Environmental Education in Context

An International Perspective on the Development of Environmental Education

Neil Taylor, Michael Littledyke, Chris Eames and Richard K. Coll (Eds.)

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1. ENVIRONMENTAL EDUCATION IN CONTEXT

An Overview and Some Observations

INTRODUCTION

This book presents an international perspective on the development and implementation of environmental education (EE). We are living at a time when environmental issues are receiving unprecedented attention. Much of this focus is on climate change, largely as a result of the Kyoto Protocol of 2005, the Stern Report, presented to the UK government in 2006, which predicted dire economic consequences of global warming, and the release of Al Gore's movie *An Inconvenient Truth*, which made this issue accessible to the general public. As Skamp, Boyes, and Stanisstreet (2007) argue, reducing greenhouse gas emissions and addressing other problems associated with the environment is a government, corporate, and community responsibility, as well as an individual responsibility. But key to effecting change is an informed citizenry, because awareness of an environmental issue is a precondition of taking environmental action (Jensen, 2002). Consequently, effective EE—both formal and non-formal—is seen as a vital component of the fight against environmental degradation globally.

There is, however, much debate as to what form EE should take. In the last few decades, there have been growing concerns that traditional EE (education *about* the environment) is too limited in its scope to effect the necessary attitudinal and behavioural changes needed if ecological degradation is to be reduced. The Australian educator Arthur Lucas was one of the first to recognize this, arguing that education about the environment was not sufficient. Rather, rich learning experiences must also include learning *in* the environment and learning *for* the environment, or the taking of action to improve outcomes (Lucas, 1979). This theme has been further developed by a number of authors. Uzzell, Rutland, and Whistance (1995), for example, argue that students should have the opportunity to actively resolve environmental issues in a democratic way at the local level, firstly so they understand how these issues relate to their own lives, and secondly so they are encouraged by the success of their actions. Likewise, Jensen's (2002) model of "action competence" is designed not only to provide students with a sound understanding of environmental issues but also to allow them to take action to address these at a local level. This action competence model can combat the "action paralysis and disempowerment" that students may experience when confronted

with what appear to be insurmountable environmental problems and help them to become advocates for the environment (Connell et al., 1999). The model also addresses the issue of presenting the environment as a series of problems.

Other authors (e.g., Bullard, 1993; Kothari & Parajuli, 1993; O'Connor, 1989) have called for links to be made between ecological sustainability and social justice. Third World First (1990) echoes this view when they state that wealthy "middle class" people have the luxury of the "privilege of concern," because they have the financial ability to look beyond their own livelihood, explore global issues, and make the connections between the environmental and wealth generations. In contrast, people from lower socioeconomic groups do not have the option of such "luxury," and it is only when they are involved in a practical and direct way with their local environment that they too can go on to make such connections.

Furthermore, tensions are now emerging between western and non-western (particularly developing) countries as to who should take responsibility for climate change and other problems, and to what extent developing countries may have to shoulder any adverse economic consequence of dealing with problems largely viewed as having been created by rapid western development.

Against this background, this book explores developments in EE in the formal and non-formal sectors of non-western countries (loosely interpreted, these sectors include countries outside of the English-speaking block of the UK, the USA, Canada, Australia, and New Zealand), where there is increasing tension between the desire for rapid economic development and the need for ecological sustainability. The intention is to provide the reader with a picture of the developments that are taking place in EE across a range of non-western countries, especially given that little has been written about these countries.

THEORETICAL BASIS TO THE BOOK

The theoretical basis to this book is derived from sociocultural theories of learning championed by authors such as Wertsch (1991) and Vygotsky (1986) and socially critical theory in relation to environmental actions (Bonnett, 2002; Connell, Fien, Lee, Sykes, & Yencken, 1998; Fein, 2000). Sociocultural views of learning place considerable emphasis on the social component within the particular context or situation in which learning occurs. The basic tenet of a sociocultural approach is that human mental functioning is inherently situated in a social interactional, cultural, institutional, and historical context. Thus, in relation to environmental issues and EE, what is perceived as a problem in one particular context may not be viewed in the same way in another, for cultural or for other reasons. The issue of whaling is a high-profile example of this.

Critical theorists argue for a socially critical approach to EE that encourages students to engage in questioning the actions and values of society, including their own personal and collective impact on the environment (see, for example, Bonnett, 2002). Jensen (2002) believes that a natural progression from this approach is action competence, whereby students gain the necessary skills and confidence to take action for the environment.

ABOUT THE CONTRIBUTORS

An important and distinguishing feature of the book is that it draws upon the experiences and research of local experts from an extremely diverse cohort across the world. Each chapter is concerned with some aspect of EE (interpreted to include formal and non-formal EE) in a specific educational context. In some cases, the chapter is in the form of a story or narrative; in other cases, it draws from a particular research inquiry conducted by the author and his or her colleagues. The book addresses such topics as EE content and the integration of EE into the curriculum; the impact of formal and non-formal EE programs; the influence of political, cultural, societal, and/or religious mores on education; governmental or ministerial drives for curriculum reform; the tension between the drive for economic development and educating for sustainable development; the influence of external assessment regimes on EE; and so on. However, one point worthy of note is that the book does not engage in a debate over terminology such as education for sustainability versus EE. The term EE is therefore used throughout the book, as it is much more common in the contexts discussed.

The editors have made a conscious effort to remain "hands off" when editing, and to allow the contributors' own voices to be heard. This book represents their stories, not ours.

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2. ENVIRONMENTAL EDUCATION AS A POLITICAL EVENT IN PAPUA NEW GUINEA

INTRODUCTION

Paulo Freire visited Papua New Guinea on the eve of the nation's independence from Australian colonial rule and spoke to a gathering of educators, saying, "The obvious thing I want to tell you is that education never was and never is neutral; education is always a political event. In this way we can have education for liberation and we can have education for what I have called domestication and domination" (Freire, 1974, p. 245).

Environmental education (EE) is a political event in Papua New Guinea because it occurs in politically contested spaces where the dominant power structures were represented by colonial interests in the past and by neo-colonial forces in the present that continue to shape cultural identity from a western cultural perspective. In this chapter, I will discuss EE in Papua New Guinea by considering two examples. The first is a community-based group, and the second is the formal curriculum used in all government schools in the country. The economic context in which EE is developed is used to highlight some of the issues that contribute to the political nature of EE. I would like to begin, however, with a story that provides some background as to how I, a white, female, Australian educator, came to be writing this chapter on EE in Papua New Guinea.

I first came to Papua New Guinea at a time when the country was preparing to celebrate 10 years of independence from colonial rule. The school I was teaching in had lush and healthy self-reliance gardens, established alongside a clear, flowing river. Fresh greens were picked each day from the fertile soil for the evening meal. Every day, students, teachers, and their families could be found sitting by the river, or walking along its edge in the cool shade of the overhanging tree branches. It was a restful place of solitude, and a place for friendship and laughter and joy. Twenty years later, I was working in education in Papua New Guinea, although no longer in the classroom but as a senior curriculum officer in the Department of Education. I visited my old school to find that the river no longer existed. There was no crystal-clear water gurgling along; there was only an overgrown and dry, mud-choked river bed. There were no lush, productive gardens, only dead and dying trees and untidy overgrown garden beds. The river had been destroyed.

Oil palm is planted in Papua New Guinea in areas where forests have been cleared and where traditional village gardens once existed. The palm is only productive for 20 years, and the land it is grown on is only good for two cycles of

plantings. Thus, in 40 years, less than one human generation, fertile land becomes waste land. The farming of oil palm is labor intensive, and the crop requires large volumes of fertilizers, pesticides, and herbicides. Oil palm production inevitably degrades the land in which it is planted, and chemical run-off pollutes local waterways.

The major plantations in Papua New Guinea have been established through loans provided by the World Bank and the Asia Development Bank, and the crops are grown under a small-holder scheme, whereby the central company contracts small farmers to supply them with oil palm fruit. There is a low return for labor, and the farmers are often heavily indebted to the company that helped to set them up with seedlings, tools, and chemicals. This "loan" must be paid back with interest.

The oil palm industry was hailed as the way to promote economic growth in Papua New Guinea; in 2003, the Somare government declared a new tax break for the foreign-owned oil palm companies. For this reason, much of the profit made from the plantations disappears offshore. I still remember meeting with a World Bank consultant in the 1980s in a futile attempt to argue against the oil palm plantations in my local area going ahead.

COLONIAL/NEO-COLONIAL CONTEXTS

Albert Memmi (1957/2003) wrote that the idea of privilege is at the heart of the colonial relationship, and that this privilege is unquestionably economic. "Colonisation is above all economic and political exploitation. If the colonised is eliminated and the colony becomes a country like any other who then will be exploited? The colonial condition cannot be changed except by doing away with the colonial relationship" (p. 170). But colonialism has not been done away with in countries like Papua New Guinea—it has continued on in the guise of neo-liberal globalization.

Neo-liberalism can be described as being a political and economic ideology that works to eliminate the power the government has to influence the affairs of private business. Its goal is to maximize profits. The neo-liberal project of globalization is modeled on world policy agencies such as the International Monetary Fund (IMF) and the World Bank, which dominate in world policy forums at the expense of alternative accounts of globalization. In Papua New Guinea, the dominance of neo-liberal values in global affairs has led to a loss of political and economic autonomy. Papua New Guinea became entangled in the web of the World Bank and the IMF when the government accepted the "big project" loans for development in the late 1970s; monies for recurrent budget items such as education dwindled as interest on the loan repayments grew. The cost of neo-liberal economic development is environmental degradation.

Environmental Vandalism

Situated at the headwaters of the OK Tedi River in the Star Mountain region of Papua New Guinea is the OK Tedi open-cut copper mine. It began operations in 1984. The mine was, and is, an environmental, social, and financial disaster. The

OK Tedi River is part of the large Fly River system that supports about 250 communities. Mine tailings and waste rock have spread down over 1,000 km^2 of land, killing forests, drowning village vegetable gardens, and devastating fish populations and sago palm, the staple food of the region. People have been displaced and wildlife has left the area. Acid-rock drainage will continue to mobilize a toxic form of copper poisoning in the river for many decades to come. The undeniable evidence of the damage the mine was causing was ignored by the Marauta government, which was in dire financial straits in 1999 and was negotiating a financial rescue package with the IMF to find enough revenue to cover social services. However, the mine exports were worth tens of millions of kina in royalties and taxes annually. In 2002, BHP Billiton (which had 52% ownership of the mine) wanted the mine closed down. After special legislation was rushed through the Papua New Guinea parliament, the mine was handed over to a government-controlled local corporation and the interestingly named Singapore-based Sustainable Development Project. The mine continues to operate. River clean-up operations have begun, but costs could run into the billions of kina each year for 50 years or more.

BHP Billiton was able to walk away with no further responsibility for the environmental damage caused by their mine. The company selected representatives to sign away the rights of the entire local population and future generations: "… each existing and future person of that person's community or clan, including and without limitation children and persons who are subsequently born into or who subsequently join that community or clan, are bound not to make any future claims" (Marshall, 2002, p. 2). OK Tedi Mine is one of only three mines in the world, all located in the Pacific Islands region, that are continuing to dispose riverine tailings and/or dump mine wastes directly into rivers.

A Vision Undermined

The founding fathers of Papua New Guinea's independence had a vision and an ideology they expressed in the National Goals and Directive Principles in the preamble to the Constitution. The ideology was later articulated as a philosophy of education in the Matane Report (Matane, 1986). The purpose of these vision statements was to articulate a strategy for developing the country (Narakobi, 1983). Embedded in these vision statements were two central ideas. The first was *integral human development*, an idea that seeks to promote development of the whole person. The second was participation of all people in the process of development on an equal footing, not dependent on outsiders, and in a manner that uses the strength of what is called the *Melanesian way*. According to Bernard Narakobi, the Melanesian way embraces the values of self-sacrifice, the principles of reciprocity and obligation, and a common belief in the reality of the ancestors (Narakobi, 1993).

Papua New Guinea's economy is now dualistic in structure, comprising an enclave economy in mining, petroleum, and logging together with a subsistence economy focused mainly on agriculture (Office of National Planning, 1999, p. 34). Nearly all people in Papua New Guinea support themselves via rural livelihoods.

They meet their basic needs through the same farming, fishing, and hunting skills and practices that sustained their ancestors for thousands of years. However, there is now a shift away from primary production and self-sufficiency as overseas-owned trans-national and multi-national companies with interests in mining, forestry, and plantations take over larger and larger areas of land. People are being forced away from a traditional exchange economy towards a monetary economy, a change that has had a profound effect on traditional societies and exchange of wealth. In the villages, traditional patterns of social organization for collective action have been disrupted.

DESCRIBING POLITICAL SPACES

Environmental Education I

The Bismarck Ramu Group (BRG) is a community development organization operating in the Madang region. The group deliberately set out to challenge the hegemony of overseas corporate and trans-national resource development interests and the taken-for-granted nature of community development projects that are administered, assessed, and evaluated by funding groups based in the wealthy countries. The BRG's work makes transparent assumptions regarding the neo-liberal meaning of conservation and development, thus enabling indigenous groups to reclaim the process and to redefine conservation and development on their own terms. The group's approach uses what is termed a community entry process that focuses on programs of landowner mobilization led by local people. The BRG agenda embraces Papua New Guinean cultural values and seeks not only to strengthen people's thinking about protecting and controlling the land but also to assist them in their resolve to become self-reliant. The agenda also endeavors to critically examine the differences between western and traditional development systems (BRG, 2003).

Anderson (2004) positions two of the most remarkable features of the BRG agenda as the amount of time spent in group activities and the low-key approach to expected outcomes from the work. Communities are asked to identify their problems rather than their needs, as it is the latter that feeds into the colonial cargo/dependency mentality (BRG, 1997). No international workers are involved in the community entry process because it is understood that foreigners were and are a product of Papua New Guinea's post-colonial history associated with unequal power relationships.

The BRG has an education team that visits primary schools to talk about the environment and ways of linking conservation practice to Papua New Guinea history and culture. Students are encouraged to present their own stories of traditional environmental practices in the context of their own experiences. BRG members stress the Melanesian nature of their approach, but that approach does not preclude adopting new ideas and new technology within its cultural context.

The corporate undermining of customary title has now become a central focus of BRG campaigns. The group places land custodianship at the heart of a strategy of self-reliance and ecological management. Logging and mining companies constantly

subvert community decision-making processes, and although land cannot be sold in Papua New Guinea, it can be alienated through long-term leases and resource agreements that can lay destitute children and grand-children.

Environmental Education II

A Philosophy of Education for Papua New Guinea (Matane, 1986) builds on the ideology of the National Goals and Directive Principles and, in particular, the notion of integral human development. The philosophy proposes an approach to education that promotes ideas of mutual respect and dialogue and awareness of human potential and motivation to achieve national goals through self-reliant effort. The philosophy is considered important because it seeks to bring together traditional Melanesian ways and modern life by helping people look at education in Papua New Guinea in a manner that values local understandings. The report reiterates the ideology of the constitution that calls for respect for the "noble traditions" and "paying homage to the memory of our ancestors." It reminds Papua New Guineans to live by the Melanesian way and, at the same time, to access the benefits of the modern world. The report is considered the most important education document produced up until that time, and the government used its ideology to describe quality education as education that "Strengthens citizens' identification with, rather than alienating them from, their own communities … [and] gives value back to the appropriate attitudes, knowledge and skills relevant to community development" (Government of Papua New Guinea, 1988).

Education in Papua New Guinea is caught up in structural readjustment programs, the protocols by which indebted countries surrender their economic independence to the IMF and the World Bank. Public monies usually spent on education are severely cut. Large aid projects are then designed to come in and finance education from outside; overseas consultants are a part of the package. These education projects are designed to be economically efficient, cost-effective, and oblivious to the cultural context in which they operate. A recent study concluded that, "… much aid from rich to poor countries has been based on motives that have nothing to do with promoting development and reducing poverty. ... [Aid] has often produced disappointing results, because it has not been properly planned and effective, and is not based on recipient countries' needs and conditions" (Degnbol-Martinussen & Endberg-Pederson, cited in Doig & Marquette, 2005, p. 285). The visionary ideology of the philosophy of education and the cultural values it promotes are lost in the rhetoric of big-budget overseas aid projects. The World Bank states that its preconditions for education can only be understood "... as an ideological stance in promoting an integrated world economic system along market lines. It is an economy in which educational priorities should be set in reference to outcomes, using economic analysis standard setting and measurement of achievement through learning assessments" (Jones, 1998, p. 152).

Locally developed policies are ignored, as project managers work to their own externally developed agendas—agendas that have authority only because they are politically expedient and come associated with much-needed resources. Papua New

Guinea educators become passive implementers of policy generated out of neo-liberal agencies and may be in constant conflict with their own beliefs and values.

The recent Education Reform Project in Papua New Guinea grew out of this disinterested aid, and the new curriculum addresses EE. The lower primary syllabus includes the subject environmental studies, for Grades 3, 4, and 5. Because environmental studies is based on an outcomes-centered education model in line with World Bank ideology, its learning outcomes are stated "in terms that are measurable" (National Department of Education, 2003a, p. 17). In the introduction, the environmental studies syllabus states that the subject "recognises the importance of the approach to teaching and learning in this area which focuses on concepts in, about and for environment. These concepts are recognised internationally" (National Department of Education, 2003a, p. 1).

The language of the document belies the claim in the national curriculum statement that the material was written "by Papua New Guineans, for Papua New Guineans" (National Department of Education, 2003b, p. *ii*). For example, the text focuses on economic rather than ecological concerns, and the discussion of indigenous knowledge systems speaks of "them" as the "other" and is patronizingly simplistic in the understandings expressed. As an example, the rationale for environmental studies states that:

> The country is rich in natural resources that support development such as abundant forests and large reserves of minerals like copper, gold, oil and gas. Marine resources are also plentiful and diverse including tuna, barramundi, prawn and lobster. These resources must be used wisely for the benefit of the whole community now and in the future.

> Their traditional lifestyles and spiritual beliefs are often built around their environment such as beliefs that the spirits of ancestors live in the tallest trees or caves and certain animals or insect behaviour are used to foretell certain occurrences.

> The risk of these practices means that the environment can be damaged without the people realising the long term effects. The environment of Papua New Guinea is currently under threat from rapid population expansion and misuse of resources through overlogging and abuses associated with mining, overfishing, dynamiting reefs and dumping toxic wastes. (National Department of Education, 2003a, p. 2)

In this last paragraph there is an underlying assumption that Papua New Guineans are themselves in some way responsible for this environmental degradation. Nowhere in the document is the involvement of overseas commercial interests in the resources of the country mentioned.

POSSIBLE FUTURE DIRECTIONS

> *Human existence cannot be silenced, nor can it be nourished by false words, but only by true words, with which men and women transform the world. To exist, humanly, is to name the world, to change it.*
>
> *Paulo Freire (1970/1993, p. 88)*

EE is about transformation and about the relationships between humans and their environment. Paulo Freire (1970/1993) said that "dialogue cannot occur between those who want to name the world and those who do not wish the naming" (p. 69). Papua New Guineans, urban and rural alike, identify themselves in terms of their family ties and the tribe or clan they belong to—the community of their birth. The lakes, rivers, coasts, and mountains are places where the ancestors lived and worked and are the symbols of a person's identity (Pagelio, 2002). The stories telling of life and death struggles and relationships in their own lands carry the knowledge, the naming of the land, and its sacred places carry with it title to the land. In the current economic context of Papua New Guinea, this naming is being ignored by newcomers, exploiters, travelers, and visitors, who name the land from the perspective of a different world view.

People from the diversity of human cultural groups around the world form different philosophical frameworks that allow an individual to presuppose what the world is really like, and therefore what is important and valid knowledge. These philosophies, or worldviews, are based on assumptions about the phenomenal world that has evolved over time, and they reflect particular experiences and relationships with that world. It would be incorrect to suggest that any one world view is better than, or superior to, another.

Thus, for example, the BRG is interested in talking about land in language that describes it as sacred, and about highly protected areas that, in a hunter society, are exclusion areas for those who do not belong to that place (Anderson, 2004). This notion presents a different way of thinking about the land because it describes relationships that differ from those often referred to in Euroscience-based interpretations. It is an indictment of western culture when many outside experts and bureaucrats assume that Euroscientific knowledge and technology are superior in some way, and either ignore or denigrate indigenous knowledge and practices as primitive. The BRG is working within the transformative framework of EE by working with the people to address their concerns in their own specific cultural context. The community-entry approach values local knowledge and seeks to reframe problems and issues in ways that take into account the understandings of those people involved and, importantly, allows time for change to come about. This approach is about conceptual understanding and capacity-building from the bottom up in an ongoing cooperative process. It is a critical approach that challenges the status quo and the taken-for-granted authority of those with money and resources.

The EE that has been developed in the formal education sector is not transformative. It supports the rote learning of a transmissive pedagogy more interested in the false rhetoric of performance standards and testing. It is based on the assumption

that it is unproblematic for a western curriculum to be transplanted into another, very different, cultural context. Written by overseas consultants with little or no experience in Papua New Guinea, EE is currently based on pre-determined outcomes that have been imposed top–down by "experts," who create a "teacher-proof" curriculum. Compounding the problem is the reform curriculum, which is based on a system left over from the colonial administration—a system that was highly academic and examination-driven, and that promoted the notion of high-status subjects to the exclusion of others. To relegate EE to Grades 3, 4, and 5 is to indicate, in the context of this model, how little importance such a subject has.

There is a further assumption in the minds of many education policy-makers that the school system can have a significant impact on solving environmental problems that, at their source, are problems which are social, political, and economic. The development of EE in Papua New Guinea has responded to problems that had their genesis in the western industrialized world. Environmental degradation on a global scale is a result of, in great part, the impact of western technology and commerce on the natural world. While Papua New Guinea is no longer immune to these consequences of the unfettered commerce and consumption patterns of industrialized societies, it did not create them. This is a significant point, I believe, because it necessitates a way of thinking about the issues that is different from the mode of thinking evident in environmental programs in industrialized countries. For this reason, it is not helpful to uncritically transplant curriculum programs from elsewhere.

EE can be used in Papua New Guinea to encourage a more critical understanding of the way in which the processes of globalization operate and how overseas aid organizations have access to the country. It also has a role to play in helping people deal with the enormous social changes that globalization is bringing to the country and in helping people resist being treated as pawns of political and economic activity. By supporting transformative pedagogies, EE can enable responsive and dynamic interactions within the diversity of local contexts and, in so doing, engage meaningfully with the vision of the founding fathers and their philosophy of education. In this way, EE in Papua New Guinea can be developed so as to empower the capacity of the people to innovate their own environment.

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