education. We propose a system of pillars, or academic principles, based on what is today considered educational: to teach and learn about our sovereignty, human development, meaningful, peaceful coexistence with others, inner change, and direct recognition, not virtual, of life. These analysis supports the thesis that the new education upon which we embark will be an instrument for the self-transformation of the people.

In Chapter 11 Lucie Sauvé suggests that globalization, a macro-cultural tidal wave raised and sustained by politico-economic forces, has invaded education with a double-bind dynamic. The global informational and communicational universe offers infinite learning potential, but at the same time, globalization imposes an economical worldview as a reductive hidden curriculum. Globalization influences educational policies, a trend clearly illustrated by the United Nations’ worldwide politico-economic prescription for education for sustainable development. This context raises important issues for environmental educators. The philosophical and ethical foundations of curriculum designs need to be critically appraised and reconstructed to include the too often neglected or narrowly interpreted environmental dimension. There is also a need to clarify the specific and essential contribution of environmental education to the complex process of resolving the
INTRODUCTION

tensions between identity and otherness, and between local and global perspectives—tensions that are exacerbated by globalization.

In Chapter 12 María Muñoz & Javier Benayas suggest that the evolution of protected areas as a model of contemplative enjoyment of nature, from when the first National Parks were declared in the United States at the end of the XIX century (Yellowstone, Yosemite, etc.), to the current management models, constitutes a clear reflection of the changes that have occurred in society with regard to the conservation and enjoyment of the environment. It’s been also a big change in the last few decades as the concept of protected area has evolved from one of “conservation islands” to one of protected areas as a driving force of rural development based upon the global conservation policies in the territory. In this context, public use (the recreational-educational use of these spaces) is the most powerful tool for connecting protected areas with society and one of the most valuable ones for sustainability. This chapter outline the new challenges of the recreational uses of protected areas, and the importance of environmental communication and education processes in these places minimising the impacts associated with visits; increasing the visitors’ satisfaction; making society aware of nature conservation and informing the population of management objectives. It also provides with suggestions for the design of education and environmental communication campaigns in protected areas.

In Chapter 13 Ruth Irwin suggests that Education for Sustainability is presented as a swish alternative to old fashioned pessimistic Environmental Education. ‘Sustainability’ takes a position ‘after’ Neoliberalism (Craig, 2005), that purports to absorb and resolve some of the critiques of Neoliberalism, such as too great an emphasis on rational individualism, and a theological faith in God’s Invisible Hand for ‘balancing’ the Market (Devine, 2004). The Prime Minister of New Zealand, Helen Clark stated in her State of the Nation speech in 2007, “The invisible hand of the market doesn’t deliver a sustainable nation, as an earlier era of New Zealand politics showed only too well” (Clark, 2007). Yet, they can only present themselves in this manner because ‘sustainability’ itself, does so much work for them. The market no longer needs emphasis because it is embedded in the meaning of sustainability. ‘Sustainable development’ has been described by Anthony Giddens in his book on The Third Way as encouraging efficiency (Giddens, 1998: 74). Efficiency might be admirable in economic terms, and it does have some environmental benefits but it should not be conflated with conservation, or with reducing consumerism. Sustainable ‘development’ links economic growth to environmental measures. It allows the metaphors of market liberalisation to overtake each and every environmental issue, even of such immense proportions as human extinction through greenhouse gas emissions and resultant climate change. ‘Sustainability’ is a key measure to the deployment of expanding markets into areas which hitherto remained ‘external’ to the cost-benefit exercises of Pareto optimality. Sustainability introduces new measures of surveillance over businesses and individuals that enable the deepening of governmental (Foucault) and enhance the ability for tax revenue. It also serves multiple purposes by addressing, albeit in very limited fashion, environmental concerns, and at the same time,
allowing politicians to distance themselves from long held, and sophisticated critiques of the principles of Neoliberalism. At the same time, sustainability removes all of the unpopular consequences of deeply understood environmental concern so that the consumerist lifestyle is able to continue unchecked. The consequences of the rhetoric of sustainability is the continuation of the modern consumer culture and an ability to keep ignoring the scientific evidence that modernity is resulting in radical climate change, pollution, deforestation, and extinctions.

In Chapter 14 Coral Campbell & Ian Robottom argue that we are currently in the throes of a situation in which the environment-related work formerly known as ‘environmental education’ (EE) is being aggressively and extensively ‘re-badged’ as ‘education for sustainable development’ (ESD). But do these rhetorical changes make any difference where it counts – ‘on the ground’ in classrooms and other educational settings? The chapter reports on a recent research project conducted in collaboration with three coastal schools in Australia, each of which engages in environment-related education. They examined the literature, interviewed teachers, conducted focus groups with students, and employed a questionnaire survey of teachers and students to address issues such as: How is ESD defined in the literature? How is ESD understood by teachers? How is ESD understood by students? How is it enacted in classrooms? Their research suggests that environment-related education is valued in the schools, but despite the rise of recent policy statements seeking to define ESD in terms of engagement with environmental, social and economic interests, the dominant interpretation of ESD is ‘environmentally sustainable development’, ‘sustainability’ is largely interpreted as ‘preservation’, and the driver of environment-related work tends to be the committed teacher rather than a new policy. They propose that these outcomes may be understood in terms of the concept of ‘slogan systems’, which proposes that certain policy statements, while advocating change, actually serve to support a kind of changeless reform.

In Chapter 15 Lesley Le Grange argues that both sustainability and education for sustainability (EFS) are contested terrains pointing out that dominant discourses on sustainability could have homogenizing and normalizing effects in a world where globalization has penetrated every sphere of life. Instead of jettisoning the terms sustainability and EFS, Le Grange suggests that these terms are in themselves bearers of new or alternative constellations to their homogenizing and normalizing effects. Furthermore, Le Grange argues for a need to move beyond languages of critique and languages of possibility and begin to develop a language of probability for education for sustainability (EFS). Le Grange contends that in the African context sustainability can be the vehicle through which Africa’s suffering in Guattari’s three ecologies (environment, mental and social) could be healed.

In Chapter 16 Haydée Torres de Oliveira shows the converging paths and aspirations between popular education and environmental education in Latin America as the main purpose of this chapter. The common ways of environmentalism and other social movements in the 60 decade, become stronger in the 70 years, fertilized by the thoughts of some Brazilian educators that have strongly influenced
the constitution of the field of good part of the Brazilian environmental education, nowadays called a critical and emancipatory environmental education.

In Chapter 17 Nicole Lamers argues that no single discipline can comprehensively address the full complexity of environmental issues. These issues must be approached through an interdisciplinary venture. The use of a ‘place-based’ educational model is one potential approach for this, allowing students to investigate an issue, or a set of issues, from the view of a variety of disciplines, in order to understand both the local-global connections, as well as to glimpse the complexities of the issues. Using the example of water privatization schemes in a variety of localities, this paper will illustrate one example of how place-based education combined with a cosmopolitan approach to learning might be implemented for a more textured and productive understanding of global environmental issues.

In the final chapter (Chapter 18) Suzana Machado Pádua examines two terms which have been used as venues in the search for sustainability over the past decades: environmental education and sustainable development. Although their meanings greatly vary, as many authors often interpret each one in contrasting ways, they both emerged from the need to face crisis caused by modern ways of life. For a long time they were treated as separate concepts or fields of action, but an experience developed in Brazil indicates that when merged they can reach local communities effectively. This is the case of the Pontal do Paranapanema in Western São Paulo State, a region known for its continuous social conflicts and environmental destructs. A Brazilian non-governmental organization, IPÊ – Instituto de Pesquisas Ecológicas (Institute for Ecological Research) has been working there for more than 20 years through research and environmental education for the conservation of remnants of Atlantic Forests of the Interior, which still hold a rich biodiversity. Due to historical reasons, the pressure over remaining natural habitats became even more intense in the mid 90s, when thousands of families moved to the region and demanded a piece of land in an agrarian reform basis. It was then that IPÊ integrated environmental education with sustainable development alternatives, helped integrate human needs to those of the environment. Despite many challenges new perspectives and values are now enhancing conservation and the social quality of life for hundreds of families.

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SOLAR ETHICS: A NEW PARADIGM FOR ENVIRONMENTAL ETHICS?

FROM ANTHROPOCENTRISM TO SYSTEMISM

As the renowned theoretical physicist, Stephen Hawking indicates in a lecture ‘On the Beginning of Time,’ ‘All the evidence seems to indicate, that the universe has not existed forever, but that it had a beginning, about 15 billion years ago. This is probably the most remarkable discovery of modern cosmology. Yet it is now taken for granted.’ He outlines how the discussion whether or not the universe had a beginning persisted through the 19th and 20th centuries and was conducted on the basis of theology and philosophy on the basis of anthropocentric assumptions with little consideration of observational evidence partly because of the poor unreliability of cosmological evidence up until very recently. ‘Big Bang,’ the name for a cosmological model of the universe coined by Fred Hoyle for a theory he did not believe, began with observations by Edwin Hubble and his discovery of evidence for the continuous expansion of the universe. In essence, the theory is based notably on observations of the Cosmic Microwave Background Radiation, large-scale structures, and the redshifts of distant supernovae (see Ross, 2008). The technical details need not detain us here as there are many good accounts of the standard model. What is important for our purposes is to note the shift from a set of anthropocentric assumptions to a theory based on observation and its importance for providing an observational and empirical basis for an environmental ethics based on the existence, life, scale and longevity of the sun at the centre of our solar system.

This feature requires some comment because it is an unusual claim to consider the way in which empirical matters to some extent determine the philosophical nature of environmental ethics even where the notion of ethics in relation to the environment is also unclear. Yet it seems clear that environmental ethics as the theory of environmental right conduct or the environmental good life (where the notion of life itself is, definitionally, at stake) rests fundamentally upon the notion of ‘environment’ and how we understand it. Environmental ethics has been slow to develop and has suffered from anthropocentrism or ‘human-centeredness’ embedded in traditional western ethical thinking that has assigned intrinsic value only to human beings considered as separate moral entities from their supporting environment. The difficulty is whether such anthropocentric accounts can retheorize the relations between human beings and their environment and if so, whether the concept of environment might be taken in an extra-terrestrial sense as applying to our solar system with the sun at the centre. This seems more like the
environmental package that has a kind of systemic wholeness and integrity as a system with the energy source at its center without which life would not be possible. If we are to accept this more inclusive notion of environment that decenters Earth within the solar system, then the notion of environment has to be renegotiated as one that dynamically also includes the lifespan of the solar system. One of the advantages of this definitional move is to resituate human beings in relation to the ‘environment’ out of which they emerged in a number of evolutionary steps towards complex intelligent life forms and systems, and into which they will finally remerged.

When environmental ethics emerged in the 1970s it began to call for a change of values based on ecological understandings that emphasized the interconnectivity of all life and thereby issued a challenge to theological, philosophical and scientific accounts that posited individual moral agents as separate from and logically prior to their environment. This challenge that drew on early environmental studies, the emergence of ecology as a formal discipline and deep ecology, as well as feminist, new animism, and later social ecology and bioregional accounts, sought to dislodge anthropocentric accounts that gave intrinsic value to human beings at the expense of the moral value of living systems (Brenan & Lo, 2008). While this insight does not establish what kind of environmental ethical theory one should adopt it does establish the prima facie case that traditional theories of ethics have been unable to talk about the environment in ethical terms. This is largely because they have been bolstered by deep anthropocentric assumptions that are embedded in western Christianity and in early Christian-based philosophical and scientific accounts of ‘nature’ (White, 1967; Merchant, 1990), and also the nature of industrial capitalism.

Anthropocentrism is the key assumption identified authors such as Dave Foreman in Confessions of an Eco-Warrior and Christopher manes in Green Rage as the primary cause of the current ecological crisis. Val Plumwood (1993, 1996) also critiques anthropocentrism as the ‘standpoint of mastery’ which centrally applies to the domination of nature and goes on to argue that anthropocentrism plays an analogous role in green theory to androcentrism in feminist theory and ethnocentrism in anti-racist theory. Her Environmental Culture: The Crisis of Ecological Reason (Plumwood, 2002) extends and refines her earlier work to show as one reviewer puts it that current ecological crises are:

the result of arrogant cultures (based in arrogant philosophical views) that deny the fact that humans are dependent on nature, men are dependent on women, and those with economic and decision-making power are dependent on disempowerment of others. Cultures built on the legacies of Platonic dualism (which posits reason as separate from and superior to nature, or matter) and empiricism (which admits that nature is relevant to knowledge, but debases it nonetheless) fail to acknowledge the existence and importance of “the Other”—nature, women, indigenous people, and anyone identified with the less powerful side of the reason/matter dualism. They therefore allow for and encourage mindsets and practices that harm those “others” on which the privileged at the center of reality depend (Cuomo, 2002).
Ecopolitics taking in the frame of globalization must come to terms with shifting coalitions and the mad scramble for resources that increasingly dominates the competitive motivations and long range resource planning of the major industrial world powers. There are a myriad of new threats to the environment that have been successfully spelled out by eco-philosophers that have already begun to impact upon the world in all their facets. First, there is the depletion of non-renewable resources and, in particular, oil, gas, timber and minerals. Second, and in related-fashion, is the energy crisis itself upon which the rapidly industrializing countries and the develop world depend. Third, is the rise of China and India with their prodigious appetites that will match the U.S. within a few decades in a rapacious demand for more of everything that triggers resource scrambles and the heavy investment in resource-rich regions such as Africa. Fourth, is global climate change that will have the greatest impact upon the world’s poorest countries multiplying the risk of conflict and resource wars. With these trends and possible scenarios only a better understanding of the environment can save us and the planet. A better understanding of the earth’s environmental system is essential if scientists in concert with politicians, policy-makers and business leaders are to promote green exchange and to ascertain whether green capitalism strategies that aim at long-term sustainability are possible.

At this stage of the world’s development with space travel, planetary exploration, satellite communications systems in space, and scientific probing of the beginnings of the universe, concept of environment itself needs radical extension to the solar system and universe. Increasingly, although it is still early days, the earth needs to be thought not just as Gaia, as an organic living system (Lovelock, 2000) but also as part of a larger more embracing environmental system that for our purposes might focus on the Sun as the centre.

Modern science and in particular cosmological theory and particle physics have begun to help us unravel puzzles of the universe. Scientists have conducted simulations through the atom-smashing capacity of Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory on Long Island to mimic conditions that existed at the birth of the universe to discover that

During those early moments, matter was an ultrahot, superdense brew of particles called quarks and gluons rushing hither and thither and crashing willy-nilly into one another. A sprinkling of electrons, photons and other light elementary particles seasoned the soup. This mixture had a temperature in the trillions of degrees, more than 100,000 times hotter than the sun’s core,

But the temperature plummeted as the cosmos expanded, just like an ordinary gas cools today when it expands rapidly. The quarks and gluons slowed down so much that some of them could begin sticking together briefly. After nearly 10 microseconds had elapsed, the quarks and gluons became shackled together by strong forces between them, locked up permanently within protons, neutrons and other strongly interacting particles that physicists collectively call ‘hadrons.’ Such an abrupt change in the properties of a material is called a phase transition (like liquid water freezing into ice). The
cosmic phase transition from the original mix of quarks and gluons into mundane protons and neutrons is of intense interest to scientists, both those who seek clues about how the universe evolved toward its current highly structured state and those who wish to understand better the fundamental forces involved (Riordan & Zajc, 2006).

The Big Bang theory has given way to Alan Guth’s (1997) ‘inflationary universe’ which solves three related problems of its predecessor theory—the large-scale distribution of matter; the uneven uniformity of the universe on the small scale; and, ‘flatness’ or the classically postulated shape of the universe. Guth formally proposed his theory first in 1981 where he argued that the nascent universe passed through a phase of exponential expansion that was driven by a positive vacuum energy density. The NASA satellite known as the Wilkinson Microwave Anisotropy Probe (WMAP; also known as Explorer 80) has provided some evidence as a result of its 2006 mission that made the case for cosmic inflation very compelling.4 Scientific evidence from the WMAP suggests the age of the universe (roughly the time elapsed between the Big Bang and the present day) is approximately 13.73 billion years (plus or minus 120 million years).5 There is some scientific discussion also of the end of the solar systems that will come to an end with the death of the sun. It has used up about half of its nuclear fuel (hydrogen) and in about 7 billion years from now, the sun will begin to die turning first into a red giant heating up and making the earth uninhabitable, then after it is expanded, cooled and used up all its energy it will turn into a cold black dwarf, essentially a dead star. Clearly, at some point in the future the ‘environment’ will cease to be, or, if we take the term in its extended extra-terrestrial sense focusing on its interconnectedness with the rest of the solar system and universe, the ‘environment’ will change so radically that it will not be able to support ‘life’ in any form.

One conclusion that we might draw from this discussion is the curious feature that an environmental ethics is dependent upon an environmental system that has a limited life. The principles may be universal but the system to which they apply is limited and contingent. The further thought that ‘life’ within the universe is rare or abundant or might take other forms is an additional concern. In the early 1960s Frank Drake estimated the possibility of life on stars in systems like our own to conclude that the universe was teeming with alternative civilizations.6 By contrast, Andrew Watson (2008), a British climate scientist, argues structurally complex life and intelligence evolved late on Earth and that models for the evolution of global temperature suggest that, due to the increasing solar luminosity, the future life span of the biosphere will be ‘only’ about another billion years, a short time compared to the time elapsed since life began. Using stochastic probability model Watson calculates a small number of necessary steps for evolution deriving probability distributions for each step and concluding in favour of the rare earth hypothesis developed first by Ward and Brownlee (2000).

Watson (2008) argues in relation to the ‘anthropic’ model of evolution:
While the existence of transitions to increasingly complex life-forms through evolutionary time is widely recognized, there seems no obvious process within evolution itself to explain this directionality. The view that evolution involves a predictable progression, such that the emergence of intelligence is inevitable, is today generally considered to be overly anthropocentric... There are numerous examples where complex traits have apparently been lost from organisms, and the question of whether increases in complexity are in fact any more intrinsically likely than decreases remains unresolved (McShea, 2001). From the perspective adopted here, this appearance of evolution as a monotonic ‘progress’ toward ourselves results from ‘anthropic self-selection bias’ (Bostrom, 2002). In this case, there is no need to postulate any directionality to evolution; and, in general, the kind of outcome seen on Earth may be vanishingly unlikely.

Science does not yet provide all the answers and it seems abiogenesis, the term given to the study of the emergence of life on earth, is still in an undeveloped state. The question of the origin of life is unresolved among the scientific community, even though there may be some agreement that life emerged between 4.4 and 2.7 billion years ago. There are many competing models that currently attempt to explain the origin of organic molecules and also a number of theories that try to explain the move from organic molecules to protocells including those that put metabolism or genetics first.

The evolutionary timeline indicates that life on earth began some 5 billion years ago. Prokaryotes (simple cells) emerged 4 billion years ago and eukaryotes (complex cells) some 2 billion years ago. By comparison it was only some 200,000 years ago that human beings or Homo sapiens emerged in roughly their current form. New studies of the phylogeny of the maternally inherited mitochondrial DNA (Behar et al, 2008) suggest an ancient population split in sub-Saharan Africa into two branches occurring between 133,000-155,000 ybp located respectively in southern (Khoisan) and eastern Africa. The data also enables predictions of maternal gene flows within and subsequently outside Africa to the rest of the world, to Asia, Australia, Europe and America.

Clearly the notion of the environment is a dynamic concept that has many space-time dimensions to it especially in relation to the evolutionary recent appearance of Homo sapiens and our current ability to analytically discern and understand human beings as both part of, emerging from and separate from but in relation to their environment.

SOLAR ETHICS: AN EPIC ETHICS BEYOND DIVIDES

When space exploration opens a vast and grand world beyond our planet, when the stories of the universe have started to be unfolded, when fascinating secrets of the cosmos are being revealed, when the destiny of our Earth is found to be closely related to the other planets, and the Sun, when the environmental crisis on the Earth alerts us to re-examine the human/nature relationship, some questions demand our exploration: What is the relationship between human beings and nature when the
nature we know is no longer limited to our own earth? What is an “appropriate” relationship between human beings and nature when environmental changes on earth sound an alarm about a sustainable human/nature relationship? These questions bring us to an attempt to envisage an ethics which may lead us towards a wider sustainable frame of mind: a solar system ethics.

Solar ethics is an ethical frame of mind which may help to re-position human beings within nature. Don Cupitt has published a small book entitled *Solar Ethics* in 1995. In this book, Don Cupitt (1995) points out that what drives him to think about solar ethics is moral anxiety or even panic about contemporary moral problems. For him, the present social and moral disorder makes explicit the failure of the traditional moral philosophy, whether be it emotivism or moral objectivism or realism. It is the starting point to conceive of a new ethics. Thus he states,

...if you agree that tradition has failed, and that moral philosophy as we have been doing it has been addressing itself to all the wrong questions; and you further agree that we need a moral philosophy better fitted to our cosmology and our culture — then you may be ready for solar ethics. The Sun sees no reason at all to apologize for making such an exhibition of itself all the time; it simply is its own outpouring self-expression... It has no ‘inwardness’; that is, it is not inwardly subject to something unseen that is authoritative over it. It does not experience the moral order...it is purely and only affirmative. It coincides completely with its own joyous, headlong process of self-exteriorization... (Cupitt, 1995, pp. 8–9)

Cupitt reveals the metaphorical strength that the Sun could bring to us: Sun can be taken as a source of human beings to conceive the qualities of affirmativity, unselfishness, openness and joy. These qualities could be regarded as references for moral thinking.

For us, there is a better reason to conceive solar ethics as it recontextualizes our ethical thinking by broadening human/nature relationship to human/solarsystem relationship. It is a re-envisioning of the boundary between human beings and the rest of nature, of which we are a part. This re-envisioning may create a perspective different from the conventional one which makes a separation between nature and human beings, between nature and culture, between nature and nurture: a holistic ethics beyond divides.

Responding to the environmental crisis, there have been many authors striving to depict different outlines of environmental ethics according to different definitions of nature. Arturo Escobar’s (1999) idea may be worth noting when he points out that the “crisis of nature” can be taken as a crisis of nature’s identity. Some authors attempt to provide new perspectives: For example, Aldo Leopold (1949), in his A *Sand County Almanac*, proposed an idea of “land ethics” revealing a beautiful idea that nonhuman members of the biotic community should be included as participants of ethics:

The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively, the land.
In short, the land ethic changes the role of Homo sapiens from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-member, and also the respect for the community as such. (Leopold, 1949).

Leopold perceptively envisages a new picture of a human/nature community. Moreover, his equalitarian view of the human/nonhuman relationship overturns the Western logocentric tradition, within which human beings are esteemed as superior to other beings on earth — the master-species. Leopold’s land ethics supports reflection and examination of the taken-for-granted supremacy of human beings as rational animals, which has been criticised in terms of “speciesism” or “human chauvinism” (Nash, 1989). None the less, it seems that humankind in the 21st century may not be satisfied with the human/nonhuman boundaries suggested in land ethics since the environment with which we are interacting is not limited to the land we live in. The whole planet has been seen as a community within which every member is interrelated and interdependent with every other. In this sense, James Lovelock’s (1979; 1988; 2003) Gaia hypothesis might provide very interesting food for thought.

Gaia, the name of the Earth goddess in ancient Greek time, is used by Lovelock to designate our living planet. According to the Gaia hypothesis, the Earth is a living organism “intentionally” creating an optimum environment for itself. Viewed in this light, the organisms on Earth and their environment co-evolve as a single and self-regulating living system (Lovelock, 2003). However, Gaia might be broader than biosphere if biosphere is understood, following Pierre Teilhard de Chardin (1959, 1969), as the totality of living beings and “the actual layer of visualised substance enveloping the earth” (1969, p. 163). As Lovelock states,

The name of the living planet, Gaia, is not a synonym for the biosphere. The biosphere is defined as that part of the Earth where living things normally exist. Still less is Gaia the same is the biota, which is simply the collection of all individual living organisms. The biosphere and the biota taken together form part but not all of Gaia. Just as the shell is part of a snail, so the rocks, the air, and the oceans are part of Gaia. (Lovelock, 1998, p. 10)

It can be found from the above that biosphere is part of Gaia, but that Gaia also includes non-living parts of our world (or universe, or cosmos of universes). However, the Gaia hypothesis, extending the boundary of human/nonhuman relationships from land to the whole planet, may point towards a new approach to the understanding of environmental ethics. Roderick F. Nash (1989) in his book The Rights of Nature proposes an interesting framework of evolution of ethics: within this evolutionary ethical framework, the sphere of moral agents is broadened with the development of a wider, more comprehensive ethics, ranging from self to our universe.
Figure 1. The Evolution of Ethics (Nash, 1989, p. 5).

We may find from Figure 1 that Nash suggests that the universe may be included in the ethical circle in the future but it is not, empirically, so included at the present time. However, in our view, it is future now. The present is the future in the sense that the world which human beings are situated in and interact with, is not merely our Earth but cosmoses. Actually, human beings already knew that our Earth is neither central nor alone in the universe since Galileo used a telescope in the 17th century. However, for the past three centuries, human beings have been so busy mastering the earth that they have disregarded the fact that the Earth, the home of *Homo Sapiens*, is a member of the solar system. In other words, human beings are part of the solar system. Yet this point has been largely ignored in a mainstream Western modernist tradition which highlights the priority and uniqueness of humankind as rational, moral beings and users of words.

However, accumulating knowledge of cosmology and astrophysics has delineated a magnificent cosmic story for pondering upon: the life story of our universe.

In the early 20th century, the Big Bang theory was one of the theories proposed to explain our universe; so far, it has been accepted by most cosmologists as the best model although it still leaves many questions unanswered (Coles, 1999a). It may not provide the final truth about our universe, but it could still be taken as a view of our cosmos. According to this model, the universe emerged from an initial state of high temperature and density and has been expanding since its beginning about 15 billion years ago; it is now about 93 billion light years across (Coles, 1999b). What is beyond that limit? During this unimaginably long term,
innumerable galaxies have formed — the Andromeda galaxy, the Virgo cluster of galaxies, Pegasus, Fornax, the Magellanic Clouds, M 33, Sculptor, the Hercules cluster, as well as our own Milky Way galaxy (Swimme & Berry, 1992).

Among the innumerable galaxies, the star systems and planetary systems in our universe, each one is unique, containing its own dynamics. Yet the solar system is the one closest to us; we are part of it; it has been observed numerous times (although no yet from outside it) and taken as the frontier of science since the time of Nicolaus Copernicus. Even modern science encompasses many theories and models to explain phenomena outside our “tiny” solar system. We still hesitate to argue that we have the same confidence about understanding other star systems as we have of our own solar system, let alone other universes. In this sense, the solar system provides a unique — compared with other star systems — and novel — compared with biocentric or ecocentric contexts — perspective for conceiving human/nonhuman relationships.

The solar system, consisting of our Sun and other celestial objects including planets, moons, dwarf planets and billions of small bodies, has been known since the 16th century. However, the replacement of geocentrism by heliocentrism in astronomy has not occurred in ethics. In the ethical field, human beings are the ego-centric agent-dominators. Although there has been a call for biocentric or ecocentric ethics based on a critique of anthropocentrism, the biocentric or ecocentric view is still grounded on Earth. If the massive knowledge concerning our universe accumulated in the past centuries could help human beings to broaden their vision, to attempt to resituate themselves in a broader context, and try to image themselves as a (post-)modern cosmologist, the solar system might be an appropriate starting point.

The first appeal of solar ethics is to ask Homo sapiens to take themselves as members of the solar system. It is a request to examine our human self-position, self-location, self-knowledge and self-identification: how human beings conceive of themselves implies their understanding of the place where they are situated, more or less, explicitly or implicitly. Thus the primary significance of solar ethics is to call for an imagination of taking the solar system as an ethical frame of mind, which means the solar system may inspire us to reconceive human moral responsibility, decision and action.

Some doubts might be cast on our solar ethics. First of all, its tenability could be in dispute as our solar system seems to be hardly influenced by human beings; the dynamics of Sun, Mercury, Venus, Mars, Jupiter and the other planets seems not (or not yet) to be subject to change by any human behaviours on Earth. Then it is unnecessary to take the whole solar system into our ethical consideration.

This objection might be plausible in some respects, but it is limited in some other respects. We are proposing a thinking experiment, testing the meaning of the ideas of ethics, moral agent, moral responsibility, moral action, and moral decision. Is it necessary for an individual to have the same capability of a particular moral community to be included as a participant? If it is the case, then it is dubious to take children as moral agents, let alone future generations, nonhuman animals and nonliving environment because they are objects that cannot have equal interaction
with or inter-influence us. Therefore, equal inter-action or inter-influence is neither a necessary condition nor a sufficient condition for an object to be included in a moral community. In this sense, the solar system can be included as a significant factor when we are making moral decision.

Furthermore, some might argue that children, as immature human beings, are “potential” moral agents so that they are members of a human moral community; while the nonhuman and nonliving beings, viz. non-potential moral agents, such as animals and environments cannot be moral agents, potentially and actually, thus they could not be part of human ethics.

In response to the objection above, we might suggest non-potential moral agents can be taken into moral consideration in the following two respects: consequentialist and deontological. Firstly, the conservation or protection of non-potential agents could result in benefits to human well-being. In this sense, the rights of nature or environmental rights, for example, are understood as the human rights to a safe or healthy environment (Nickel, 1993; Nickel & Viola, 1994). Secondly, the rightness of the actions themselves, rather than the consequences of the actions, is the core of moral consideration. It does not mean that we ignore the consequences of actions, but rather that the criteria for judging rightness of wrongness and evaluation hinge on the actions themselves to a larger extent. In this sense, environmental protection is supported for the sake of the action itself.

However, in our view, the solar ethics is an ethical frame of mind which may go beyond the divide of consequentialism and deontology. First of all, the solar system definitely brings about human well-being because the Sun is the irreplaceable and inexhaustible source of energy for all living beings on Earth. In other words, the Sun can be understood as the source of life. It may die, eventually. In 5 to 6 billion years, it will enter a red giant phase and then turn into white dwarf. Then the Sun is no more the Sun that we know, yet there may not be any mourning for the death of our Sun because at that time there will be no more humankind alive. However, compared with the vastness and grandeur of the Sun and whole solar system, human beings are incomparably tiny creatures. In this sense, the Sun is the inexhaustible source of living and meaning for all ordinary, practical purposes. What can we imagine ourselves to be when we find that the Sun as a source of life-energy and nourishment is open to all beings on Earth, and even to all things existing in our solar system, in the past, present and future? What can we learn from the openness of the Sun and the solar system? This pondering may be in tune with an ensnaring and unanswered question posed by Swimme and Berry (1992): what is it to be a solar personality? The solar ethics now might suggest an answer: the solar personality could be a person who is sensitive and attentive of one’s own situation and position in the solar system. On this ground, we propose a solar ethics as an ethical frame of mind, which may indicate an extension of environmental ethics and also a basis for the study of environmental education.
NOTES

1. See http://www.hawking.org.uk/lectures/bot.html

2. By contrast, Hoyle put forward a steady-state theory of the universe.

3. The basis for this paper, at least for its beginning is a conversation that we had when we first met in Bath for an ESRC seminar on the knowledge economy.


5. See, for instance, the Lambda-CDM model (CDM - Cold Dark Matter) often referred to as the concordance model that calculates the age of the universe along six parameters (see e.g., http://map.gsfc.nasa.gov/universe/uni_age.html).


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ONTOLOGICAL/EPISTEMOLOGICAL PLURALISM
WITHIN COMPLEX CONTESTED EE/ESD1
LANDSCAPES: BEYOND POLITICS AND MIRRORS

INTRODUCTION

Academic discourse in the field of environmental education typically grounds its knowledge by reference to certain political documents such as the Belgrade Charter, Tbilisi Declaration, Brundtland Report (Our Common Future), and Agenda 21. Commenting on the political nature of the developing discourse in the late 1980s, Robottom (1987) characterized education as ideological in that educational processes are influenced by a range of self interests that should not be left unscrutinized in terms of how and why reality comes to be constructed in particular ways. An illustration of how such interests operated politically to shape the formulation of environmental education guidelines at the international workshop in Belgrade in 1975 is found in Fensham’s (1984) account of the persistence of the Latin Americans in creating conditions for inclusion of a groundswell of international community opinion on issues which captured a political edge concerning north-south dialogue about what counts as environmental education. The key point was that organizers had a flexible agenda that fostered a climate of creativity open to discourse marked by contestation and negotiation that, it seems to me, speaks to environmental education’s current challenges.

As a field, environmental education has always worked to displace and unsettle the discursive spaces of education. Although the ontological and epistemological legacies of liberal education systems are highly resistant and continue to operate in ways that place substantial domains of human experience and thought outside the conventional bounds of legitimate knowledge, the persistent and globalizing nature of current environmental issues, as well as the erosion of trust in dominant social and educational discourses provide openings for contestation and negotiation. The difference now is that critical and postfoundational practices have assumed a role in troubling the spaces that have arisen from inside environmental education’s irreconcilable contradictions.

This chapter argues that environmental education can now begin to elaborate on issues of practical, conceptual and methodological implications of ontological/epistemological pluralism because landscapes of environmental as well as educational conflict are as much about different knowledge systems as about contested claims to language, identity or politics. Environmental education itself reflects an educational inheritance that places substantial domains of educational experience outside the conventional bounds of legitimate knowledge and practice.
It seems timely and prudent to explore self-consciously how environmental education has operated to reflect these educational views rather than working to disrupt them. The paper attempts to provide some grounds for re-opening debates about engaging diverse ways of knowing, seeing and being that can work to disrupt more deeply those ontological and epistemological legacies that continue to operate subtly as controls. To a degree, this exploration is about how limits have remained hidden in ‘western’ philosophical traditions and in assumptions about education.

**CONTEXT**

It seems appropriate for something called a ‘Handbook of Environmental Education’ to explore how historical developments in environmental education might have produced some of the core themes and orientations in this field, that is, how they both locate environmental education and position its future. The UNESCO discourse, as any journal editor in this field knows, has influenced strongly how environmental education is portrayed publicly (see, for example, Palmer, 1998). Obligatory references to internationally sanctioned characteristics of environmental education (e.g., interdisciplinary, enquiry/problem/issue-focused, community-based, participatory, action-oriented) seem somewhat hollow and empty, as slogans seldom accounted for in practice. It seems necessary, therefore, to take up this rhetorical history in terms of current concerns about recent developments in the field (e.g., education for sustainable development) which provide additional frames/discourses within which we currently live. In other words, it is time to question the tapestry of ideas and speculations that add complexity to our debates as well as to our imaginings for environmental education.

My recent involvement as a researcher in a Canadian Youth Forum for Sustainability project provided opportunities to view one of many international programs that strive for active participation in community-based social action but struggle for legitimacy within the educational system. Seeing students and teachers ‘caught’ in traditional (inscribed) roles that perform teacher and student as a reflection of the authority of tradition, yet as contradictory storylines, remains frustrating. Over many years we seem to have learned to live with the circularity described in Irigaray’s (1985a) metaphorical account of role imagery that duplicates and reflects itself to ensure coherence and legitimacy within a hall of mirrors.

And the mirrors are frozen … and the mirrors can be walls … solid walls of principle … that give form (to ideas) and turn ideas into structures (that) produce the absolute power of form, the solidity of concepts, boundaries and order (Irigaray, 1985a, pp. 106-110; 1985b, p. 137).

Teacher and student deficit explanations of “failure to innovate” in practice conflict with idealized principles of educational systems which, like the UNESCO-derived principles, act like a hall of mirrors to both reveal and conceal environmental
education ontologically and epistemologically within situated practices. The circularity of theory-practice arguments, it seems to me, compromises the legitimacy of environmental education to the point where we must look for other ways out. The Handbook seems well placed to pose questions about the evolution and divergences that have engendered complex philosophical issues of direction.

At the outset, it seems somewhat ironic, in acknowledging internal uncertainties, that environmental education is recognized externally, at least in some places, as increasingly important in the field of education. As a field of inquiry and practice within established educational institutions and professional associations such as the American Educational Research Association (AERA), the National Association for Research in Science Teaching (NARST) and as a legitimate area of exploration defined by granting councils in many countries, environmental education now represents fairly distinct styles of methodological application in research and of pedagogical application. The field has engaged several world congresses and international seminars, established positions within the academy and received recognition in government line structures that reflect broad public concern for an environmentally sustainable future. Finding out about environmental education is increasingly part of learning agendas integrated into mainstream educational programming. The field proffers methods and strategies for investigating social/environmental issues of direct relevance to local communities as well as perspectives on the ethics of personal/social/environmental action and approaches to knowledge construction that cross cultural boundaries.

Becoming knowledgeable in/about/for/through environment-related educational and social topics and issues provides entry points for more general newsworthy debates and discussions that pervade the media and political agendas. Becoming active in environmental education is increasingly seen as a responsibility that everyone must consider. It is easy to forget that, in spite of increasing public awareness and professional status, environmental education continues to be marginalized by the practices of formal academic discourse as well as the conventions and assumptions of traditional education practice. Whether environmental educators should continue to seek embeddedness within dominant discourses, particularly as the vehicle shifts toward sustainability education, remains highly contested. Perhaps the current trend towards critical colloquia and symposia, as part of a kind of academic activism, can open spaces for (re)examining some identity issues of environmental education in ways that unsettle and displace positionings within diverse frames.

UNSETTLING KEY IDEAS IN ENVIRONMENTAL EDUCATION

Despite recent claims by advocates of education for sustainable development that environmental education is framed in too narrow a fashion to accommodate economic interests natural to most societies (see, for example, Hopkins, Damlamian, & López-Ospina, 1996), each of the large international environmental education program conferences (Belgrade, Tbilisi, and Moscow) proposed goals for environmental education that fostered economic, social and environmental
interdependence through social action. According to Fien (1993), these goals and objectives constitute a discourse that may be interpreted variously depending on one’s ideological perspective (p. 51). This discourse, he ventured, was very clear on the socially critical nature of environmental education whose defining characteristics include empowerment through personal autonomy, the empowerment of reason, and empowerment to create the possibility for transforming wider social and political structures. Common features of a social action approach to environmental education included emphasis on the development of a critical consciousness, critical thinking and problem solving processes, environmental ethics based on sensitivity and concern for environmental quality, understandings, attitudes and skills of political literacy which promote participation in a variety of forms of social action as well as pedagogical strategies consistent with these goals. Together, these features of critical environmental education were intended as a basis for an education whose focus included explicit attention to environmental values and social action.

In such an approach to education, teaching and learning are intended as cooperative processes of enquiry and action on real social/environmental issues. According to Stevenson (1987, 1993), such processes demand that students actively engage in critical and complex thinking directed toward preparing for and taking action about real-life problems. The development of knowledge, skills, and values emerges in the context of community-based collaborative resolution of social/environmental issues that are of immediate value in local contexts but which may have global connections. The goal is to empower young people by giving them opportunities to integrate relevant knowledge and skills meaningfully as they participate critically in the activities of the political community. More recently, in support of approaches more accepting of multiple perspectives of learning, Scott and Gough (2003) argue that environmental learning in the presence of complexity, uncertainty, risk and necessity must remain detached from the making of decisions in the learner’s own immediate context (p. 86).

Given the complexity and uncertainty raised by the educational discourse of education for sustainable development, environmental education must now find ways to respond to critical and deconstructionist challenges that rightfully work to unsettle it. Construction of critical or discursive environmental consciousness as part of a more critical pedagogy in environmental education implicates a kind of reflective knowledge that people are able to express at the level of discourse. According to Giddens (1979), such knowledge can facilitate, through analysis, a degree of discursive penetration of the power relationships that operate in social systems. Recognizing environment as a social construction whose roots lie in social systems, as well as personal values and lifestyles, that should remain as contested ideas can help students see themselves in their socio-cultural histories as sources of the structures that resist new kinds of questioning. Complexity, uncertain risk and necessity become part of the discussion.

Engaging in active participation in social learning processes can also lead to critical and creative thinking and problem solving in a more reflective reference frame (Giroux, 1980). The development of an environmental ethic as an natural
extension of personal/social ethics that is inclusive of human responsibilities beyond themselves necessitates a certain values examination in the moral positioning involved in espousing a strong and enduring environmental ethic. However, debates over ideological ends served by adopting the stance of values pluralism as opposed to directly teaching for the values of a critical environmental ethic remain unresolved. Perhaps this is because that debate that seems to have, with notable exceptions (see, for example, Scott & Oulton, 1998), ignored theorizing over the nature of moral education, now revived in arguments concerning social justice and collective social responsibility with social theory. Thus, historically, Fien’s (1993) portrayal of the debate over values in environmental education can be seen as an instance of Robottom’s (1987) concern that forms of ideology critique and analysis of social interests have never been realized practically or theoretically in environmental education. Now, with the questions posed pedagogical debate from education for sustainable development, discussions that implicate higher conceptual reasoning seem crucial to finding a way forward.

Discussions such as these now form part of a politics of education concerning environmental learning as a form of social learning (see Hart, 2007) that encourages student participation (in critically informed ways) in the political processes of democracy and social change. As advocates for both environmental education and education for sustainable development argue, students need to engage critically reflective knowledge that comes from understanding political processes in order to implement fully in social/environmental issues (Scott & Gough, 2003). This knowledge of processes of environmental decision making involves students in critically reviewing their own developing environmental and political values in order to implement and evaluate their own decisions and plans (Barrett, Hart, Nolan, & Sammel, 2005). Embedded within a pedagogy of critical praxis, the political and social transformation goals of environmental education appear to undergird some very different principles of procedure for traditional educational practice. In days of global climate change, environmental education can now more openly address different epistemological/ontological positionings, aiming to disrupt take-for-granted dominant education practices, discourses, and patterns of power.

UNSETTLING KEY IDEAS IN EE/ESD

Although assumptions about environmental education have been challenged or co-opted by recent work in education for sustainable development, grounding for education for sustainable development comes from similar UNESCO processes (from Brundtland to Johannesburg). The language has changed as conceptual foundations have expanded. However, development of critical environmental consciousness, which considers root causes of environmental problems in terms of the ideologies and hegemonic processes of dominant economics-based systems, is now overlain by a postfoundational questioning of consciousness as a viable concept (based on unitary assumptions about human identity and agency). Ideas
about what constitutes sustainable and just environmental ethic have been overtaken by ethical relativism where ethics and values have been translated by social institutions and interest groups that draw on different kinds of knowledge. Complexity and uncertainty inhabit all assumptions.

Huckle (2003), in speculating on the value of recognizing a number of discourses that shape our thinking, wonders whether such a stance, applied to school curriculum, is intended to merely moderate material consumerism and exploitative attitudes toward natural resources without challenging student perceptions or dominant societal discourses. Although perhaps more myth than reality, discourse neutrality conveys a sense of relativism that appears to underpin many other environmental educators’ debates about erosion of basic principles. Academic discourse concerning education for sustainable development, as co-opted by government and industry, often in disjointed and piecemeal ways, appears to threaten what limited educational credibility environmental education achieved over many years. Assumptions about the universal applicability of new education for sustainable development principles work as much as older environmental education principles to sustain conventions and assumptions of traditional pedagogy that marginalize diverse human experience as embodied, emplaced and (geographically, historically, and culturally) contextualized. As we learn to accommodate an EE/ESD pedagogy working toward more participative, experiential, political and action-oriented processes of social/environmental engagement in the real world, the worry remains that such apparent complicity in the name of development is less likely to disrupt dominant social practices, discourses and patterns of power (see, for example, Jickling, 1999).

Challenges remain for EE/ESD, as they did for environmental education in the 1980s, to find philosophical frames that can guide the transition from a position of “dynamic stability in the face of change” where “control over language at one level becomes power over decision-making, resources and practices at other levels” (Robottom, 1987, p. 93). Indeed, it may be argued that the cultural turn, associated with the rise of postmodernism means that academics must more consciously attend the adequacy of social processes used to construct philosophical frames as well as to address educational resistances at all levels of theory. If we continue to change the language of innovation and to treat the discourse of change independently of the institutional norms, beliefs and patterns in which language is embedded, we may, as environmental educators who now appear to endorse education for sustainable development, be responsible for structuring the innovation (as education for sustainable development) in such a way that its operational forms are incapable of meeting its once socially critical charter. We may well be caught eliding one slogan system for another such that we continue to reproduce, rather than transform the surface layers of teaching and curriculum. If such a characterization of reform applies, it seems necessary to explore radical reconceptualization as epistemological and ontological issues—old lessons die hard, it seems.
CHANGING THE LANDSCAPE: ISSUES OF CONTEXT, LANGUAGE AND POWER

Challenging those perspectives by which people have come to construct notions of EE/ESD implicates foundational concepts that underpin environmental education historically and EE/ESD contemporaneously. If critical poststructuralist thought is to contribute to “working these ruins” (St. Pierre & Pillow, 2000), it will be at the operational level of boundaries between spaces of EE/ESD that matter (see, for example, Jacobs, 1996). The uneasy tension that was evident in the initial juxtaposition of environmental education and education for sustainable development has abated somewhat as exhaustion in trying to fix their meanings sets in. Still, we do not assume that they can work together to produce a synthesis in solving problems of environmental learning and living. Rather, we continue to question how they can work beside each other, how they work similarly to critique, interrupt and re-inscribe normative, hegemonic and exclusionary ideologies and practices.

Imaginary and real boundaries and relationships around the discursive interactive spaces of theoreticians and practitioners are crucial in understanding power relationships and consequently are vital in (re)imagining the processes by which we can join the cultural politics of environmental education to those of education for sustainable development such that each can serve as settings for action (i.e., for the performance of identities) (see Moore, 1998, p. 347). This kind of thinking points to a commitment to taking context (hence, contextualization) seriously as an ontological element. The argument that social processes and relationships are mutually constituted across boundaries means that categorical definitions of terms such as environmental education and education for sustainable development are no longer sustainable. Boundaries that previously separated conceptual categories must be transgressed. Relationships contextualized across time, space and place, within and between groups and territories become centre-most. The upshot of such boundary work is that EE research must investigate and debate, rather than assume or ignore, the implications of context, both socio-political and environmental.

Language reflects, shapes and limits how we can understand context/environment; it reflects and constructs power; it provides the building blocks of ontologies that simultaneously construct and limit our imaginings for EE/ESD, our vision. Concepts of identity or consciousness are imbued as language. Questions of conceptual definition or purpose may mislead when considered in terms of how knowledge is socially constructed across subjective boundaries. Better questions might work to implicate relationships as well as human capacities for (self)consciousness and participation in social action forms of pedagogy. Is this what happens next? Indeed, getting beyond the linear categories of language in ways that unsettle boundaries that have so carefully constructed EE/ESD landscapes will be complex, uncertain, risky and necessarily dangerous work (see Scott & Gough, 2003).

The idea of landscape offers a metaphor for considering cultural relationships that comprise more productive discursive spaces for EE/ESD. Landscape, broadly conceived as a geographical spacing of ideas, can work to mediate collegial, communicative relationships across definitional boundaries whilst retaining an
embodiment and emplacement in the concrete, local context. It preserves a logic of multiple constructions for knowledge that imagine a very different relationship between local activities and wider (national, international) narratives. It places human landscapes out of binary opposition to natural landscapes, without privileging either. It allows us to actually be of some use in making the global/local connection work. It locates (emplaces) work at building communicative spaces amongst social learning communities of praxis.

Reconceptualizing EE/ESD across landscapes of context and language compels us to take seriously questions of why we continue to keep going in this education “relative to” environment. We persist in thinking that we can be of some use to the planet. We believe that we can actually be of use by focusing on the particularity of the situation.

Each inquiry is its own situated thing, and it carries its own possibilities and limits with it. And we are a particular kind of person at that particular point of time and in that particular kind of context. So how do we do our inquiries in such a way that we can wrestle with the dilemmas of being of use in that situated inquiry? (Reason, 1996, p. 21).

We will remain caught in our own contradictions of being of use to the planet because what we want may not be what we need. We want to speak and write in ways that make people think about human-environment relationships, yet we educate them as if they cannot think. We want to engage people in forms of critique that serve to interrupt patterns of power, yet we support the power relationships as they exist. We want to engage issues of theory and practice in ways that can make a difference, yet we are caught in dialectical circularity of our own argument. We want to contribute to a (re)imagining of worldviews and ways of knowing in ways that unpick our secular and disenchanted world, yet as Fox (1995) says, in ways that are not alienated from one another or from the planet.

Whether we can continue to engage people in reconsidering our relationship with the planet as we have been, that is, by engaging big distinctions between truth and meaning, beauty and healing, a sense of the sacred and a sense of reality as partial, indeterminate, incomplete, remains a question. These binaries are not, after all, universally acknowledged in human thinking. Drawing on critical and poststructuralist thought we can recognize multiple, even shifting ways of organizing human experience. We can begin to examine some of the ways in which our subjectivity can be understood as simultaneously real, imaginary and symbolic (see Probyn, 2003). Cultural, feminist, postcolonial and other critical educators have offered new ways to understand power relationships and boundary work in deconstructing binaries. Aboriginal cultures do not make neat ontological distinctions in dualities of mind-body or culture-nature. Many Indigenous people in Canada, for example, relate to animals in mutually conscious and reciprocal relationship. According to Scott (1996), Cree notions of knowing and meaning-making involve animals as an integral part of their knowledge systems, as giving signs of their presence as they interpret human signs pertinent to various dimensions of each of their actions.
Treating binaries—society/nature, human/animal, domestic/wild—as self-evident epistemological givens naturalizes assertions and impositions of power and control. People of exploitation and domination have become more vocal and express frustration at not having their ways recognized and respected by other people and cultures who appear to judge on their own values. We, as EE/ESD practitioners, express these same frustrations. In this sense, what matters or counts, or is regarded as, common sense is relative to people’s own lives—those practical concerns that help them to better make sense of their lives and constituencies that they serve. What would a text look like, that would be accessible to those ‘others’ in ways that encourage thinking that acknowledges these cultural interactions toward more layered, perhaps even nomadic and contradictory, discourses?

Perhaps this book will test these possibilities? Perhaps environmental educators are on the verge of a new ethic of relationship which involves getting free of ourselves in order to understand the structures of our intelligibility that limit thought and action (Britzman, 1995; St. Pierre, 2002). As we necessarily engage critical and poststructural perspectives that unsettle our thinking and practice, we create spaces to reflect on those elements of our work that we may have taken for granted—not that we would approach such spaces naïvely or blindly. Critical and “post” projects call attention to notions of moving toward something better but may subtly reinforce the almost invisible epistemology of linear developmentalism. They warrant as much critical scrutiny as the ideas they have replaced. Intersubjective space is not necessarily symmetrical because it is first a moral space. Indeed, we occupy moral landscapes in which ethics, responsibility, reciprocity, collectivity and co-existence frame and temper interpersonal structural and political relationships. As Le Guin (1989) says, through long practice I know how to tell a story, but I’m not sure I know what a story is. In such images are opportunities to rethink critically, those epistemological/ontological foundations that have conventionally shaped environmental education imaginations and continue to push EE/ESD consciousness in ways that are woven to include those stories that can no longer be rendered invisible.

SITUATED ENGAGEMENT AND CO-EXISTENCE

New language is useful. It can help us think outside the epistemology/ontology of humanism/rationalism/positivism. Thinking differently, however, involves more than deconstructing traditional categories. It involves reconstructing ideas and images as points of exit from traditional thinking. The idea of situated engagement (Suchet, 1999) seems a useful way to trouble particular discourses that gets beyond mere acknowledgement of the existence and possibility of multiple ways of knowing. Ontologies/epistemologies from emerging philosophical perspectives can help us to rethink and to reconstruct and engage active partnerships in construction of new ways of seeing and being. St. Pierre (2002), for example, uses ideas of nomadic wandering to deterritorialize spaces in which to travel in the thinking that applies to environmental education practices. She illustrates how thinking with
figurations employed by Deleuze and Guattari (1989) such as the rhizome, the fold and the nomad can work to trouble our subjectivities.

Subjectivity grounds our understanding of who we are. It also grounds our claims to environment-related educational knowledge. As Longhurst (2003) suggests, doing (environmental education) means doing subjectivity. It offers a new way to begin to understand power relations. Understanding subjectivity involves negotiation of interconnections between body, mind, self, identity and person. These are messy, ambiguous and contested concepts that eschew precise definition. Yet debates about them are incredibly important for EE/ESD. There are ‘forests’ of literature on these ideas.

One example of how to push environmental education ideas from the 80s further is the connection Probyn (2003) makes between the concept of subjectivity and the concept of ideology. She invokes Althusser’s understanding of ideology as actively constituting individuals as subjects whose contexts both permit and delimit our collective performance. Thus, context, language and landscape are crucial to understanding how educators engage environment. Human subjects are mapped into and entangled within multiple power relations, differentially organized through varying relations of space, place, race, gender, geography and so forth, written on and through subjectivities. Given that subjectivities cannot be impartially removed from these ideological relations, careful attention to the manifestation of power relations in local environments (contexts) is crucial. This does not, however, preclude consideration of broader landscapes and Probyn (2003) illustrates how to move seamlessly between ‘doing’ and ‘theorizing’ but this involves broadening our conceptualizations of local/global connectivities.

If these noisy and unruly spaces are conceptualized as a kind of ontological/epistemological pluralism, boundaries around concepts of EE/ESD can no longer be impenetrable. Rather, they become permeable, fluid, complex, interactive sites that are constantly shifting and changing—constructive spaces which entwine and interpenetrate as discursive spaces rather than defined, delimiting spaces, similar to what Bhabha (1990) calls “third space” (see also Bateson, 1972). In terms of engagement, relationships notwithstanding, these spaces are perhaps more productive for construction of ideas that others can embrace. Jacobs (1996) calls this space “the edge”—the unsafe margin which marks not only a space of openness but the very negotiation of space itself. If we have the courage to be somewhat playful, we may surprise ourselves into generating concepts that are less likely to fail to perform in practice. But we must continue to meet together to do this, to participate actively in social and communicative processes that do this work.

Beyond concepts, and texts we present “works in progress” as we engage processes that work to situate our explorations of the boundaries of EE/ESD in the everyday terrain of practice (as theory embodied) and to embrace less stable negotiations of identity and power. In a practical sense, self-reliance and equitable sharing seem more likely in an engagement that considers not only how knowledges form but also how they interact (i.e., process) and how this matters (i.e., purpose). Situated engagement as an approach to working through exploration
of boundaries within the everyday terrain/landscape of practice (as theorized) challenges us in our own contradictions. It encourages more open attention to our subjectivity as always emplaced and embodied as well as the need to instill a sense of materiality into our theorizations. As Bondi and Davidson (2003) argue, lived experiences and ideas are intimately interwoven.

My participation in the development of international, national and local seminars, symposia and forums in EE/ESD has created spaces for new relationships that make me think more about culture, context, landscape and issues of power. Perhaps these relationships, as situated engagement, can help us to avoid romancing unproblematized categories by grounding values in experiences of daily life in situated places—accepting the consequences and inevitable criticism of cultural relativism. This would seem to allow knowledges to remain embodied and emplaced as openings for reconciling ontological diversity in real social, political and intertextual terms. St. Pierre’s (2002) use of Deleuze and Guattari’s (1987) figurations provides some new ways of troubling as well as re-imaging foundational concepts (like EE/ESD) whose failure to perform in practice seems less distressing, given processes that can create more mobility in our thinking.

In relation to EE/ESD, as we have seen over many years, environment and education have not come together easily. Why should we expect environment and development to come together as education? While not inherently problematic, the relationship is made awkward when, in the pursuit of education, one of the elements—knowledge—is privileged over others (see Sfard, 1998). It seems to me that the question of how to break free of the circularities that bind knowledge to its objects is a goal, albeit poorly articulated, that environmental educators have pursued intuitively for many years. We have seen that amongst alternatives, one reflective impulse has been to start anew, which education for sustainable development has attempted to do. However, to recognize the deep embeddedness of environment in the spaces of modern education, many others have worked to pry open the association between knowledge and everyday experience caused by modernist means of conceptualizing knowledge as that which provides a secure basis from which to understand the world. For example, Phillip Payne (1999, 2003) has long argued that a critical ecological ontology, as a social ontology, precedes the educational construction of a socially critical perspective. Such a focus on ontology can work to reclaim the body as an action site for understanding human agency and its lifeworld consequences. “Excavating and interrogating the underlying conditions of … experience is ... the grist of an environmental education that might be more actively and critically disposed” (Payne, 2003, p. 530). Subjectivity is embodied as well as emplaced.

Payne’s (2003) concern about the lack of engagement with the ontological dimension resonates well with an ontological turn to address those invisible, moral, social, political and ecological conditions that live inside us and work to structure human identity experience and agency. We wonder how notions of knowledge, power and subjectivity can be addressed without any account of how (embodied) identities interact and are practically gendered, habituated, positioned and geoculturally contextualized (Payne, 2000, p. 80)?
Philosophical and conceptual work notwithstanding, efforts to reconfigure EE/ESD knowledge differently as well as the spaces/places that are produced when we free ourselves to speak of knowledge (and education) as one form of environment that resides along with other forms of existence (ontology) are rare. Whilst theory-based movements can act to elevate other (perhaps more embodied) forms of practice to the status of knowledge (intellect) the issues are complex. For example, we can identify multiple conceptual configurations from education for sustainable development to experiential education within a spectrum of related activities that create a landscape different in kind from environmental education yet still able to bestow meaning on experience from environment within particular contexts.

CONCLUDING THOUGHTS

Whether we agree with conceptual work in EE/ESD that incorporates ontological/epistemological diversity (see, for example, Pallas, 2001; Siegel 2006), critical and postfoundational movements point toward understanding knowledge within historical, social and cultural contexts. As revitalized, yet scaled down and baroque (MacLure, 2006) these situated forms of knowing seem to better acknowledge the socially constructed nature of various forms of EE/ESD. This eccentric movement aligns with an ontological pluralism that provides a compelling place for the social role of culture/environment in the production of EE/ESD knowledge (i.e., research) as well as in practice (i.e., pedagogy). Methodologically and pedagogically, acknowledgment of deeper and more mobile (i.e., nomadic) forms of knowing/being implies a turn to sociocultural perspectives on learning and knowing not just as the outcome of educational processes animated by the desire for certainty but as methods that resist particular ways of thinking about what constitutes a social practice.

In educational practice, the concept of ontological pluralism enlarges the spectrum of possible knowledges beyond behaviourist and cognitive conceptualizations of learning to incorporate social forms and epistemic cultures of feminist, poststructural, postcolonial, and many other perspectives that, with time, will impact educational practice. Crucially, environment has played a key role in the construction of such knowledges as well as explaining variations in EE/ESD practices. The fact that these concepts can appear at the same moment in time is indicative of the epistemic and ontologic change that now permits the local, tacit, embodied, endarkened, gendered environmental ways of knowing to become legitimate grounds for the construction of knowledge and action.

Researchers and practitioners are more likely to find themselves confronting a plurality of spaces of knowing and being, co-evolutionary ways that are no longer seen as a threat to the unity of the sciences. What emerges is a new respect accorded to the process of constructing and maintaining our own communities (of practice). This deconstruction of the discursive unity underlying the EE/ESD communities has radicalized the very notion of environment as a recognizably unifying set of practices and relegitimized variety in ways of seeing and being. Instead of theory is the examination of possibilities, limitations and contradictions.
within and between various epistemological and ontological positionings of environmental education.

In some ways, the Youth Forum for Sustainability affords researchers and practitioners a simple model of “just doing” the theory and of reflecting critically on what that seems to offer. In conjunction with forums of social debate and mutually constitutive discourse as practice-based, both practitioners and researchers have similar opportunities to move the project forward. Failing all else, problematizing our practical and theoretical discourse simultaneously seems to resonate well with critical and post forms of EE/ESD in scripting different plays/storylines. Anything else that we seem to have been able to do at any level of discourse has simplified complicated matters rather than reorienting our learning processes as both practitioners and researchers. And that has not been enough.

NOTES

1 Environmental Education/Education for Sustainable Development

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