

Making environmental meaning

Alison L. Neilson* aneilson@uac.pt
Luzia Cordeiro Rodrigues
Rosalina Gabriel
Ana Moura Arroz

University of the Azores, Angra do Heroísmo, Portugal

Paper presented at the 1st International School Congress, Environment, Health and Education
8-10 May, 2008, Braga, Portugal

Do not cite paper without written permission by authors

This presentation is about creating rich and complex meanings for the concept of “environment” in order to increase the life supporting function of a biologically and culturally diverse environment. It focuses on educators and learners in research about the meaning of environment and ecological identity. This presentation discusses two educational studies which take ecological approaches to research. These approaches acknowledge complexity and ambiguity within the continuing processes of knowledge construction and use qualitative methods including free expression, photographs, drawings, semi-structured and narrative interviews, and meditative visualizations. One of the studies worked with a “naïve” group, children from the ultra-peripheral region of the Azores archipelago. The other involved “experts”, environmental educators from around the world who had much formal studies about the environment in higher education. Researchers in these studies followed phenomenographic and narrative arts-based approaches and through reflexive partnerships with research participants, they highlight diverse perspectives of the environment not regularly seen in the literature, as well as uncover the ways in which researchers can inadvertently analysis away much of this diversity. Like research, teaching deals directly with processes of knowledge construction. The lessons learned through these two research studies are explored for how teaching can be done in a way that also supports diverse perspectives on environment.

Keywords: reflexivity, complexity, ambiguity, social construction, Azores, perspectives

History, context and problem of the use of the word “environment”

The term “Environmental Education” was first used coined in 1948 at an International Union for Conservation of Nature, IUCN, conference in Paris (Palmer, 1998). Since that time the trend for individual teachers as well as within the field of environmental education has been to begin by teaching *about* the environment (usually in a classroom setting), then progressing to teaching *in* the environment by going outdoors, and then to teaching *for* the environment by working on local environmental action projects (Gough, 1997). Andrew Brooks (2002) “draw[s] attention to some shortcomings of approaches to environmental education that globalizes ideas developed in particular North American or European environments” (p. 73), specifically pointing to the localized and important differences within the land of Australia compared to North America and Europe. As well, public environmental education that targets particular communities “tend to involve one-way communication campaigns” in a “top-down transmissive methodology” (Bélanger, 2003, pp. 83-84). Additionally Jickling (1992) has written about the dangers of education becoming advocacy, especially in the context of education for “sustainable development” as the terms have also been viewed as little more than “a vague slogan susceptible to manipulation”(p.5) that is unhelpful to environmental educators.

In the specific Portuguese context, the strong rural context and history of dictatorship (1926-1974) may have limited early civic participation in the formation of environmental policy (Soromenho-Marque, 2005), although following the democratic revolution, the new government created various departments and offices focusing on the environment, and environmental education was promoted to teachers (Ramos-Pinto, 2004). In 1972, a regional network of protected areas (13% of total area of the region, 53,700 hectares), including Caldeira (in Faial) and the mountain on Pico (Carqueijeiro, 2005), was created in the Azores. At this same time environmental problems were discussed on Portuguese public radio (Evangelist, 1992). In the 1990s, non-governmental organizations for the protection of the environment began to emerge in the Azores including, the association for the defence of the environment, Azórica, in Faial, the association of youth for the protection of historical-cultural and natural history of São Jorge, and the association for the defence of Nature, Gê-Questa on Terceira. Other earlier non-governmental organizations who also had influence on public perception of environment included the society of speleological exploration, the Mountainheiros, founded in 1963 on Terceira and the friends of the Azores, ecological association on São Miguel from the late 1980s. Throughout Portugal there is also the Blue Flag Association of Europe, the foundation for environmental education and the youth program reporters for the environment, as well as a national network of Ecotecas. In 1999/2000, the Eco-Schools programme began in Portugal and is part of schools in the Azores (Rodrigues, 2007).

Concurrently with the educational effort, there are strong forces promoting images of the environment for commercial gain, specifically, marketing strategies which promote the Azores for its nature, landscape, remoteness and weather seem to increase the length of tourists visits (Gomes de Menezes, Moniz & Cabral, 2008). In the Azores, tourism websites heavily promote the image of an untouched natural paradise using phrases such as “majestic scenery” “peaceful” “breathtaking beauty with ample spaces of tranquility between the green and flowers”. They use images of “spectacular landscapes with never-ending panoramic views; savagely beautiful untouched nature; wide open spaces where the colour green in a myriad of shades prevails; exuberant flora exhibiting all colours of the rainbow, with hydrangeas, agapanthus and azaleas in abundance; solitary hiking routes; small, peaceful villages; picturesque and deserted roads, idyllic coves and unspoilt beaches”

For those who love Nature, The Azores are heaven on earth. From the Lakes and lagoons with unbelievable shapes up to the astonishing sights over the ocean; from the deep craters of ancient volcanoes to the purity of the landscapes; from the bucolic harmony to the serenity of silence; Covered in a green, so pure that invokes an image of the lost paradise, The Azores are certain to provide an experience of a lifetime. (Azorean Regional Director of Tourism, www.visitazores.org)

Advertisements have a powerful influence on many, if not every, aspect of our lives. Jhally (1998) in his work on the impact of advertising on society explains how the present “commercial discourse is the ground on which we live, the space in which we learn to think, the lens through which we come to understand the world that surrounds us.... In our culture, it is the stores of advertising that dominates the stories [where values are articulated and expressed, where notions of good and evil, of morality and immorality, are defined]” (p. 3). Commercial interests manipulate our desires for social

relations and quality of life to make us seek to fulfil these through consuming products in the marketplace. Even when we are away of the force of advertising, we have little power to escape it as even our mental spaces are colonized by Pepsi, Nike and McDonalds (see, McKibben, 2001; Arnold, 2004).

There are multiple forces that seek to control how we understand and recognize the environment. Whether their interests are motivated by a desire to conserve the “environment” for the good of all human kind, or by a desire for individual profit, they do not typically acknowledge the social construction of their concept of environment. As researcher and teachers who are also subject to these forces, we can easily be entrapped by them and reinforce meaningless definitions about the environment which do not serve ourselves, students or the multiple manifestations of the environment truly important for the good of all human kind.

Messing with our own understandings allows other meanings to be recognized

The two studies presented here involved very different groups of participants: one focused on children living in the ultra-peripheral region of the Azores archipelago, and the other on adults from around the world who had undertaken much formal study about the environment and who also had done environmental education in various contexts and languages. Both studies, however, offered the research participants active roles in the emerging design of the research and the primary researchers listened with great care in order to have the voices of participants disrupt their own previously unexamined assumptions and their own constructions of environment. It is these reflexive processes that allow complexity, ambiguity and the dynamic nature of meanings to be recognized within lived understandings of “the environment”.

Engaging with “naïve” voices

The first study, Rodrigues (2007), explored how children experience and understand the environment. The research was carried out on Terceira Island (Azores, Portugal) with 75 fourth grade children from the city of Angra do Heroísmo and from rural parts of the island. Although people in the cities seem to have different views on the environment than those in the more rural areas of the islands (Gabriel & Silva, 2007), all islanders regularly encounter rural and seafaring life (farm animals in fields within the cities, tractors, banana plantations, fishing boats, etc). Angra do Heroísmo is a UNESCO world heritage city with a population of just under 20,000 people the entire island of Terceira has a total of 34,000 people (2001 census, SREA 2007). The island has an area of 400.3 square kilometres and there are regular, but limited public bus routes between the major areas. Children from the rural areas do not regularly visit the cities.

We use, as well as contest our use of, the label of “naïve” for these participants. These participants have been exposed to fewer overt advertisements and covert messages about the environment than the adult participants from the “expert” study discussed later in this presentation, by virtue of their young age. The isolation of the island from the mainland, as well as the lack of skyscrapers, malls and major commercial zones, means that the physical landscape is free from much of the signage and advertising common to cities on the mainland. However, there is much contact between the residents of the islands and Canada and the United States in particular because of a long

history of immigration. Television and radio, as well as internet are probably as common here as elsewhere.

This research was done for a Master's degree in environmental education and the two supervisors, Rosalina Gabriel and Ana Moura Arroz worked with the main researcher, Luzia Cordeira Rodrigues throughout the emergent research design and analysis of the data. Initially, Rodrigues considered using a New Environmental Paradigm, NEP scale (Castro, 2003, 2005; Hannigan, 1995), but decided to use multiple modes of verbal and non-verbal communication in order to better understand the children's' perspectives. She began by doing exploratory interviews and used suggestions by these children (9 and 10 years of age) to affect the overall design of the research and to specifically modify content of her research instruments as well as the instructions which would be used with the research participants.

The first research task for participants was to draw their idea of the environment. They were also asked to make a free association of words to the stimulus word "environment" (see Coutinho, Gontíes, Araújo & Sa, 2003) and later asked to express their concern for the environment using words or short phrases. Using the words generated during the first free association task, researcher categorized words according to positive, negative and neutral attributes. The words were then randomly distributed and in a pilot procedure, children were asked to classify the words according to "the environment is", "the environment is not" and "the environment is sometimes". Some terms were modified and replaced according to the pilot, before the classification task was given to the study participants. As well, research participants were asked to draw their future vision of the environment and were given cameras to take photographs of the environment. These photos were used in the proceeding semi-structured interview with the children. After two sessions of interactions with the research participants, a set of data produced by each child consisted of fourteen different expressions which were obtained in the following sequence:

- drawing of the current environment
- list of words freely associated with environment
- drawing of the future environment
- list of environmental concerns
- grid of words classified according to "the environment is...", "the environment is not..." or "the environment is sometimes..."
- photos they took of the environment
- verbal explanations of the photos
- verbal description of their drawing of the current environment
- verbal discussion comparing their drawing of the current with their drawing of the future environment
- verbal justification of their concerns for the environment
- ranking of environmental problems
- verbal justification of the relevance of the three issues considered most serious
- discussion of their sources of environmental information and its credibility
- definition of the environment

The researchers used a phenomenographic approach in this work, as developed by Marton (1994), in which the attention focuses on the variations within the descriptions and explanations that individuals have for a phenomenon and how their experiences have shaped their constructions of the concepts (Arroz, 2004). Several studies (Alerby, 2000; 2003; Bonnett & Williams, 1998; Bosacki et al., 2006; Buldu, 2006; Carvalho et al., 2004; Cronin-Jones, 2005; Dove et al., 1999; Loughland et al.,

2002; Reiss et al., 2002; Shepardson, 2005; Teixeira, 2000) were consulted for how the contents of children's drawings were analyzed. Even with taking an a posteriori approach to creating a system of categorization, the analysis of the data was a challenge as the researchers wanted to circumvent the usual tendency to process what the children said through their own adult understandings of the world.

In order to overcome this tendency, the three researchers attempted to make their own constructions of concepts transparent by engaging in a process of free associations with the words of the participants. This proved to be difficult, especially when working alone; it was much easier to describe the words systematically and count the specific words used. One of the researchers, Gabriel, enlisted the help of her children (13 and 10 years old) to help her overcome her tendency to try to quantify the data. She read the words to her daughter who had no trouble describing visions and sensations evoked. This helped disrupt some of her objectification of the concepts and supported her attempts at more free associations.

The three researchers spent hours talking about what they associated with the words and their developing categories of the data which they repeatedly revisited to explore their own influences on this meaning making. For instance, they looked at the inclusion of "squirrels" in some children's descriptions since there are no squirrels in the Azores. This evoked images of "the forests of Snow White" for the researchers and they discussed the influences that might have created this image for them and how the children may or may not have experienced the same influence.

It was this very conscious deconstruction of their own processes of interpretation that allowed the researchers to work with descriptions of perceptions that kept intact the inherent ambiguity, overlapping between similar descriptions and internal contradictions. Some of the categories created by the researchers mimic many of the other studies done on perceptions of the environment, but more importantly, they also glimpsed embodied understandings not regularly reported in the literature. It is these reflexive processes in which the participants' voices are privileged in relationship with the voices of the researchers that allow a dynamic and complex understanding of environment to be highlighted. Although it seems that only a small percentage of the children (7.3%) described embodied knowings, for instance when asked how they would describe the environment to another child, one participant replied "O A é um lugar que a gente pode ir sem poluição. Posso em paz, sem barulho, sem estar a ouvir os carros..." (the environment is a place that people can go without pollution. I can be in peace, without noise, without listening to the cars), the question arises whether as researchers we have only been partially successful in hearing this full perspective. Conversely, this perception might take up a smaller part of the overall ecosystem of perceptions, but it might have greater significance than its magnitude might suggest.

Disrupting "expert" voices

The second study, Neilson (2006), investigated how adults understand their work as environmental educators. It included educators from Tanzania, Paraguay, Colombia, Brazil, Iran, Canada and First Nations within Canada who take a social critical approach to the environment. All had engaged in extensive formal education in various types of environmental studies in higher education and had taught worldwide, hence their categorization as "experts". Prior to finding the

twelve other research participants, Neilson, did two open ended interviews with environmental educators who had similar research and teaching interests as her own. These interviews cemented her interest in looking into how theory is lived and digging deeply into experiences including her own. As one of the research co-participants herself, she began by consciously broadening her working definition of environmental educator in actively seeking participants from places and groups not typically called environmental education as well as from more traditional sources such as outdoor education centres, environmental organizations and so forth. Once a suitable group was recruited, she discussed her research approach with them. She explained her understanding of the implications of the “radical” environmental ethics (see Booth, 2000; Wellington, Greenbaum & Cragg, 1997; for a discussion of deep ecology, ecofeminism, social ecology, environmental justice and bioregionalism) on how she should conduct research, namely by following a person-centred, peer collaborative, embodied knowing approach, using reflexive inquiry and deconstruction and arts-informed and narrative inquiry. She expressed her desire to focus on the lived experiences of the group and not engage in discussion of learned theory. She also invited participants to take an active role in determining the research procedures as well as commenting on the effectiveness of the specific methods used to explore their perceptions, in addition to finding ways to make use of this research process for their own inquires or projects. Some of the co-participants had come to be involved in this research through earlier interactions with the principle researcher during various workshops and seminars on creative research methods and critical approaches to environmental education. Because of this, much of the overall approach, as well as the specific tools used, were directly influenced by the co-participants prior to and during the actual research period.

This research involved two distinct data collection/creation phases: an individual session with each participant and a one and a half day research retreat for the entire group. Following a protocol learned from Edvaldo Pereira Lima of the University of São Paulo, Brazil (Oct 2001), who calls this “Systemic Life History”, Neilson met with each co-participant individually and led them through a meditative imaging process to begin a narrative interview. Each person listened to a piece of music which they had chosen to be meditative or reminiscent of their homes, while they were guided to meditate on the earliest image they could remember where they felt safe and connected. After meditating for a time, they created drawings of their images which were used to start a conversation in which their ideas about the environment, education and their work were discussed as well as that of the researcher. In this way, discussions of all the participants, including the main researcher, were captured during the interviews.

Since the other twelve participants had engaged in imagery and drawing, it seemed appropriate for the initial “analysis” of the interviews to involve drawing the images evoked while reviewing the transcripts. At the beginning of the group research retreat, each participant was given a copy of their interview transcript, their drawings from the interview and the “analysis” drawings as well as a brief letter explaining the drawing. Over the next day and a half, in the wooded and rural setting of Hart House Farm in the hills of Caledon (more than an hour drive north of Toronto), the group engaged in individual and group activities including informal conversations, meditative and other arts-based activities centred around exploring their stories of becoming and being environmental

educators. After the retreat, participants completed their research journals at home with their further thoughts on the inquiry as well as the process of the inquiry.

Similar to the first study, the analysis of the data created challenges to the researcher's use of her own construction of meanings. A conference presentation of the methods used, as well as further discussions with some of the research participants was not sufficient for supporting the analysis of all the data created. In an attempt to ensure that all the voices were represented in the research, the researcher reviewed the transcripts repeatedly and created concept or mind maps (Novak & Gowan, 1984) for each person and for the entire group. This however, was uncomfortable for the researcher who felt that this was still too linear, simplistic and disrespectful to co-participants who had worked collectively throughout the earlier process, but had not agreed to spend the time necessary for collectively analyzing and writing. Neilson was provoked by her reaction to the stories shared, she was provoked by collective discussions about responsibility, self-righteousness, and becoming overwhelmed as well as by stories of feeling other people's pain, of stories of taking risks, and of stories of the joy of listening and being listened to. In exploring the stories of participants who had different cultural, ethnic and racial backgrounds to the researcher, Neilson noticed that she continuously questioned her developing interpretations. However, she was struck by how easily she made assumptions about the stories of participants who have similar cultural, ethnic and racial characteristics as her or who had had very similar experiences.

At this point, the researcher realized that exploring her role and unequal share of power in creating knowledge was important if she wanted to understand how to make room for multiple perspectives about the environment which she would otherwise inadvertently edit out of her research and teaching. The process of analysis of expressed ideas merged with the process of identifying the changing patterns of existence throughout the research journey. She looked at the images that she had created and thought about her relationship with each of the co-participants and their stories which had inspired the drawings. What were the conscious and unconscious thoughts and feelings that guided her hand? Where did these ideas fit within the ethics that she was claiming to practice? Was she really listening?

Hearing the different stories amongst the "normal" stories

In both studies, researchers listened to and created multiple stories. By exploring their own processes of storytelling, however, they managed to protect a diversity of stories told to them by the research participants and see how they might otherwise overlook many stories being told. The first study, Rodrigues (2007) showed similar trends as in other research, i.e., most of the children seem to visualize the environment as a determined space. However, a small percentage of the children, 7.3%, clearly showed a complex understanding in which they are embodied as part of the environment. Are these few children the only ones who have this perspective? Do researchers need to work harder to overcome the powerful commercial and other interests who are telling us what to think in order to encourage and hear other stories of embodiment? Marxist theorists point out that the socially powerful groups "can widely disseminate their views...as if they were universal truths" (Stone-

Mediatore, 2003, p. 78) and these remain “unnoticed and untested” even when looking at the perspectives of different people.

Unlike research which points to experiences “in nature” as important for inspiring environmental pursuits, the second study, Neilson (2006) broadened the inclusion of people, ideas and events as important. This study also points to the ways power operates within processes of meaning making or knowledge construction: the power of the words used to ask questions dictate responses; the power of the researcher’s presence upon the participants’ input; and the power of words, images and concepts to keep researchers and educators from being cognizant of complex understandings.

Implications for teaching

Research and teaching are often considered distinctly different activities, yet both are ultimately about making meaning. Accepting that knowledge is socially constructed in relationships means that these two activities can be considered as more similar than different. The difference perhaps, is in the context and based on the intent: research being about understanding the world and teaching about helping students understand the world. The world however, has both physical properties and constructed realities, each important to the ethics of environmental conservation and environmental justice and affected by multiple and often conflicting values. These two studies suggest that educators need to be aware of how environment is socially constructed, self-reflexive about their own ecological narratives and about their ability to support learners making diverse meanings out of stereotyped words.

This call echoes that of other researchers who ask teachers to “rethink...[and] question taken-for-granted assumptions of the dominant socioeconomic, scientific worldview” (Hart, 2003, p. xiii). Unfortunately there are many forces that work against this. They include direct vested interests such as commercial interests which want us to believe that we need to buy their products by manipulating our deep seated need for relationships with other people and with the environment (Jhally, 1998). But there are also more subtle forces inherent in the mechanic of the mainstream discourses which consists of much stereotyped images and language. Regardless of any complexity or ambiguity in understanding and lived experience of “environment”; the word itself has been stripped of any deeper meaning or higher context (Hall, 1976).

A strong critique of the status quo in environmental education has existed for many years, including researchers who are experimenting with the research process and form as a way to challenge mainstream assumptions and engage with different issues of representation in environmental education (see, Bell, 2003; Gough & Gough, 2003; Gough & Whitehouse, 2003; Newbery, 2003; Payne, 2003). Self-reflection within the methods and form seem vital to these critiques. For instance, Philip Payne (2003) explains that we need to deal with both “constructionism” and the “embodied relations of these socially constructed experiences” (p. 169) “to reveal what is actually experienced by human actors and believed (conceived, constructed) to be environmentally significant” (p. 183).

We need to approach understanding and communication in a cross-cultural way and guide students through processes of deconstructing the various influences that act on them and us. To do this, educators need to teach in ways similar to how research was done in these two studies, namely, make their power and roles within the meaning making process of teaching transparent to themselves and to their students. A growing number of researchers have argued that it is important to listen to children since they are the best sources of information on the issues that concern them (Kellett & Ding, 2004; McKechnie & Hobbs, 2004). In an educational context, this means giving the child multiple ways to communicate their understandings. At the same time the teacher needs to reflect on his/her own understandings and what influenced this meaning making, because “as teachers, we exercise some influence on the intertextual ‘scaffolding’ that supports the production of meaning by learners. We do this by privileging some texts in our interactions with learners and ignoring or diminishing others” (Gough, 1994).

If teachers want to understand and deal with their own biases and assumptions around the environment, they cannot do it by simply imaging other perspectives. Stone-Mediatore (2003) quotes Benhabib (1992) who suggests that “the critic must engage with ‘concrete others’ in order to genuinely test his own view...[which] requires much practical work – traveling, learning language and listening attentively to other peoples’ stories (p. 74-75). Since even young children have complex understandings and multiple (and contradictory) sets of behaviours around the environment (Gough, 1999; Saramago, 2001) and are aware of how the social construction of childhood itself structures their daily lives, world and establishes the social organization around them (Saramento, 2004; 2005), they are the obvious “concrete others” with which the teachers must involve in the teaching process itself. While this can lead to uncomfortable situations for both the teacher and some learners (McIntyre, Pedder & Ruddick, 2005), other teachers found that inviting the students to have a voice in the teacher process to be comfortable and valuable for learning.

The potential for including broader perspectives and regaining meaning is well worth the risk. What might it mean if environment meant something to everyone?

References

- Alerby, E. (2000). A way of visualising children’s and young people’s thoughts about the environment: a study of drawings. *Environmental Education Research*, 6(3), 206-222.
- Alerby, E. (2003). ‘During the break we have fun’: a study concerning pupils’ experience of school. *Educational Research*, 45(1), 17-28.
- Arnold, K. (2004). Tragedy of the mental commons. *Adbusters*, 51. downloaded February 8, 2008 http://adbusters.org/the_magazine/51.php?id=120#
- Arroz, A. (2004). Tribos académicas ou sociedades pós-modernas? Um estudo da diversidade das epistemologias pessoas de decentes universitários. Inédita dissertação de doutoramento em Psicologia da Educação. Angra do Heroísmo, Universidade dos Açores, Portugal.
- Bélanger, P. (2003). Learning environments and environmental education. In L. H. Hill & D. E. Clover (Eds.), *Environmental adult education. Ecological learning, theory, and practice for socioenvironmental change* (pp. 79-88). San Francisco, CA: Jossey-Bass.

- Bell, A. (2003). A narrative approach to research. *Canadian Journal of Environmental Education*, 8, 95-110.
- Booth, A. (2000). Ways of knowing: Acceptable understandings within bioregionalism, deep ecology, ecofeminism, and Native American cultures. *The Trumpeter*, 16(1)
<http://trumpeter.athabasca.ca/content/v16.1/booth.html>.
- Bonnet, M., & Williams, J. (1998). Environmental education and primary children's attitudes towards nature and the environment. *Cambridge Journal of Education*, 28(2), 159-174.
- Bosacki, S., Marini, Z., e Dane, A. (2006). Voices from the classroom: pictorial and narrative representations of children's bullying experiences. *Journal of Moral Education*, 35(2), 231-245.
- Brookes, A. (2002). Gilbert White never came this far south: Naturalist knowledge and the limits of universalist environmental education. *Canadian Journal of Environmental Education*, 7(2), 73-87.
- Buldu, M. (2006). Young children's perceptions of scientists: a preliminary study. *Educational Research*, 48(1), 121-132.
- Carqueijeiro, E. (Coord.) (2005). *Áreas ambientais dos Açores*. Horta: Secretaria Regional do Ambiente / Direcção Regional do Ambiente.
- Carvalho, G., Silva, R., Lima, N., & Coquet, E. (2004). Portuguese primary school children's conceptions about digestion: identification of learning obstacles. *International Journal of Science Education*, 26(9), 1111-1130.
- Castro, P. (2003). Pensar a natureza e o ambiente – alguns contributos a partir da teoria das representações sociais. *Estudos de psicologia*, 8(2), 263-271.
- Castro, P. (2005). Crenças e atitudes em relação ao ambiente e à natureza. In L. Soczka (Org.). *Contexto humanos e psicologia ambiental* (pp. 169-201). Lisboa: Fundação Calouste Gulbenkian.
- Coutinho, M., Gontíes, B., Araújo, L., e Sá, R. (2003). *Despressão, um sofrimento sem fronteira: representações sociais entre crianças e idosos*. Psico-Universidade de S. Francisco, 8(2), 183-192.
- Cronin-Jones, L. (2005). Using drawings to assess student perceptions of schoolyard habitats: a case study of reform-based research in the United States. *Canadian Journal of Environmental Education*, 10, 225-240.
- Dove, J., Everett, L., & Preece, P. (1999). Exploring a hydrological concept through children's drawings. *International Journal of Science Education*, 21(5), 485-497.
- Evangelista, J. (1992). *Razão e provir da educação ambiental*. Lisboa: Instituto Nacional do Ambiente.
- Gabriel, R. & Silva, E. (2007). As atitudes face ao ambiente na ruralidade e urbanidade: que impacto no desenvolvimento agrícola e ambiental? 13º Congresso da APDR: Recriar e valorizar o território. Universidade dos Açores, Angra do Heroísmo, 5 a 7 de Junho de 2007
- Gomes de Menezes, A., Moniz, A., & Cabral, J. V. (2008). The determinants of length of stay of tourists in the Azores. *Tourism Economics*, 14(1), 205-222.
- Gough, A. (1997). *Education and the environment. Policy, trends and the problems of marginalization*. Melbourne, AU: The Australian Council for Educational Research.
- Gough, A. & Whitehouse, H. (2003). The "nature" of environmental education research from a poststructuralist viewpoint. *Canadian Journal of Environmental Education*, 8, 31-43.
- Gough, N. (1994). Playing at catastrophe: Ecopolitical education after poststructuralism. *Educational Theory*, 44(2), 189-210.

- Gough, N. (1999). Rethinking the subject: (de)constructing human agency in environmental education research. *Environmental Education Research*, 5(1), 35-48.
- Gough, N. & Gough, A. (2003). Tales from Camp Wilde: Queer(y)ing environmental education research. *Canadian Journal of Environmental Education*, 8, 44-66
- Hall, E. T. (1976). *Beyond culture*. New York: Anchor Books/Doubleday.
- Hannigan, J. (1995). *Sociologia ambiental – A formação de uma perspectiva social*. Lisboa: Instituto Piaget.
- Hart, P. (2003). *Teachers' thinking in environmental education, consciousness and responsibility*. New York, NY: Peter Lang.
- Jhally, S. (1998). *Advertising and the end of the world*. Northampton, MA: Media Education Foundation.
- Jickling, B. (1992). 'Why I don't want my children educated for sustainable development', *Journal of Environmental Education*, 23(4), 5–8.
- Kellett, M. & Ding, S. (2004). Middle childhood. In S. Fraser, V. Lewis, S. Ding, M. Kellett, & C. Robinson (Eds.). *Doing research with children and young people* (pp. 161-174). London: Sage Publications.
- Loughland, T., Reid, A., Petocz, P. (2002). Young people's conceptions of environment: a phenomenographic analysis. *Environmental Education Research*, 8(2), 187-197.
- McIntyre, D., Pedder, D. & Rudduck, J. (2005). 'Pupil voice: comfortable and uncomfortable learnings for teachers', *Research Papers in Education*, 20(2), 149 – 168.
- McKechnie, J., & Hobbs, S. (2004). Childhood studies. In S. Fraser, V. Lewis, S. Ding, M. Kellett, & C. Robinson (Eds.). *Doing research with children and young people* (pp. 270-285). London: Sage Publications.
- McKibben, B. (2001). What's my damage; A call for mental environmentalism. *Adbusters*, 38. downloaded February 8, 2008 <http://adbusters.org/metapsycho/mediacarta/#>
- Marton, F. (1994). Phenomenography. In T. Husen & T. N. Postlewaite (Eds.), *International Encyclopaedia of Education*, 8, 4424-4429. London: Pergamon.
- Neilson, A. L. (2006). Disrupting privilege, identity, and meaning: A reflexive dance of environmental education. Unpublished doctoral dissertation, University of Toronto, Ontario, Canada.
- Newbery, L. (2003). Will any/body carry that canoe? A geography of the body, ability, and gender. *Canadian Journal of Environmental Education*, 8, 204-216.
- Novak, J. D. & Gowin, D. B. (1984). *Learning how to learn*. New York, NY: Cambridge University Press.
- Palmer, J. A. (1998). *Environmental education in the 21st century: Theory, practice, progress and promise*. New York, NY: Routledge.
- Payne, P. (2003). Postphenomenological enquiry and living the environmental condition. *Canadian Journal of Environmental Education*, 8, 169-190.
- Ramos-Pinto, J. (2004). Educação ambiental em Portugal: Raízes, influências, protagonistas e principais acções. *Educação, Sociedade e Culturas*, 21, 151-165.
- Reiss, M., Tunnicliffe, S., Anderson, A., Bartoszeck, A., Carvalho, G., Chen, S., Jarman, R., Jónsson, S., Manokore, V., Marchenko, N., Mulemwa, J., Novikova, T., Otuka, J., Teppa, S., & Rooy, W. (2002).

An international study of young people's drawings of what is inside themselves. *Journal of Biological Education*, 36(2), 58-64.

Rodrigues, L. C. (2007). Espaços verdes ou contextos de relação: Perspectivas e preocupações das crianças acerca do ambiente. Inédita mestre dissertação, Universidade dos Açores, Angra do Heroísmo, Portugal.

Saramago, S. (2001). Metodologias de pesquisa empírica com crianças. *Sociologia, Problemas e Práticas*, 35, 9-29.

Sarmiento, M. (2004). As culturas da Infância nas encruzilhadas da segunda modernidade. In M. Sarmiento e A. Cerisara. (Org.) *Crianças e Miúdos: Perspectivas Sociopedagógicas da Infância e Educação*. Porto: ASA Editores.

Sarmiento, M. (2005). Gerações e alteridade: Interrogações a partir da sociologia da Infância. *Educação e Sociedade*, 26(91), 361-378.

Shepardson, D. (2005). Student ideas: what is an environment? *The Journal of Environmental Education*, 36(4), 49-58.

Soromenho-Marques, V. (2005). A constelação ambiental – metamorfoses da nossa visão do mundo. In L. Soczka (Org.) *Contexto humanos e psicologia ambiental*. Lisboa: Fundação Calouste Gulbenkian.

SREA, Serviço Regional de Estatística dos Açores. (2007). *Anuário estatístico. Região autónoma dos açores*. Angra do Heroísmo, Portugal: SREA.

Stone-Mediatore, S. (2003). *Reading across borders, storytelling and knowledges of resistance*. New York: Palgrave.

Teixeira, F. (2000). What happens to the food we eat? Children's conceptions of the structure and function of the digestive system. *International Journal of Science Education*, 22(5), 507-520.

Wellington, A., Greenbaum, A., & Cragg, W. (1997). *Canadian issues in environmental ethics*. Perborough, ON: Broadview.