FUTURE DIRECTIONS IN ENVIRONMENTAL ANTHROPOLOGY: INCORPORATING ETHNOGRAPHY OF ENVIRONMENTAL EDUCATION.

Abstract

This chapter addresses environmental education as an important subject of anthropological inquiry and demonstrates how ethnographic research can contribute to our understanding of environmental learning both in formal and informal settings. Anthropology of environmental education is rich in ethnographies of indigenous knowledge of plants and animals, as well as emotional and religious engagement with nature passed on through generations. Aside from these ethnographies of informal environmental education, anthropological studies can offer a critical reflection on the formal practice of education, especially as it is linked to development in non-Western countries. Ethnographic and critical studies of environmental education will be discussed as one of the most challenging directions of environmental anthropology of the future.

Introduction

Environmental education research spans a wide variety of fields and can be distinguished by formal (institutional) and informal (defined in terms of socio-cultural learning) learning practices. Most studies of environmental education (EE) reported in journals such as *Environmental Education Research, The Journal of Environmental Education,* and *Canadian Journal of Environmental Education* as well as journals that are more associated with education for sustainable development (ESD), e.g. *Journal of Education for Sustainable Development* and *International Journal of Sustainability in Higher Education* explore theory, methodology, and the evolution of environmental education in formal settings but rarely address informal education. Informal education, associated with the beyond-the-classroom experiences refers to broadly defined belief systems of knowledge regarding conceptions of humans in their environment (Efird 2011). Environmental anthropologists inquire *how* the process of cultural learning takes place, and *how* this learning is associated with our ideas about – or feelings toward – the environment (Milton 2002).

From a historical point of view, environmental education involved the development of physical and mental survival capabilities relevant to the geographical area where our ancestors lived; and the development of knowledge, understandings, and skills to maintain a relationship with their surroundings that resulted in winning the necessary resources for biological survival (Smyth 2006: 246). Environmental learning in today's schools is very different in kind, involving institutionalized learning about distant places far removed from industrial, (sub)urban, or rapidly developing agrarian communities in which many young adults grow up (Milton 2002; Anderson 2012). Indigenous knowledge of plants and animals, as well as the emotional bond and religious engagement with 'nature' or 'wilderness', gives way to a proliferation of built environments, where students learn 'scientific facts' within enclosed spaces. Classroom ethnography (e.g. Grenfell 2008) and anthropology of education (e.g. Hymes 1997; Hornberger 2011) have been employed by anthropologists to study formal educational practices.

In an informal context, anthropologists addressed the native knowledge and values that define a human relationship to nature. Anthropologists acknowledge the rapid decline in indigenous knowledge due to global forces of capitalism, industrialization, and consumerism (Zarger 2002 and McElroy in this volume). However, the local knowledge is all but gone, and anthropological work is rich in representations of people's perceptions of environment, cultural diversity and conservation; historical ethnobiology; indigenous ecological knowledge; and traditional agriculture (Stepp et al 2002:10).

Given the widespread public and scholarly interest in environmental learning, the scarcity of anthropological research on environmental education, as evidenced by the review of the database of anthropological journals AnthroSource is surprising (for a review see Efird 2011). This chapter is an attempt to compensate for this oversight and to address environmental education as an important subject of anthropological inquiry. The second aim is to demonstrate how ethnographic research can contribute to our understanding of environmental education both in formal and informal contexts. Formal and informal education shall be briefly discussed in order to reflect on how anthropologists can contribute to the research in these areas.

The formal perspective.

Since the turn of the century, environmental education is increasingly seen as a tool for the infusion of ecological worldviews among the younger generations (Sobel 1996; Chawla 1999; Smith and Williams 1999; Kahn 1999; Kahn and Kellert 2002). Environmental educators

propose pedagogical models that focus on learning problem-solving and environmental management skills within a framework of scientific and technological education, aiming to change the behavior of individuals as citizens (Sauvé 1999). Even short educational programs have been shown to stimulate environmental awareness in children (e.g. Amsel 2009) and college students (Rideout 2005; Dunlap 2008; Kahn and Nocella 2009).

Since the nineteen sixties, environmental education has been influenced by the International Conservation Union (IUCN) and the United Nations Educational, Scientific and Cultural Organization (UNESCO). The United Nations Environmental Program (UNEP) and UNESCO co-founded the International Environmental Education Program and launched it at an International Workshop on Environmental Education in Belgrade in 1975. *The Belgrade Charter* was the first inter-governmental statement on environmental education linking the unprecedented economic growth and technological progress to severe environmental consequences (UNEP and UNESDCO 1976).

The aim of formal environmental education at the primary level may vary in accordance with formal institutional policies or cultural traditions and expectations. Higher education may build on the fundamental attitudes acquired through primary education as well as the development of specific skills and knowledge in order to participate in the 'green economy' or 'green jobs' (UNEP 2008; ITUC 2008; ILO 2011).

Education, at least in the developed countries in the formal context, is increasingly dependent on corporate funding leading to serious concern amongst environmental educators (Jickling and Wals 2008). Corporate agendas and jargon often dominate mainstream education and find their way into environmental education (Crossley and Watson 2003). The current corporate slogan places its focus on the triple bottom line summarized by the three 'P's for 'People, Profit, Planet' that stands for the society, economics, and environment. Rather, we should use a different set of imperatives, namely ecological and moral imperatives that would alleviate human suffering and provide basic materials for all humankind (Stevenson 2006: 280 – 281).

Many formal environmental education programs in developed countries stress the importance of teaching children and adolescents about personal responsibility in combatting environmental problems. However, understanding of the role of the governments and corporate elites in the process of environmental damage and repair is even more important. The focus of Western environmental education programs on sustainable lifestyles and consumer responsibility such as energy saving and recycling often implies that 'we place hope in the idea that, through additional education, rational citizen-consumers will exercise

their preferences for the sustainability of the free market' (Isenhour 2010:456). However, some scholars have pointed out that this focus on individual responsibility is a reflection of the dominance of neo-liberal forms of environmental governance (Hobson 2002; Wals 2007) resulting from the process of "reflexive modernization" within the risk society (Beck 1992), whereby governments and industrial elites delegate responsibility for environmental regulation to consumers. Thus, teaching individual responsibility may be seen as a new manifestation of the old system; as a 'defense of unequal access and ultimately a strategy of the powerful to defend their ability to choose, and, therefore, to resist the regulation of resource-intensive, polluting or socially damaging products' (Isenhour 2010:457).

Gardner and Stern note that individual energy use accounts for only one-third of American total energy consumption, while business, industry, and big institutions consume the rest (Gardner & Stern 2002:258). Following from this, an environmental education curriculum can foster not only 'private sphere' activism (concentrated on individual choices such as limiting the number of consumed items), but also accentuate 'public sphere' environmentalism (for discussion see Stern 2000). Strategic environmental education needs to include learning about public actions so that young people will learn how to pressure 'government and industry to act for a common good' (Chawla and Cushing 2007:438).

Longitudinal qualitative studies of the effects of learning about public action and citizenship are scarce (Zint et al 2011). Evidence to their efficacy is often inconclusive as standard evaluative measures are often too rigid to allow nuanced analysis (Reid and Scott 2006). Anthropological research could target these areas left open by the more quantitative studies employing formal evaluative measurements in order to address the holistic effect of strategically important environmental learning on worldviews, motivation, and behavior of the students.

In view of the increased prominence of the concept of sustainable development popularized by the Brundtland Report (1987), priority was given to education for sustainable development or ESD. The United Nations Conference on Environment and Development in 1992 (The 'Earth Summit') produced a key set of plans and international agreements termed Agenda 21 aiming to reconcile social, economic and environmental interests. The UNESCO (2009) declared 2005 to 2015 to be 'the Decade on Education for Sustainable Development (DESD).

The current focus on ESD has been thoroughly reviewed[1]. The studies focused on ESD rarely deal with local variations in culturally variable perceptions of sustainability or development, despite the fact that such nuance could actually aid researchers and practitioners in answering questions pertaining to both the practice and ideology behind 'sustainable development'. Instead, studies summarizing core areas of ESD have focused on (Western) theoretical framing of sustainable development debates, differences between (formal) environmental education and ESD, and concrete instances of ESD in mostly Western formal settings (e.g. Jensen & Schnack 1997; Jickling & Spork 1998; Wals & Jickling 2000; and Wals 2007).

Informal perspective.

The function of informal environmental education is not necessarily related to the organization of the institutionalized education system and the role of educators within institutions. Rather, environmental education is part of the socio-cultural and intergenerational processes of knowledge and value acquisitions. Many anthropologists are skeptical of education for predefined (Western development) goals. In fact, formal (Western) education may be complacent in creating 'monocultures of the mind' (Shiva 1993) and perpetuate the 'holy grail' of the dominant political elites (Escobar 1995).

In the documentary film 'Schooling the World' reveal (Black 2010)[2], the question is posed: 'If you wanted to change an ancient culture in a generation, how would you do it?' According to the filmmakers, the answer to this question is 'You would change the way it educates its children'. The film explores the hidden assumption of cultural superiority behind education aid projects, which overtly aim to help children "escape" to a "better life" and abandon the traditional way of environmental learning and social cohesion. In this documentary, Wade

---

[1] For a review of extensive debates about EE and ESD, see Jickling 1992 and 2009; Scott 2002 and 2005; Stevenson 2006; Gough and Scott 2007; Kopnina 2011c and 2012b; as well as special editions of *Environmental Education Research* journal addressing ESD in specific socio-cultural settings.

[2] The filmmakers argue that many colonial European powers, but also the US and Australia forced native children (American Indians, Australian aboriginals, etc.) into government boarding schools. Today, volunteers build schools in traditional societies around the world, convinced that school is the only way to a 'better' life for indigenous children. The filmmakers then ask whether this is true and what really happens when we replace a traditional culture's canon of knowledge with our own? Does life really get better for its people? Shot on location in the Buddhist culture of Ladakh in the northern Indian Himalayas, the film weaves the voices of Ladakhi people through a conversation between four original thinkers; anthropologist and ethnobotanist Wade Davis, Helena Norberg-Hodge and Vandana Shiva, both recipients of the Right Livelihood Award for their work with traditional peoples in India; and Manish Jain, a former architect of education programs with UNESCO, USAID, and the World Bank.

Davis (quoted in Black 2010), an anthropologist and an ethnobotanist, argues that the spread of Western-style formal education undermines indigenous culture and knowledge, and enforces a sense of inferiority in local people as they struggle to achieve the Western (industrialist and often corporatist) goal of 'development'.

Many anthropologists would argue that the idea of 'progress', 'modernity' and 'development' is relative and that the enterprise of development actually creates social inequalities and imbalance between humans and environment (Lewis 2005). Li (2007) identifies enduring continuities from the colonial period in the highlands of Sulawesi in Indonesia criticizing education geared towards 'development' by integrating theory, ethnography, and history, and tracing the work of colonial officials and missionaries; specialists in agriculture, hygiene, and credit; and increasingly the 'educators' with their own schemes for guiding villagers toward 'better ways of life'. Li extends the works of Ferguson (1994) and Escobar (1995), and she uses Foucault (1991) to define the purpose of government and sovereignty and to understand social control and power inequalities and to expose neo-colonial tendencies of ESD.

In the system dominated by Western capital, formal education can be seen as an 'institution that is labeling millions of people as failures" (Jain quoted in Black 2010). Formal education can present ancient traditions and indigenous knowledge as 'backward'. However, it may be argued, 'These peoples, these cultures, are not failed attempts at being us — they are unique answers to the fundamental question, 'What does it mean to be human and alive?' (Davis quoted in Black 2010). Helena Norberg-Hodge, a cultural linguist and the founder and director of the International Society for Ecology and Culture[3], reflects: 'There is an assumption that western education, western knowledge, is something that is superior… there is an idea that we have evolved to a higher level of being, and that these people, however lovely they are, they're going to benefit from this superior knowledge' (Norberg-Hodge in Black 2010). Thus, while formal Western education may suffer from inherent biases and contradictions, informal, traditional or indigenous learning may provide an alternative that yet needs to be seriously considered by environmental education scholars.

While the words of caution about the hegemonic tendency of outside educators injecting their Western values and imposing Western educational styles is warranted, we need to note however that environmental education theorists have argued that ALL environmental education is instrumental (for debates on normative, instrumental and liberal approaches to environmental education see e.g. see Jickling 1992; Scott 2005; Stevenson 2006; Gough &

---

[3] A non-profit organization concerned with the protection of both biological and cultural diversity

Scott 2007; Læssøe & Öhman 2010; Kopnina 2012b). Therefore trying to get other people to become more "eco-conscious" is a form of ideological conversion.

Anthropologists have pointed out that distinction between formal and informal education programs is becoming blurred as more and more formalized education programs substitute for traditional forms of learning. In non-western contexts, formal education becomes increasingly 'blended' with indigenous or traditional forms of learning. To illustrate how this 'blending occurs', Baines and Zarger (2012) explore the process of formalizing environmental education through the so-called Maya 'environmental heritage' programs administered in villages in lowland Belize. The authors note that while formal education becomes more valuable in Maya communities, traditional knowledge becomes devalued. Multiple influences and players create valued knowledge, both informally and through the design and implementation of a formal in-school environmental education curriculum. The authors argue that the practice of integrating traditional environmental knowledge into Belizean schools requires a consideration of the circulation of these multiple voices, forces, and values in the context of a changing sociopolitical environment and a focus on how and why environmental knowledge maintains importance in Belizean Maya communities.

Few environmental anthropologists who explored environmental education, such as Nomura and Abe (2010) in the case of Japan, have found that government policies targeting development of education for sustainable development are 'adapted' for local contexts. In the case study of community participation of Islamic schooling, Parker and Raihani (2011) have demonstrated that educational practices in Indonesia do not restrict student learning to in-class experience. The introduction of a formal educational system in most 'traditional' communities, and gradual alienation of the local people from their traditional lifestyles, coupled with the process of industrialization and urbanization that distances people from their environment even further, produces the kind of 'hybrid' learning combining formal and informal education takes place. These types of ethnography could instruct environmental education scholars as to the grass-roots processes involved in culturally specific contexts, as well as illustrate how international concepts such as sustainable development or conservation are 'adapted' within communities. Translating certain Western notions, such as biodiversity conservation into local discourses is essential for the success of environmental programs in indigenous communities. Chaudhuri (2012) provides an ethnographic account of the social processes through which abstract notions of biodiversity conservation becomes socially meaningful to residents of villages in the South Indian state of Kerala. By critically analyzing the discourses used in various educational training sessions organized by the Forest Department at the Tiger Reserve, Chaudhuri analyzes the ways in which biologists and environmental activists strive to convert

a group of villagers into professional eco-guides as part of the World Bank-sponsored India EcoDevelopment Project (IEDP). Chaudhuri discusses the role of such education in creating modern environmental subjects engaged in inculcating a sense of self-worth through their engagement with a universal discourse of biodiversity conservation. In conclusion, Chaunduri reflects that only through personal, social and emotional engagement can the externally introduced notions such as 'biodiversity conservation' become integrated into the local society.

Reflecting on this case, we may note that anthropological tendency to caution about the hegemonic tendency of outside educators injecting their Western values and imposing Western educational styles may also imply that the "externally introduced notion" of biodiversity conservation became integrated into local society "only through personal, social and emotional engagement" can be seen as manipulation by hegemonic educators. Many would argue that ALL environmental education is basically the inculcation of certain values as ALL education can be seen as essentially instrumental (Jickling 1992). Therefore trying to get other people to become more "eco-conscious" is a form of ideological conversion. Anthropologists could reflect more on cultural ethics and a question of when such inculcation is appropriate and when it is not, from both local and external points of view. If, in the case of Kerala, the local villagers did not conceptualize their environment in terms of "biodiversity," how did they conceptualize it? What was the local discourse that biodiversity conservation was translated into?

Anthropological work on environmental ethics (Kopnina 2012c), for example, could inform us of both local and external notions in regard to anthropocentric (dependent on human interests) and ecocentric (independent of human interests) environmental values. For example, mistrust of local communities as effective stewards of wildlife is reflected in literature asserting that indigenous peoples view animals and plants as something not worth protecting (Infield 1988), and are capable of overuse and poor decision-making (Netting 1993). The majority of traits that perhaps once enabled traditional societies to live in greater harmony with the environment than more industrialized groups are slowly diminishing, as in the case of Kayopo (Turner 1993). Local people frequently view wildlife from protected areas as pests (Allendorf et al. 2006; Trusty 2011) and consider conservationists to be neo-colonial agents (Newmark et al 1993; Infield and Namara 2001; Igoe 2011).

On the other hand, there is evidence that people hold a variety of values and that some people are pro-wildlife and pro-conservation. Infield (1988) reflected that though faced with problems of poverty, land shortage and other difficulties directly associated with the existence

of the Conservation Area, respondents strongly supported the protection of wildlife. Allendorf (2007) noted that wildlife is appreciated not only for personal enjoyment but also because it is the country's wealth.

However, it is not just the native culture that matters in human understanding of the environment. Tim Ingold, drawing on the work of environmental psychologists, cognitive science and ecologists, argues that human beings perceive the world directly through individual learning and experience, not just through the cultural lens in order to develop "an understanding that proceeds from a notion of the mutualism of person and environment" (Ingold 1992:40). Developmental thinkers distinguish biological and cultural systems operating in the process of learning, whereas the biological process of development of individuals in their environment *is* precisely the process by which cultural knowledge and skills are inculcated and embodied. Thus, knowledge is not simply passed on ready-made but undergoes continual regeneration through guided rediscovery within social contexts of interaction between instructors and novices (Ingold 2007:16). This personal understanding leads us to the subject of emotion through which personal relationship with nature is experienced and learned.

Emotion and Nature.

Indigenous learning is broadly conceived not just as a cognitive process, but also as a social and emotional process. In traditional communities social and particularly intergenerational aspects of learning play a significant part in knowledge transfer. Gregory Cajete (1994, 2000), himself a Native American and the author of books on indigenous learning, noted that in many traditional societies older siblings play key roles in the transmission of environmental knowledge. This has important implications for studies of environmental knowledge change since "it is likely that transmission of environmental knowledge may depend on a sibling or peer teaching, particularly during early childhood" (Zarger 2010:358-9). In this context, learning occurs in the form of an informal apprenticeship in which the child learns by interacting with others (Anderson 2012). Intergenerational learning includes passing on stories and legends from old to young, stories that embody existential questions without explicit moralizing (Nabhan 1997; Barnhardt 2005).

Such learning in contrast to the pedagogy practiced in formal educational settings is often enhanced by emotionally powerful rituals and ceremonies and takes place with little discussion or lecturing. In contrast to Agrawal's (2005) notion of environment mentality, which refers to the inculcation of attitudes towards the environment with its emphasis on the

creation of environmental subjects, Acciaioli (2008) and Cepek (2011) criticize the usefulness of this Foucauldian paradigm. Instead, they emphasize the value of community and culturally specific interpretative environmental learning, in which the role of emotion is central to pupils understanding of nature.

Reflecting upon such "personal understanding", Kay Milton (2002) analyzes the relationship between emotion and learning and identifies the importance of sentimental commitment to the conservation of nature that is rooted in direct experiences of the non-human world. In order to counter the negative effects of emotional detachment from nature in industrial societies, environmental education increasingly emphasizes hands-on learning and community engagement (Sobel 1996). This engagement and participation are equally important in Western and traditional societies, as formal and informal education are found in both advanced capitalist societies and in traditional societies. Engagement with the local issues and communities allows anthropologists to consider the role of emotion in motivating environmental conservation (Anderson 2010). Anderson's *Ecologies of the Heart* (1996) offers cross-cultural evidence for both the importance and the context of emotion in learning sustainable resource management. Nolan and Stepp (2011) address emotionality in folk ethnobiological information expression, classification, and transmission. They offer a stepwise progression of work by anthropologists and cognitive scientists whose research has contributed to models of ethnobiological information variation in sociocultural groups, and the parallel lines of inquiry into intercultural knowledge variation. Such ethnographic work implies that the scholars of environmental education need to be more sensitive not just to factual knowledge and learning objectives, but also to emotional aspects that bind people to their subjects, be it plants, animals or entire ecosystems.

Conservation psychologists such as Stern (2000) and Ditz et al (2008) as well as environmental sociologists such as Dunlap (2008) point to the influence of the social contexts in which children's world views are formed (culture, world views of parents, peer groups) as well as the political and institutional contexts (the role of the government-sponsored information, the media, and the education itself). Environmental anthropologists complement the works of environmental, ecological, and/or conservationist sociologists, psychologists and scholars of environmental ethics, as well as (environmental) educators by providing a window into the impacts of environmental change and globalization processes, as well as environmental perception and behavior (Appadurai 1996). As noted in the Introduction to this volume, the future of environmental anthropology might be closely intertwined with the work of psychologists, sociologists, and others providing a unique cross-cultural perspective.

Interdisciplinary studies explained differences in environmental attitudes by distinct experiences of the natural world acquired in early childhood since these influence environmental concern, or by nature knowledge acquired in formal educational settings in the case of 'urban' children who are 'removed from nature' (Louv 2005). Ethnographies of how the environment is experienced through the process of 'being in nature', or 'participating in nature' of local communities could bring valuable insights.

The importance of local people's participation in eco-activities such as tourism for raising people's own awareness of environment can be exemplified by the ethnography of local knowledge and education among the Kayapó by Zanotti (2012). Zanotti discusses community-based tourism (CBT), which has in the past three decades become a popular niche for market activities by local groups that would like to engage in sustainable economic enterprises. CBT is a bottom-up approach where local community designs, manages and oversees a tourism venture. In this model, tourists engage with a local community in culturally sensitive ways, experience exotic locales with minimal environmental impact, and are educated about the biological and/or cultural diversity of the area. In line with the studies of psychologists and sociologists, this anthropological approach demonstrates that the experience of participation in eco-tourism projects renews local interest in conservation.

Directions in the anthropology of environmental education.

Informal learning, occurring through emotionally powerful rituals and ceremonies may be said to be in sharp contrast to the pedagogy practiced informal educational settings. Ethnographies of environmental education include learning that takes the form of stories or relating experiences, as well as actual interaction with nature through play and observation. The anthropological methodology of extended, intimate participant-observation can complement existing studies of formal environmental education in helping to document and assess the transmission and acquisition of environmental knowledge. Anthropologists could substantiate the interdisciplinary scholarship of environmental education with longitudinal qualitative studies of the effects of learning about public action and citizenship as well as their efficacy applying their long-standing expertise in classroom ethnography.

On the other hand, since we have noted the trend toward more interdisciplinary environmental anthropology in Introduction to this volume, anthropologists could adopt more 'mixed' methodologies to bridge interdisciplinary gaps. Anthropologists could be very helpful in answering how As Dietz et al (2005) have noted, the ethnographic method for studying

environmental values has not seen much use compared to survey methods. The anthropological method, they assert,

> has the advantage of allowing inductive exploration of issues but the disadvantage of being very labor intensive, particularly if deployed with representative samples. All of these efforts reflect the anthropological and sociological traditions of allowing respondents to speak for themselves and extracting patterns from what they say. Although this approach is labor intensive and can make it difficult to generalize across studies, it has the advantage of uncovering how people are articulating their values rather than asking them to react to survey items that may not adequately taphow people are thinking (Dietz et al 2005:355).

In the ethnographies of environmental education programs in the Western countries, the importance of outside-of-classroom learning, peer groups, parents, as well as social clubs and societies are stressed, all of which require mixed methodologies. Ethnographies of Western educational practices are characterized by the use of statistical analysis of and self-reported behavior. Car ownership and driving statistics, as well as self -reports of mobility behavior, are combined with the study of transportation attitudes in children (Kopnina 2011a). Similarly, statistical data on consumption and self-reported consumer behavior (through the use of the so-called 'consumption diaries' is used in the study of children's attitudes to consumption (Kopnina 2011b and 2013). Based on the use of this mixed methodology, both studies draw recommendations for the development of sustainable transportation and consumption curricula for the upper elementary school children.

The use of mixed methodologies, such as large survey data combined with 'traditional' participant observation also characterizes the ethnography of American amateur clubs and hobby scientists (Storksdieck, Stein and Jones 2012). Serious leisure enthusiasts like amateur astronomers share their passion with the public through such activities as 'star parties', re-connecting the observers to the primordial need for dark skies. This engagement in the dark sky has also 'side benefits' such as local energy savings and smart energy use. Storksdieck and colleagues compare these results to large surveys on amateur astronomy outreach and other secondary sources concerning the role of hobby science in environmental education in the US and around the world, demonstrating how these groups can play a major role in shaping an appreciation of specific aspects of the biophysical world among the public. This research suggests a model for acquiring environmental knowledge and understanding that focuses on specific islands of expertise and is produced and disseminated through collective action (Storksdieck, Stein and Jones 2012).

Another productive area for anthropological exploration is questioning the normative stance as well as instrumental aims of formal environmental education. Anthropological involvement with the complexity and inherent contradictions of development, as well as the propensity of many anthropologists to analyze field sites in developing countries, could add valuable data on how ESD in developing countries differs from that in developed ones. For example, the issues concerned with reproductive health might be more appropriate in developing countries; while the issues concerned with consequences of the high level of consumption may be more appropriate in more affluent Western societies (Kopnina 2011b). Addressing inconsistencies and continuities of discourses on sustainable development as well as appropriation (or contestation) of dominant forms of sustainable development practice by younger generations are some of the areas in which anthropologists could contribute to the studies of formal education and ESD. Related to this, anthropological studies of environmental education could examine how corporate, national, or institutional agendas interact with – and sometimes influence – environmental education programs at the grass-roots level.

The role of environmental education is of paramount importance if we are to understand the complexity of culturally specific understandings and different communities' paths towards a positive resolution of the human relationship with the environment. These paths are reflective of the common theme of this volume - paths from the past, roads (or misty vistas) into the future of what environmental education could be. The paths people take through their environment, literal and figurative, and how they interact and effect that environment on their way differ from culture to culture, from school to school. Classroom ethnography and anthropology of education could be used to examine school and college courses in environmental education, the structures of educational institutions, the challenges of reducing campus' ecological footprint, green campus organizations, and student and faculty participation in 'environmental education'.

Conclusions.

This chapter aimed to reflect upon the potential of anthropology to offer new and valuable insights to the established interdisciplinary studies of environmental education, simultaneously reflecting upon what anthropologists could learn from their interdisciplinary colleagues. A number of future directions for the anthropology of environmental education were outlined. In terms of informal education, characterized by broadly defined belief systems, anthropologists could add valuable insights into the socio-cultural, religious, as well as emotional context in which learning about environment occurs. Studies of indigenous learning

in traditional communities can be expanded to encompass intergenerational knowledge transfers and the practice of interacting with nature as a particular strand of environmental education. Informal education in Western societies can encompass beyond-the classroom practices, such as amateur astronomy clubs, or examine parts of the curriculum that fall outside of established environmental education programs such as consumption or transportation.

Reflecting upon the formal education practices, anthropologists could offer constructive critique of the dominant Western education and particularly examine the local impact of development on traditional educational practices. Anthropological gaze, characterized by the critical, self-reflective, relativistic attitude to 'sustainable development' could provide a socio-culturally nuanced perspective on education for sustainable development or ESD. Ethnographies cited in this chapter could be expanded to address the questions of how environmental attitudes are being formed, examining the role of families, peers, media, and education in fostering pro-environmental perceptions.

Ethnographies of environmental education demonstrate the importance of socio-cultural context in learning about the human place in nature beyond the classroom or academic compounds. These ethnographies illustrate the great potential of the anthropology of environmental education to address a host of complex issues involved in an intricate process of human realization of the place of people in their environment.

Bibliography

Acciaioli, Gregory

> 2008 Conservation and Community in the Lore Lindu National Park: Customary Custodianship, Multi-Ethnic Participation, and Resource Entitlement, in Locating the Commonwealth: Community, Environment and Local Governance in Reform Era Indonesia, eds. C. Warren & J. McCarthy. Oxon, Routledge.

Allendorf, Teri. 2007. Residents' Attitudes Toward Three Protected Areas in Southwestern Nepal. *Biodiversity and Conservation,* 16**:** 2087-2102.

Allendorf, Teri, Swe, K. K., Oo, T., Htut, Y., Aung, M., Allendorf, K., Hayek, L.-A., Leimgruber, P. & Wemmer, C. 2006.
Community Attitudes toward Three Protected Areas in Upper Myanmar (Burma). *Environmental Conservation,* 33**:** 344-352.

Amsel, Sheri
        2009 Ways to Live Green for Kids: Saving the Environment at Home, School, or at Play--Every Day! Avon, Massachusetts: Adams Media

Anderson, Eugene N.
        1996 Ecologies of the Heart. Oxford: Oxford University Press.

Anderson, Eugene N.
        2010 The Pursuit of Ecotopia: Lessons from indigenous and traditional societies for the human ecology of our modern world. Santa Barbara, CA: Praeger.

Anderson, Eugene N.
        2012 Tales Best Told out of School: Traditional Life-Skills Education Meets Modern Science Education. In Anthropology of Environmental Education, Ed. H. Kopnina, New York: Nova Science Publishers.

Appadurai, Arjun
        1996 Modernity at Large: Cultural Dimensions of Globalization. Minneapolis: University of Minnesota Press.

Argwal, Arun
        2005 Environmentality. Current Anthropology 46 (2): 161-190.

Baines, Kristina, and Zarger, Rebecca K.
        2012 Circles of Value: integrating Maya environmental knowledge into Belizean schools. In Anthropology of Environmental Education, Ed. H. Kopnina, New York: Nova Science Publishers.

Barnhardt, Ray
        2005 Indigenous Knowledge Systems and Alaska Native Ways of Knowing. Anthropology & Education Quarterly 36 (1): 8–23.

Beck, Ulrich
        1992 Risk Society: Towards a new modernity, London: Sage.

Black, Carol
        2010 Schooling the World: The White Man's Last Burden'. Documentary film. Lost People Films. www.schoolingtheworld.org.

Cajete, Gregory
        1994 Look to the Mountain. An Ecology of Indigenous Education. Kiwaki Press. Skyland.

Cajete, Gregory
        2000 Native Science: Natural Laws of Interdependence. Clearlight Publishers. Santa Fe, NM.

Cepek, Michael L.
        2011 Foucault in the Forest: Questioning Environmentality in Amazonia. American Ethnologist 38(3):501-515.

Chaudhuri, Tapoja
        2012 Learning to Protect: Environmental education in a South Indian Tiger Reserve. In Anthropology of Environmental Education, Ed. H. Kopnina, New York: Nova Science Publishers.

Chawla, Louisa
    1999 Life paths into effective environmental action, Journal of Environmental Education 32 (1): 15-26.

Chawla, Louisa, and Cushing, Deborah
    2007 Education for strategic environmental behaviour. Environmental Education Research 13 (4): 437-52.

Crossley, Michael, and Watson, Keith
    2003 Comparative and International Research in Education: Globalisation, Context, and Difference. London: Routledge Falmer.

    Dietz, Thomas, Fitzgerald, Amy and Shwom, Rachael. 2005. Environmental Values, Annual Review Environmental Resources 2005. 30:335–72

Dunlap, Riley E.
    2008 The New Environmental Paradigm Scale: From Marginality to Worldwide Use. The Journal of Environmental Education 40 (1): 3-18.

Efird, Robert
    2011 Learning the Land Beneath Our Feet: An anthropological perspective on place-based education in China. In Kopnina, H., and Shoreman-Ouimet, E. (Eds.) Environmental Anthropology Today. New York and Oxford: Routledge.

Escobar, Arturo
    1995 *Encountering development: The making and unmaking of the third world*. Princeton, NJ: Princeton University Press.

Ferguson, James
    1994 The anti-politics machine: "Development," depoliticization, and bureaucratic power in Lesotho. Minneapolis, MN: University of Minnesota Press.

Foucault, Michael
    1991 "Governmentality," in The Foucault effect: Studies in governmentality. Edited by G. Burchell, C. Gordon, and P. Miller, pp. 87-104. Chicago: University of Chicago Press.

Gardner, Gerald T. & Stern, Paul C.
    2002 Environmental problems and human behavior (2nd ed.) Boston: Allyn & Bacon.

Gough, Stephen, and Scott, William
    2007 Higher education and sustainable development: paradox and possibility, ` Abingdon: Routledge.

Grenfell, Michael James
    2008 Bourdieu, language and classroom ethnography. *AERA 2008 Annual Meeting, New York, USA, 24 - 28 March 2008.* 1-24

Hobson, Kersty
    2002 Competing discourses of sustainable consumption: does the 'rationalization of lifestyles' make sense? Environmental Politics 11(2): 95–120.

Hornberger, Nancy

2011 Dell H. Hymes: His Scholarship and Legacy in Anthropology and Education. Anthropology & Education Quarterly 42 (4):310-318.

Hymes, Dell
1997 Language in Society. In The Early Days of Sociolinguistics: Memories and Reflections, ed. by Christina Bratt Paulston and G. Richard Tucker, pp. 243-245.

International Labour Organization ILO
Work of Work magazine. http://www.ilo.org/wow/Articles/lang--en/WCMS_083900/index.htm, Accessed December 15, 2011

International Trade Union Organization ITUC
New Report on "Green Jobs" a Challenge to Governments
http://www.ituc-csi.org/spip.php?article2408 Accessed December 15, 2011

Isenhour, Cindy
2010 On conflicted Swedish consumers, the effort to stop shopping and neoliberal environmental governance. Journal of Consumer Behaviour 9:454-469.

Igoe, Jim 2011. Forum. Rereading conservation critique: a response to Redford. *Fauna & Flora International, Oryx*, 45(3): 333–334

Infield, Mark & Namara, Argripinna 2001. Community attitudes and behaviour towards conservation: an assessment of a community conservation programme around Lake Mburo National Park, Uganda. Oryx, 35: 48-60.

Infield, Mark 1988. Attitudes of a rural community towards conservation and a local conservation area in Natal, South Africa. Biological Conservation, 45: 21-46.

Ingold, Tim
1992 'Comments,' Current Anthropology 33(1):208-209.

Ingold, Tim
2007 'The trouble with "evolutionary biology,"' Anthropology Today 23(2): 13-17.

Jensen, Bjarne Bruun, and Schnack, Karsten.
1997 The action competence approach in environmental education, Environmental Education Research 3(3): 163–179.

Jickling, Bob
1992 Why I don't want my children to be educated for sustainable development, Journal of Environmental Education 23(4): 5-8.

Jickling, Bob & Spork, Helen
1998 Education for the environment: a critique, Environmental Education Research 4(3): 309–328.

Jickling, Bob
2009 Environmental education research: to what ends? Environmental Education Research 15 (2): 209 — 216.

Jickling, Bob and Wals, Arjen E. J.
2008 Globalization and environmental education: looking beyond sustainable development' In Journal of Curriculum Studies 40(1): 1-21.

Kahn, Peter H., Jr.

    1999 The human relationship with nature. Cambridge, MA: MIT Press.

Kahn, Peter H., & Kellert, Stephen R. (Eds.)

    2002 Children and Nature. Cambridge MA: MIT Press.

Kahn, Peter R., and Nocella, Anthony J. II.

    2009 *Greening the Academy: Environmental Studies in the Liberal Arts*. Syracuse University Press.

Kopnina, Helen

    2011a Kids and cars: environmental attitudes in children. *Transport Policy* 18: 573–578.

Kopnina, Helen

    2011b What about that wrapper? Using consumption diaries in environmental education. In *Environmental Anthropology Today*. Edited by H. Kopnina and E. Shoreman-Ouimet, New York and Oxford: Routledge. Pp. 118-139.

Kopnina, Helen

    2011c Revisiting Education for Sustainable Development (ESD): examining anthropocentric bias through the transition of environmental education to ESD. Sustainable Development. https://onlinelibrary.wiley.com/doi/abs/10.1002/sd.529

Kopnina, Helen

    2012a Anthropology of Environmental Education, Ed. H. Kopnina, New York: Nova Science Publishers.

Kopnina, Helen

    2012b Education for Sustainable Development (ESD): The turn away from 'environment' in environmental education? *Environmental Education Research*. 18 (5): 699-717.

Kopnina, Helen

    2012c Towards Conservational Anthropology: Addressing anthropocentric bias in anthropology. *Dialectical Anthropology*. 36(1): 127-146.

Kopnina, Helen

    2013 An Exploratory Case Study of Dutch Children's Attitudes towards Consumption: Implications for Environmental Education. *Journal of Environmental Education*. 44(2): 128-144.

Læssøe, Jeppe and Öhman, Johan

    2010 Learning as democratic action and communication: framing Danish and Swedish environmental and sustainability education, Environmental Education Research 16 (1): 1 — 7.

Lewis, David

    2005 Anthropology and development: the uneasy relationship. In: Carrier, James G., (ed.) A handbook of economic anthropology. Edward Elgar, Cheltenham, UK, pp. 472-486.

Louv, Richard

2005 *Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder*, Algonquin Books of Chapel Hill, North Carolina.

Milton, Kay
1996 Environmentalism and Cultural Theory: Exploring the Role of Anthropology in Environmental Discourse, (Environment and Society), London: Routledge.

Milton, Kay
2002 Loving Nature: Toward an ecology of emotion. New York: Routledge.

Nabhan, Gary P.
1997 Children in Touch, Creatures in Story. In Nabhan, G. P. Cultures of Habitat. Washington D.C.: Counterpoint Press.

Netting, Robert M.
1993 Smallholders, Householders: Farm Families and the Ecology of Intensive, Sustainable Agriculture, Stanford: Stanford University Press.

Newmark, William D., Leonard, Nancy L., Sariko, H. I. & Gamassa, D.-G. M.
1993 Conservation attitudes of local people living adjacent to five protected areas in Tanzania. Biological Conservation, 63**:** 177-183.

Nolan, Jason M., and Stepp, John R.
2012 The Application of Cognitive Ethnobiology to Environmental education. In Anthropology of Environmental Education, Ed. H. Kopnina, New York: Nova Science Publishers.

Nomura, Ko, and Osamu Abe

2010 The education for sustainable development movement in Japan: a political perspective. Environmental Education Research 15 (4): 120 – 129.

Parker, Lyn M., and Raihani, R.
2011 'Democratizing Indonesia through Education? Community Participation in Islamic Schooling', Educational Management, Administration and Leadership 39 (6): 712-732.

Rauwald, Kim S. and Moore, Colleen F.
2002 Environmental attitudes as predictors of policy support across three countries Environment and Behavior 34: 709–739.

Reid, Alan and Scott, William
2006. Researching education and the environment: retrospect and prospect, Environmental Education Research 12 (3): 571 — 587.

Rideout, Bruce E.
2005 The effect of a brief environmental problems module on the endorsement of the New Ecological Paradigm in college students. The Journal of Environmental Education, 37(1): 3–11.

Sauvé, Lucie

1999 Environmental education between modernity and postmodernity: searching for an integrating educational framework. Canadian Journal of Environmental Education, 4: 9 - 35.

Scott, William
2002 Education and sustainable development: challenges, responsibilities, and frames of mind. *Trumpeter,* 18(1). http://trumpeter.athabascau.ca/index.php/trumpet/article/view/123/134, Accessed 26 May 2011.

Scott, William
2005 (ESD)What sort of education? What sort of learning? What sort of decade?, Invited paper presented at the Danish Opening Conference for the United Nations Decade of Education for Sustainable Development, 10-11 March, Copenhagen, Denmark. Online: www.ubu10.dk/konf/english.htm, Accessed 26 May 2011.

Shiva, Vandana
1993 Monocultures of the Mind: Biodiversity, Biotechnology and Agriculture, Zed Press, New Delhi.

Shoreman-Ouimet, Eleanor and Kopnina, Helen
2011 Introduction. Environmental Anthropology Today. New York, Oxford: Routledge.

Smith, Gregory A., and Williams, Dilafruz R. (Eds.)
1999 Ecological education in action: On weaving education, culture, and the environment. Albany, NY: State University of New York Press.

Smyth, John C.
2006 Environment and education: a view of changing scene. Environmental Education Research 12(3 - 4): 247 - 264.

Sobel, David
1996 Beyond ecophobia. Great Barrington, MA: Orion Society.

Stepp, John R. Wyndham, Felicia S. and Zarger, Rebecca K. (Eds)
2002 Ethnobiology and Biocultural Diversity, Athens: University of Georgia Press.

Stern, Paul C.
2000 Toward a coherent theory of environmentally significant behavior. Journal of Social Issues 36: 407-424.

Stevenson, Robert
2006 Tensions and transitions in policy discourse: Recontextualising a decontextualised Environmental education/ESD debate. Environmental Education Research, 12(3-4): 277-290.

Storksdieck, Martin, Stein, Jill and Jones, Eric C.
2012 Hobbyists in the role of the environmental educator: The case of amateur astronomy clubs. In Anthropology of Environmental Education, Ed. H. Kopnina, New York: Nova Science Publishers.

Turner, T. 1993. The role of indigenous peoples in the environmental crisis: the example of the Kayapó of the Brazilian Amazon, Perspectives Biol. Med., 36(3):526–47.

Trusty, Teressa 2011. From Ecosystem Services to Unfulfilled Expectations: Factors Influencing Attitudes toward the Madidi Protected Area. In Kopnina, H., and Shoreman-Ouimet, E. (Eds.) Environmental Anthropology Today. New York and Oxford: Routledge.

UNEP and UNESCO
1976 The Belgrade Charter.
http://unesdoc.unesco.org/images/0001/000177/017772eb.pdf;
http://www.medies.net/_uploaded_files/TheBelgradeCharter.pdf

UNEP
2008 Background Paper on Green Jobs
http://www.unep.org/labour_environment/PDFs/Green-Jobs-Background-paper-18-01-08.pdf Accessed 26 May 2011.

UNESCO
2009. United Nations Decade of Education for Sustainable Development (DESD, 2005-2014) Review of Contexts and Structures for Education for Sustainable Development. http://www.bne-portal.de/coremedia/generator/unesco/

Wals, Arjen E. J.
2007 Social Learning: towards a sustainable world: principles, perspectives, and praxis. Wageningen Academic Publishers.

Wals, Arjen E. J. & Jickling, Bob
2000 Process-based environmental education seeking standards without standardizing, In B. B. Jensen, K. Schnack & V. Simovska (Eds) Critical environmental and health education: research issues and challenges.Copenhagen, The Danish University of Education, Research Centre for Environmental and Health Education.

Zanotti, Laura
2012 'Folk knowledge, interactive learning, and education: community-based ecotourism in the Amazon' In Anthropology of Environmental Education, Ed. H. Kopnina, New York: Nova Science Publishers.

Zarger, Rebecca K.
2002 Acquisition and Transmission of Subsistence Knowledge by Q'eqchi' Maya in Belize, In Stepp, J. R., Wyndham, F.S. and Zarger, R.K. (eds) Ethnobiology and Biocultural Diversity, Athens: University of Georgia Press.

Zarger, Rebecca K.
2010 'Learning the Environment'. In Lancy, D., Bock J., and Gaskins, S. (eds) The Anthropology of Learning in Childhood, Lanham, MD: AltaMira.

Zint, Michaela T., Dowd, P. F. & Covitt, B. A.
2011 Enhancing environmental educators' evaluation competencies: insights from an examination of the effectiveness of the My Environmental Education Evaluation Resource Assistant (MEERA) website, Environmental Education Research 17(4): 471-497.