Exploring the Possibilities for an Emancipatory Approach to Formal Environmental Education in Taboão da Serra, Brazil

Aneela Bisram
Submitted: August 15, 2006

A Major Paper submitted to the Faculty of Environmental Studies in partial fulfillment of the requirements for the degree of Master in Environmental Studies, York University Ontario, Canada

Leesa Fawcett: _____

Aneela Bisram: _____

Table of Contents

Abstract

Emancipatory environmental education emphasizes natural and social environments in its definition and practice, transcending naturalist and conservationist approaches often used in formal environmental education. Emancipatory environmental education should support its learners in the development of a critical consciousness, empowering them to plan and participate in action, with the aim of individual and societal transformation. The teaching, learning, and curriculum used in this tradition of EE must intersect with these dimensions to bring about a learning that is critical, empowering, and transformative.

Within this context, this major paper explores formal environmental education used in elementary classrooms in Taboão da Serra, Brazil. Using my research framework, which defines emancipatory EE, together with an exploration of national and state EE programs, I analyze my questionnaire results from four elementary school teachers regarding understandings and practices in EE. This analysis illustrates the strengths and weaknesses in formal environmental education in Taboão da Serra. To conclude, I draw on this analysis and cite recommendations that I believe will help make movement toward emancipatory environmental education in elementary schools across Taboão da Serra possible.

Acknowledgements

I wish to thank…

My father, mother and sister Pamela for your love, support, and continuous encouragement;

My supervisor Leesa Fawcett for being a mentor and a friend for the last three years, also for providing me with ongoing support in the supervision of my research;

My advisor Ilan Kapoor for your guidance and thoughtful reflections;

Professor Ellie Perkins and Andrea Moraes for your insights, continuous friendship and encouragement throughout my MES program;

Ramann Patara, Gloria Wenyeve, Tisha Marajh, and Liz David for your friendship, inspiration, and humour;

Salina Alie, Ayesha Syed, Nadia Singh, Neil Chow, Anita Bisram, Amanda Bisram, Kevin Bisram, Claire Bisram, and Tarmattie Gopaul for believing in me;

Professor Pedro Jacobi, Mariana Ferraz Duarte, Débora de Lima Teixeira, Barbara Carvalho Gonçalves, Paulo Marco, Thea Standerski, and Alexandre Rastham for your invaluable guidance regarding my research interests;

Fabiana Barbi for your friendship and unconditional support throughout my stay in Brazil;

Adriana Cesar Guimaraes, Arlita McNamee, Chirley Felix, Alexis Glazer, and Rodrigo Bergel for making my experience in Brazil unforgettable.

Foreword

This major paper has helped me gain an in-depth understanding of my *Area of Concentration - Environmental Education and Curriculum Development* and has therefore fulfilled the requirements of the MES degree. Specifically, this major paper intersects with two of my learning objectives as outlined in my *Plan of Study*. They include: 1/ learning some approaches to environmental education in order to evaluate their effectiveness in empowering learners and educators and 2/ participation in the creation of a curriculum in São Paulo, Brazil in order to gain practical experience and skills as well as participate in cross-cultural learning. Finally, the research in this paper focuses on formal environmental education in Taboão da Serra, Brazil using emancipatory environmental education as its conceptual framework.

Chapter 1: Introduction

1.1 Research Focus and Objectives

Environmental education (EE) has been shaped by rigorous discussion and debate regarding its definition, its role, and its approach. While traditions in environmental education vary, I see emancipatory environmental education as the most meaningful, as it calls for an education that is transformative. That said, the purpose of this major paper is to explore formal environmental education in greater São Paulo, Brazil, using what I describe as emancipatory environmental education as my research framework. More specifically, I will examine the teaching, learning, and curriculum used in formal environmental education in public elementary schools, in the municipality of Taboão da Serra, located in greater São Paulo.

I will begin this investigation by defining in my literature review the various approaches to emancipatory environmental education, while also citing examples of teaching, learning, and curriculum that intersect well with these approaches. Moving to an exploration of formal environmental education, I will first illustrate the national and state programs for environmental education alongside the national curriculum parameters that are being used in public elementary schools today and that emphasize the theme of *environment*. Following this, I will examine the practice of environmental education and the related teaching, learning and curriculum, by analyzing the results of my questionnaires given to four teachers currently working in the public elementary school system in Taboão da Serra. To conclude, I will reflect on these results together with my framework for analysis and explore the possibilities for an emancipatory approach to environmental education in public elementary schools across Taboão da Serra.

1.2 Research Significance

The Bacias Irmãs project (the Sister Watersheds project) arose from a partnership in 2003 between Ecoar Institute for Citizenship (Instituto Ecoar para Cidadania), a non-governmental organization in São Paulo, the University of São Paulo (through the departments of CECAE, ESALQ and PROCAM), together with the Faculty of Environmental Studies (FES) at York University, with the aims of building the capacity of civil society members in the areas of public participation, watershed management and environmental education. Funded by the Canadian International Development Agency (CIDA), this 5 year project, now in year 3, has initiated cutting-edge research and intervention in both the Pirajussara watershed located in the metropolitan area of São Paulo, including the municipalities of São Paulo, Embu, and Taboão da Serra, and the Piracica-mirim watershed situated in Piracicaba.

The strength of the Bacias Irmãs project lies in its breadth and depth, calling for innovation and flexibility in project research and activities. Specifically, with regard to formal and non-formal environmental education, the project seeks to enhance its research in the area of inter-disciplinary environmental education (Bacias Irmãs website 2003).

As a member of the Bacias Irmãs project, my major paper, using emancipatory environmental education as its research framework, seeks to investigate formal environmental education in the public elementary school system of Taboão da Serra. Specifically, my major paper will demonstrate the national and state programs for environmental education, the national curriculum parameters, and the teaching, learning, and curriculum used in formal environmental education in four classrooms in Taboão da Serra. This examination will provide the members of the Bacias Irmãs project as well as

elementary teachers of Taboão da Serra with the contextual research and analysis

necessary for the further development of formal environmental education activities.

Moreover, while project research in environmental education has been carried out in the

municipalities of São Paulo and Embu, my research, focusing on Taboão da Serra, is the

first to address formal environmental education and the work of teachers in local public

elementary schools in that area, making it essential to project objectives.

Finally, further significance in my research can be found in the work of Neves who states

that "research in the field of education has only recently begun to focus on teachers"

(173). With that said, my major paper research is centred on four elementary school

teachers, giving them an opportunity to speak to their current understandings and

practices in formal environmental education, making their responses central to exploring

the direction of formal environmental education in Taboão da Serra.

1.3 Major Paper Format

My major paper research is written in chapter format, beginning with a literature review.

The overall objective is to define for the reader emancipatory environmental education

and to examine progressive approaches to teaching, learning and curriculum that intersect

well with this framework. Further, this chapter will illustrate how emancipatory

environmental education and its teaching, learning, and curriculum seek transformative

change.

My second chapter helps to contextualize my major paper research by presenting the

national and state programs for environmental education, citing the overall objectives as

active citizenship and the development of sustainable societies throughout Brazil.

Following this, I explore the national curriculum parameters for the theme of

environment, illustrating the current curricular content to include the thematic areas of:

natural systems, society and environment and management and conservation. Finally, this

chapter will serve as an introduction to formal environmental education in Brazil.

My third chapter moves to a discussion on both my research methodology and the results

of my questionnaire. Here I thoroughly examine the teaching, learning, and curriculum

used in four elementary classrooms by drawing on ideas presented in my research

framework. Further, I draw from these results and explore the direction of formal

environmental education in elementary schools across Taboão da Serra.

Finally, I reflect on my major paper research, citing its limitations together with a

discussion on future research questions.

Figure 1: Map of Taboão da Serra

Chapter 2: Literature Review

The purpose of this chapter is to illustrate what I believe to be approaches to emancipatory environmental education, discussing both the history of environmental education (EE) together with ideas put forth by progressive theorists and practitioners working within the field of EE. In addition, this chapter will explore modes of teaching, learning and curriculum that contribute to learning that is critical, empowering, and transformative.

2.1 Defining Emancipatory Environmental Education

To conceptualize the multiple approaches to emancipatory environmental education, attention must first be given to those historical moments within the field of EE that have helped to define its role, beginning with the creation of the *Belgrade Charter*. In Belgrade, Yugoslavia in 1975, at the United Nations, Educational, Scientific, and Cultural Organization's (UNESCO) workshop for environmental education, the *Belgrade Charter* was proposed as an international framework for global environmental education. Specifically, the *Belgrade Charter* outlined six objectives which included:

Awareness:	To help individuals and social groups acquire an awareness of and sensitivity to the total environment and its allied problems;
Knowledge:	To help individuals and social groups acquire basic understanding of the total environment, its associated problems and humanity's critically responsible presence and role in it;
Attitude:	To help individuals and social groups acquire social values, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement;
Skills:	To help individuals and social groups acquire the skills for solving environmental problems;
Evaluation ability:	To help individuals and social groups evaluate environmental measures and education programs in terms of ecological, political, economic, social, esthetic and educational factors;

Participation:　　To help individuals and social groups develop a sense of responsibility and urgency regarding environmental problems to ensure appropriate action to solve those problems (Belgrade Charter 3).

Of the guiding principles mentioned in the *Belgrade Charter*, environmental education is seen as interdisciplinary, and as a life long process that includes examining the environment in its totality – "natural and man-made (sic), ecological, political, economic, technological, social, legislative, cultural and esthetic", are core elements of emancipatory environmental education (Belgrade Charter 4).

The *Tbilisi Declaration* was created two years after the *Belgrade Charter* at the first intergovernmental conference on environmental education. The outcome of the conference was the *Tbilisi Declaration* which reaffirmed the goals and objectives of environmental education:

(i)　　To foster clear awareness of, and concern about, economic, social, political and ecological inter-dependence in urban and rural areas;

(ii)　　To provide every person with opportunities to acquire the knowledge, values, attitudes, commitments and skills needed to protect and improve the environment;

(iii)　　To create new patterns of behaviour of individuals, groups, and society as a whole, towards the environment (Tbilisi Declaration, sec 2).

Three guiding principles documented in the *Tbilisi Declaration* illustrate what I believe to be approaches to emancipatory environmental education:

1/EE should focus on current and potential environmental situations while taking into account the historical perspectives; 2/ EE should utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience; and 3/ EE should enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences (Tbilisi Declaration 27).

That said, this section of the *Tbilisi Declaration* clearly stresses the importance of the

development of a critical consciousness, action, engagement in participatory learning

environments, and learner empowerment.

However, while I believe that I have identified above some essential principles and

objectives that constitute emancipatory processes in EE, it is necessary to mention here

that theorists have expressed both criticism and enthusiasm regarding the outcomes of the

Belgrade and Tbilisi conferences. For instance, Sauvé contends that:

> The Charter of Belgrade and the Tbilisi Declaration were born within modernity
> as a reaction to the impact of "progress with exacerbated capitalism…against this
> backdrop it [EE] was mainly a question of resolving and preventing the
> problems caused by the impact of human activities on biophysical systems (45).

Contrary to Sauvé who speaks of problems-solving and environmental management as

pedagogical models introduced by educators as a result of the conferences, Huckle argues

that the *Tbilisi Declaration* contains "the essence of a critical education for

sustainability…", therefore pointing to what I believe to be the Declaration's strength

(Sauvé 45; Huckle 27). I agree with Huckle as the Declaration does present a framework

of possibility and flexibility, allowing for reflection, with principles that include critical

and empowering approaches to teaching and learning environmentally.

Moreover, the *Tbilisi Declaration* and the recommendations proposed during this

conference served as the guiding principles for the making of *Agenda 21, Chapter 36,*

Promoting Education, Public Awareness and Training at the *United Nations Conference*

on Environment and Development, held in 1992 in Rio de Janeiro, Brazil. Specifically,

Agenda 21 was to serve as a theoretical and practical tool for achieving sustainable

development. In fact, Chapter 36 in linking education and sustainable development states:

"Education is critical for achieving environmental and ethical awareness, values and

attitudes, skills and behaviour consistent with sustainable development and for effective

participation in decision-making. Both formal and non-formal educations are

indispensable to sustainable development" (Agenda 21, sec 36.3). In addition to this,

Chapter 36 outlines three program areas including: 1/ reorienting education toward

sustainable development; 2/ increasing public awareness; and 3/ promoting training

(Agenda 21, sec 36.2).

Interestingly, the meshing of education and sustainability, which began in the 90's, has

sparked debate within the field of EE due to conceptual, ethical and cultural

disagreements regarding the notion of sustainable development (Huckle 73; Sauvé 49-

50). For instance, Sauvé states that "...the proposed education for sustainable

development (also referring to education for sustainability) does not correspond to a

change in epistemological, ethical or strategic paradigms, but to a progressive form of

modernity that aims to preserve values and practices of modernity" (48). However,

Huckle in disagreement with Sauvé states that:

> Yes the dominant discourse masks contradictions and is a "useful slogan" for the
> powers that be, but education for sustainability seeks to expose contradiction,
> ideology, and politics and allow learners to glimpse genuinely democratic and
> empowering meanings. It is because sustainability like democracy, poses
> conceptual, ethical and cultural problems that it is an ideal vehicle for an
> education based on critical theoretical foundations (73).

Further, the premise of his argument is seen when he argues that "critical education for

sustainability is not based on a single preferred construction of sustainability. Rather it is

a process of critical reflection and action on those forms of technology and social

organization that may allow us to live sustainably with one another and the rest of nature"

(Huckle 72). I agree with Huckle as he clearly identifies key ideas and practices that are

linked to the development of a critical consciousness and empowerment, already identified as vital to emancipatory environmental education.

Furthermore Sterling, when speaking of sustainability education suggests that it be "process oriented and empowering rather than product oriented… [It] is therefore engaged and participative rather than passive" (23). Here, both Huckle and Sterling speak to the importance of process as being central in environmental learning. Finally, the ideas expressed by Huckle and Sterling help to deepen understandings of emancipatory environmental education, creating further opportunities for the development of a critical consciousness , empowerment, and action necessary for individual and societal transformation.

A distinguished event in the history of international EE that has helped to define emancipatory EE is *The Non-Governmental Treaty of EE for Sustainable Societies and Global Responsibility* (see Appendix 1). The *Global Forum* (92), held in parallel to the *United Nations Conference on Environment and Development*, sponsored by civil society, was responsible for the production of thirty-six treaties, including this one (Viezzer and Ovalles 37).

Specifically, *The Non-Governmental Treaty of EE for Sustainable Societies and Global Responsibility* proposed 16 principles, a plan of action, and evaluation systems for environmental education. While I believe all 16 principles are grounded in emancipatory processes, I have cited five below that I believe speak very readily to meaningful approaches to emancipatory EE. They include:

> *Principle 2*: Environmental education, whether formal, non-formal, or informal, should be grounded in critical and innovative thinking in any place or time, promoting the transformation and construction of socie*t*y;

Principle 3:   Environmental education is both individual and collective. It aims to develop local and global citizenship with respect for self-determination and the sovereignty of nations;

Principle 6:   Environmental education must stimulate solidarity, equality, and respect for human rights involving democratic strategies and an open climate of cultural interchange;

Principle 8:   Environmental education must recover, recognize, respect, reflect and utilize indigenous history and local cultures, as well as promote cultural, linguistic and ecological diversity. This implies acknowledging the historical perspective of native peoples as a way to change ethnocentric approaches, as well as encourage bilingual education;

Principle 16: Education must help develop an ethical awareness of all forms of life with which humans share this planet, respect all life cycles and impose limits on humans' exploitation of other forms of life (Treaty of Environmental Education and Global Responsibility 1-2).

When speaking of the Treaty Sauvé states that it "…adopts an ethic of responsibility" and speaks to "the relationships of humans with one another; the relationships within society and between society; and finally the relationships between humans and nature", transcending beyond anthropocentric perspectives (52). Adding to this is Di Chiro, who when speaking of the environmental justice movement states that "environmental justice calls for an education of present and future generations which emphasizes social and environmental issues based on our experiences and an appreciation of our diverse cultural perspectives" (309). What both Sauvé and Di Chiro argue here speak to the importance of social and ecological issues in an education that seeks transformative change, the ultimate goals of emancipatory EE.

Theorists and practitioners within the field have also contributed significantly to the making of emancipatory EE. For instance, when speaking of EE marino contends that "changing our relationships with each other and our environment is intimately linked to a habit of exploring and revealing assumptions in our everyday acts" (33). What she

suggests here marks the very foundation of emancipatory environmental education – the development of a critical consciousness and reflection.

Moreover, another key approach to emancipatory environmental education is action and this is best illustrated through Hammond's *Action Learning Triangle*. He argues that "environmental education in schools entails *learning about action*: where students learn action skills and strategies, *learning through action*: where students get involved in real action projects, and finally *learning from action*: where students reflect on the significance of the action on themselves and their communities" (11). Without this fundamental component, the practice of environmental education remains at the level of awareness and fails to bring about transformation.

Also speaking to the multiple approaches in emancipatory EE is Taylor who from an anti-racist standpoint asserts that "Environmental education should be taught by starting with the students' experience, interests, and the cultural and environmental references they have around them, then later investigating other types of environments and experiences" (3). I believe that beginning with the experience and interests of the learner is essential to empowering learners to empower themselves – another theme fundamental to Freire's critical pedagogy and emancipatory environmental education.

Taylor further states that "For environmental education to be multicultural, it has to include a wide variety of students and perspectives in all phases of planning, development, teaching and learning" (5). Building on this concept of multicultural EE is Peter who states that "Using a multicultural framework in EE is a way of acknowledging that students have different learning styles; that all students do not share the same beliefs or experiences; and that to understand any environmental issue, whether local or global,

we need to understand the cultural factors that have created it" (15). What Taylor and Peter suggest here critically challenges traditional understandings of EE, and is therefore within the realm of emancipatory EE.

Likewise, theorists Reigota, Viezzer, Ovalles, and Carvalho have also contributed ideas that have helped to shape emancipatory EE. For instance, Reigota argues that environmental education is a political education that should prepare citizens to fight for social justice, national and global citizenship and should also encourage socially-ethical relationships with the natural world (10). Within this context he contends that environmental education should adopt an approach that is creative, innovative and critical (10). Adding to this understanding are Viezzer and Ovalles who argue that environmental education should include ethical, esthetic, democratic and humanistic values, respect for cultural and natural diversity, as well as include issues of class, ethnicity and gender (20). Moreover, while I see all the ideas expressed by Viezzer and Ovalles as critical, discussions on class, ethnicity and gender are essential to emancipatory environmental education as they encourage plurality in voices as well as the making of politicized knowledge, central to action.

Finally, while I have named multiple approaches to emancipatory environmental education above I believe that the development of a critical consciousness, together with empowerment, action, and reflection for individual and societal transformation speak to an environmental education that seeks to be emancipatory.

To conclude, the many approaches explored above together present a vision of emancipatory environmental education, therefore illustrating the possibilities within the field to engage in transformative teaching and learning.

2.2 Approaches to Teaching, Learning, and Curriculum

The purpose of this section is to explore modes of teaching, learning, and curriculum that

I believe are a good fit with the vision of emancipatory environmental education

presented above. What follows is an overview of the work of Freire, hooks, marino,

Stromquist, Giroux, Freedman, Fawcett, Miller, and McCutcheon, theorists who illustrate

through their work emancipatory approaches to teaching, learning and curriculum.

To begin, Freire's innovative work in the field of education is essential to exploring

elements that shape an emancipatory approach to teaching and learning. He successfully

speaks to teaching and learning when he introduces the banking concept of education,

contrasting it against the more promising problem posing model of education.

Freire suggests that within traditional education, the "teacher talks about reality as if it is

motionless, static, compartmentalized, and predictable" (71). He names this approach to

teaching "the banking concept of education" where the scope of action allowed to

students extends only as far as receiving, filing, and storing the deposits" (Freire 72).

To better understand the banking concept of education Freire explains it as follows:

> The teacher teaches and the students are taught; the teacher knows everything
> and the students know nothing; the teacher thinks and the students are thought
> about; the teacher talks and the students listen; the teacher chooses the program
> content, and the students (who were not consulted) adapt to it; the teacher
> confuses the authority of knowledge with his or her own professional authority,
> which she and he sets in opposition to the freedom of the students (Freire 73).

In this model, the learner is denied agency in his or her own learning, not given the space

to contribute to the construction of knowledge, participate in meaningful dialogue,

identify what he or she knows and wants to learn, draw on and discuss lived experiences,

or participate in action outside of what the teacher suggests. As such, this model serves to

indoctrinate students instead of providing them an opportunity to participate in meaningful inquiry and praxis.

This model of teaching and learning differs considerably from the problem posing model. How? Through implementing the practices of the problem posing model the learner develops a critical consciousness necessary for action, reflection and transformation. The learner becomes *conscientized*, learning how to bring into question political, social, and economic systems and in doing so becomes empowered to take action to transform his or her life. Ideally in this model, the learners reflect on their problems and identify what would need to happen in order to change their situation. Freire contends that:

> Students, as they are increasingly posed with problems relating to themselves in the world and with the world, will feel increasingly challenged and obliged to respond to that challenge. Because they apprehend the challenge as interrelated to the other problems within a total context, not as a theoretical question, the resulting comprehension tends to be increasingly critical….Their response to the challenge evokes new challenges, followed by new understandings; and gradually the students come to regard themselves as committed (81).

The problem posing model is an emancipatory approach to education in that it seeks to include the experience, knowledge, and concerns of the learner, making this model learner-centered. Further, the issues discussed in this model are relevant to the lives of the learners; teachers and learners participate in dialogue where communication is two-way; students are respected because of what they bring to the dialogue; and the learner gains confidence making this form of education liberating (marino 100).

Clearly, this is a model of education that prepares learners to take action as 'subjects' of change. In contrasting the characteristics of the banking model against those of the problem posing model, stark differences in teacher learner engagement, consciousness-raising, action, reflection and empowerment become apparent.

Moreover, the concept of empowerment clearly defined in the work of Freire, through his

problem posing model, is also elaborated on by Stromquist, who when speaking of

education and empowerment suggests that,

> Empowerment in its emancipatory meaning is a serious word – one which brings up the question of personal agency rather than reliance on intermediaries, one that links action to needs, and one that results in making significant collective change. It is also a concept that does not merely concern personal identity but brings out a broader analysis of human rights and social justice (Stromquist 13).

Additionally, marino when speaking of empowerment and education suggests that "…the

frame on learning and education is that they are neutral and not political. This frame

obfuscates and weakens that link between words and action and distracts people from

constructing questions and actions leading to empowerment" (105).

I see the work of Freire, Stromquist, and marino as capturing the essence of the

relationship between empowerment and education, highlighting its link to questions and

action, making it essential to emancipatory teaching and learning processes.

In addition to models of education, it is also important to explore the role of teachers in

emancipatory learning environments. Hooks achieves this when she speaks of an

engaged pedagogy, an unconventional approach to teaching and learning:

> To the extent that professors bring this passion, which has to be fundamentally rooted in a love for ideas we are able to inspire, the classroom becomes a dynamic place where transformations in social relations are concretely actualized and the false dichotomy between the world outside and the inside world of the academy disappears (195).

She further contends that "teachers must be actively committed to a process of self-

actualization that promotes their own well-being if they are to teach in a manner that

empowers students" (15).

Likewise, marino argues that "we can not teach students to be challenging and self-critical, socially critical, if we aren't struggling to get better at doing that ourselves" (44). Through both hooks and marino, we see the role of teachers transcend beyond didactic practices to include love, self-interrogation, compassion, respect and also the creation of safe spaces for meaningful and politicized dialogue. This practice of teaching and learning highlights the unique role of teachers who are committed to creating an emancipatory teaching and learning environment with their students.

While discussion on emancipatory approaches to teaching and learning in the classroom are significant, it is equally important to address the relationship that teachers and curriculum share. In her analysis of the work of teachers, Freedman suggests:

> For the one thing they do not consider part of curriculum is the personalized adaptation of those ideas or stories by the teacher and her students, the establishment of a rhythm and tone that matches that special time and place…(233).

Adding to this, she suggests that creating a 'lived' curriculum is not at all possible without the work of teachers (193). Specifically in this context, a 'lived' curriculum stands in opposition to a mandated curriculum, created by 'experts' outside of the classroom. If this process of making a 'lived' curriculum is within an emancipatory framework, the curriculum will inevitably be influenced by the teacher and the learners continuously throughout the learning process, making it participatory and learner-centred. Key to a 'lived' curriculum is making the content representative of what the learners want to know, therefore making it meaningful.

Moreover, through the hidden curriculum teachers have influence regarding what the students have an opportunity to learn (Freedman 188). For instance, teachers can influence students through their "own personalities, values, interests, strengths, and

weaknesses" (McCutcheon 193). Through the hidden curriculum, specifically within an emancipatory learning environment, students may come to learn that teachers also have much to learn from their students; teachers do not have all the answers; students can participate in the production of knowledge; and students can participate in decision-making when it comes to their own learning. That said, understanding the relationship that teachers and curriculum share is vital to creating an emancipatory learning environment.

Curriculum content is yet another factor essential to any discussion on emancipatory learning environments. Regarding curriculum content, theorist William Pinar claims that "between eighty-five to ninety-five percent of those who work within the curriculum field share a perspective that is either tied or closely related to the dominant technocratic rationality", this influencing the making of curriculum content that maintains the status quo (Giroux 249). Technocratic rationality does not intersect with emancipatory curriculum; it is more a characteristic of traditional curriculum. Giroux speaks to traditional curriculum when he states:

> Traditional curriculum represents a firm commitment to a view of rationality that is ahistorical, consensus-oriented, and politically conservative. It supports a passive view of students and appears incapable of examining the ideological presuppositions that tie it to a narrow operational mode of reasoning…Instead of promoting critical reflection and human understanding, the dominant curriculum model emphasizes the logic of probability as the ultimate definition of truth and meaning (251).

To move beyond traditional curriculum, he offers some purposeful questions that intersect well with the emancipatory processes discussed thus far. The questions are as follows:

What counts as curriculum knowledge; how is such knowledge produced; how is such knowledge transmitted in the classroom; what kinds of classroom social relationships serve to parallel and reproduce the values and norms embodied in the 'accepted' social relations of the workplace; who has access to legitimate forms of knowledge; whose interests does the knowledge serve? (Giroux 252).

Adding to this is Fawcett who also offers key questions addressing curriculum content. Some very vital questions posed by Fawcett include: Is there beauty and compassion in the work; what is the socio-cultural, political transformation of the work; is the material meaningful in the context of the student's ages, cultures, experiences; is the material appropriate to the intellectual/physical development of the students and to their cultural-social context? (2). Together, Giroux and Fawcett identify questions that I consider essential to both the development and analysis of curriculum.

Further curricular possibilities are evident in the work of Miller. He suggests the need for a holistic curriculum that consists of balance, inclusion and connection. Miller speaks of balance when he states that individual and group, rational and intuitive, knowledge and imagination must remain balanced in a curriculum (4). When speaking of inclusiveness, he contends that a holistic curriculum must link transmission (skill development), transaction (problem solving), and transformation (making connections) learning (7). Finally, Miller sees the significance in exploring connections between mind and body, self and community, and relationship to the earth in a curriculum (8-9). I think that balance, inclusion, and connection are inseparable from an education that seeks to transcend dominant norms and practices, thus making the focus of his ideas emancipatory.

Finally, the insights offered by the theorists here support modes of teaching, learning, and curriculum that together seek to be emancipatory, creating spaces for individual and societal transformation.

To conclude, this chapter has illustrated the link between emancipatory environmental education and progressive modes of teaching, learning and curriculum by drawing on the works of theorists and practitioners working in the field of education. Finally, the approaches to emancipatory environmental education along with the modes of teaching, learning and curriculum presented here serve as the research framework for this paper.

Chapter 3: Environmental Education in Brazil: National and State Perspectives

An investigation into the teaching, learning and curriculum used within the context of formal environmental education in Taboão da Serra requires first an understanding of how environmental education is defined at both the national and state levels. As such, this chapter will review the national program for environmental education, the state program for environmental education for São Paulo, and finally the national curriculum parameters for the formal school system, with specific focus on the current elementary school curriculum for the theme of *environment*.

Specifically, I will highlight the principles and objectives of each program, citing the overall goals as active citizenship and the development of sustainable societies throughout Brazil. With regard to the national curriculum parameters, I will explore the three themes that together constitute the elementary curriculum for environmental education in Brazil. These curricular themes include: *natural cycles*, *society and environment* and *management and conservation*. The overall goal of this chapter is to explore, at the policy level, the contents of these documents highlighting briefly strengths and weaknesses, thereby presenting the context necessary for the following chapter.

3.1 The National Program for Environmental Education, ProNEA, Brazil

The national program for environmental education (ProNEA), enacted in December 1994, grew out of the 1988 Brazilian Federal Constitution, which made environmental education mandatory, and the commitments made during the United Nations Conference on Environment and Development. The creation of ProNEA was made possible by the Ministry of Environment, the Ministry of Education and Sport, the Ministry of Culture,

the Ministry of Sciences and Technology, several universities and civil society (ProNEA 4, 9).

That said the objectives for both formal and non-formal environmental education, cited in the document, are very much in line with the overall goal of the program, which is the construction of sustainable societies throughout Brazil. Specifically, the program aims to address the multiple dimensions of sustainability – ecological, environmental, social, ethical, cultural, economic, demographic, institutional, spatial and political – that contribute to an increased quality of life for all Brazilians as well as the protection and conservation of the environment (ProNEA 5-6). Here, we see the meshing of sustainability and education in program objectives very clearly.

Also outlined in the program contents are principles for non-formal and formal environmental education. With regard to the key principles documented in the program, I have highlighted a few below from the most current document written in 2005 that I believe intersect well with what I previously defined as emancipatory environmental education. They include:

1. To conceptualize the environment in its totality, considering the system of interdependence between the natural and the constructed, the socio-economic and the cultural, and the physical and the spiritual;
2. See environmental education as humanistic, historical, critical, political, democratic, participative, inclusive, dialogical, cooperative, emancipatory;
3. Approach environmental questions locally, regionally, nationally, globally;
4. Commitment to environmental citizenship;
5. Democratize the production and distribution of knowledge;
6. Educational processes as continuous and permanent;
7. Pluralism of ideas and pedagogical concepts;
8. Critical and constructive evaluation of the educational process (ProNEA 10).

These principles, also evident in the Non-Governmental Treaty for Environmental

Education for Sustainable Societies and Global Responsibility, transcend those found in

mainstream environmental education and therefore call for the development of critical

consciousness and empowerment together with environmental praxis.

Moreover, the lines of actions cited in this document are crucial to this dialogue as they

speak to the proposed direction of EE in Brazil, including: 1/ the restructuring of

education towards sustainability, through the making of new curriculum; 2/ constructing

an Agenda 21 in all schools; and 3/ including environmental education in all formal

disciplines (ProNEA 15). Here again we see the meshing of education and sustainability.

While I do believe sustainability to be a contested concept, I agree that education for

sustainability is a move in the right direction as it clearly seeks individual and societal

transformation because it is "not based on a single preferred construction of

sustainability. Rather it is a process of critical reflection and action on those forms of

technology and social organization that may allow us to live sustainably with one another

and the rest of nature" (Huckle 72).

That said, a brief examination of the objectives, principles, and lines of actions

documented in the national program for environmental education have illustrated an

understanding of environmental education at the national policy level. Finally, this

program has influenced not only the making of state programs for environmental

education throughout Brazil but also the national curriculum parameters.

3.2 The State Program for Environmental Education, São Paulo

The state program for environmental education, created by the Secretary of the

Environment for the State of São Paulo, is influenced by ProNEA. In addition to

ProNEA, the program makes reference to the principles and objectives of the Belgrade

Charter, the Tbilisi Declaration, Agenda 21, Chapter 36, and the Non-Government Treaty

for Sustainable Societies and Global Responsibility, documents I explored in the previous

chapter. Together, these documents have contributed to a state program for

environmental education whose purposes are to encourage citizens to reflect on

environmental concerns and create a public consciousness all within the framework of

sustainable development (Oliveira 2, 4).

More specifically this program defines environmental education as action orientated,

working to construct a balanced relationship between humans and nature. In this context,

EE should result in the protection of the environment and the increased quality of life,

objectives evident in the national program for environmental education (Oliveira 2).

However, what is clearly missing in this definition is the concern for the relationships of

humans with one another and the relationships within society and between society, as

suggested by Sauvé (52). Incorporating these ideas would make this definition

emancipatory, addressing not only ecological, but social aspects including economic,

political and cultural factors.

With regard to the programs approach to formal and non-formal environmental

education, it argues that it is interdisciplinary in its focus, evoking the development of a

critical attitude, respecting traditional and local cultures (Oliveira 2). While this approach

is lacking in the area of teacher learner engagement in the construction of knowledge, we

still see emancipatory approaches, as some of principles from the Non-Government

Treaty for Sustainable Societies and Global Responsibility are clearly evident. It is

important to note here that certain aspects of the program for environmental education are

currently being re-evaluated by the Secretary of Education, but have not yet been made available to school administration or teachers (Oliveira 5).

Additionally to achieve these goals, the state program for environmental education is divided into the following four themes: *Teaching and the Environment; Citizenship and Participation; Professionalism and Sustainable Development*; and *Communication and Information,* with the first theme speaking to the importance of formal environmental education in achieving the objectives outlined above.

Specifically, according to the state program the work of schools and teachers through their pedagogical methods and resources and more importantly through the curriculum, contribute to the making of active citizens and to the care and management of the environment (Oliveira 6). Here, the concepts of care and management together with creating relationships between humans and the natural world, mentioned earlier, point to an environmental education grounded in naturalist and conservationist approaches. Finally, while I see the remaining three themes as vital to achieving the goals of this program, they will not be elaborated on here as they speak more to non-formal environmental education. However, these four themes seek the goals of active citizenship, consciousness- raising, and sustainable development.

To conclude, while discussing the state program for EE I have identified discrepancies in the definition of environment and approach to EE cited in this document. Finally, this will be explored in greater detail through my questionnaire results in Chapter Three.

3.3 The National Curriculum Parameters, PCN's, Brazil

The national curriculum parameters, influenced by ProNEA, were created in 1997 by the Ministry of Education for elementary and high schools throughout Brazil. Its structure

and design suggested that the five themes of: ethics, health, environment, sexuality, and cultural pluralism be taught in all the disciplines of Portuguese, mathematics, natural sciences, history, geography, art, and physical education.

Before discussing the theme of *environment* specifically, it is necessary to highlight the general objectives intended for students attending elementary schools across Brazil. The general objectives suggest that students:

1. Understand citizenship as social and political participation, as a right and an exercise in political, civic, and social duties, adopted day-to-day, including attitudes of solidarity, cooperation, and mutual respect;

2. Position themselves critically and responsibly in different social situations, using dialogue as a way to mediate conflicts and to make collective decisions;

3. Recognize the fundamental characteristics of Brazil, through social, material and cultural dimensions, therefore constructing the notion of a national and personal identity and the feeling of belonging;

4. Identify and value the socio-cultural plurality of Brazilian heritage, as well as the socio-cultural aspects of other peoples and nations, therefore positioning themselves against any discrimination based on cultural differences, social class, beliefs, gender, ethnicity and/or other individual or social characteristics;

5. Perceive themselves as agents invested in transforming the environment, identifying its elements and interactions in an effort to contribute to its improvement;

6. Develop awareness and trust in their own capabilities, in their own interpersonal relationships and social interactions, and to act with perseverance while exercising citizenship;

7. Identify and care for their own bodies, valuing and adopting healthy habits as one of the basic aspects of quality of life;

8. Utilize diverse discourse – verbal, math, graphics, plastic and corporal- as a way to produce, express and communicate their ideas, interpret and enjoy cultural productions;

9. Be able to utilize different forms of information and technological resources in order to acquire and create knowledge;

10. Question reality by forming and solving problems, utilizing logical thinking, creativity, intuition, and critical analysis, selecting procedures and verifying their adequateness (Ministry of Education i).

That said, when speaking of the term *environment* the national curriculum parameters make reference to its natural, constructed, physical, and social aspects as well as urban and rural areas, environmental protection (protection, conservation, recuperation, degradation), sustainability, and diversity (biodiversity, and cultural). According to the national curriculum parameters, these elements help to define the concept of *environment*. However, very little attention is given to the social environment. In fact, most of the elements that I believe make up the social environment, including the economic, political, and cultural elements, mentioned throughout the contents of this paper were not recognized.

Specifically, with regard to sustainability the parameters suggest nine principles that characterize a sustainable society. They include: respect and care for all living beings; increase the quality of human lives; conserve the vitality and diversity of planet earth; minimize the use of non-renewable resources; live within the limits and supportive capacity of planet earth; modify personal attitudes and practices; permit communities to participate in the care of their own environments; create national structures to integrate development and conservation; and finally construct a global alliance (Ministry of Environment 39-42). These principles of sustainability, largely focusing on the

management and conservation of the natural environment, along with the other elements

mentioned above, have helped to shape the general objectives for the theme of

environment.

That said the general objectives for the theme of *environment* outlined for the elementary

school system are as follows:

1. To know and understand the basic notions associated with the environment in an integrated and systematic way;
2. To adopt practices in schools, in homes and in communities that are just, environmentally sustainable, and constructive;
3. To observe and analyze facts and situations from an environmental point of view, critically, recognizing the necessity to act to guarantee a healthy environment and a good quality of life;
4. To understand cause and effect relationships in space (geographically) and time (historically), using this knowledge critically;
5. To understand the need to learn about conservation and management of natural resources, with regard to our daily interactions;
6. To understand, appreciate, and value natural and socio-cultural diversity of our environment, while adopting practices of respect for traditional, ethical and cultural heritages;
7. To identify oneself as part of nature, understanding that personal processes are important elements for creative, responsible, respectful action towards the environment (Ministry of Education 45).

Most of general objectives identified above are grounded in naturalist and conservationist

understandings of the term *environment*. Specifically, words and phrases such as:

systematic, analyze facts, environmentally sustainable, constructive, management and

conservation, and cause and effect illustrate a conventional approach to environmental

education, with regard to its definition and approach. Further, what is problematic is that

these general objectives have been used to create the curriculum content used for environmental education.

Additionally, mentioned in the national curriculum parameters are some basic guidelines for teaching and learning in environmental education. The document states that: a) teachers should work with students to develop knowledge about the environment; b) teachers should not be the experts in the classroom; c) the school should work with the community in which it belongs; d) what is learned should reflect the local reality of the students; e) teachers should teach the complexity of environmental concerns, drawing from a diverse range of experiences about the physical, social and cultural conditions of the environment (Ministry of Education 47-48). That said while the understandings of teaching and learning here echo those expressed earlier in my first chapter, the breakdown of objectives mentioned above for the theme of *environment* illustrate that greater focus is given to the natural environment, weakening the influence of these emancipatory approaches moving toward transformative change.

In addition, curricular content is also discussed in this document, illustrating the three elements necessary for teaching and learning about the theme of *environment*. They include: natural cycles, society and environment, and management and conservation. Below is a table providing a breakdown of the national curriculum parameters for the theme of *environment* approved by the Ministry of Education, Secretary of Elementary Schooling (2000).

Table 1: Overview of Curriculum Content for the Theme of Environment

Natural Cycles
Water cycles, its multiple uses, its importance to life, its relationship to history
Organic material, organic cycles and sanitation
Food chain and food web, its importance, risks of toxic substance transmission
The relationships and co-relationships between elements in the same system
The observation of elements evidenced in cycles and fluctuations in nature, in space and time

Society and Environment
Cultural and environmental diversity
The limits of human action in quantitative and qualitative terms
The main characteristics of the environment and/or landscape where one lives; the personal and cultural relationships between students, their community and their landscape
Differences between preserved and degraded environments, the causes and consequences to the quality of life in communities, locally and globally, and for future generations
Environmental interdependence between urban and rural areas

Management and Conservation
Management and conservation of water, treatment and distribution for consumption, and habits of use at home and in schools
The necessity and methods for treating human waste: sewage collection, distribution and treatment, and the procedures suitable for local conditions
Garbage collection, destination, recycling, and behaviours associated with consumption in homes, schools and public spaces
Air, water, land and noise pollution and its main contributors: industry, mining, gas stations, slaughterhouses, agricultural activities

Management and conservation of land, causes of erosion in rural and urban areas, and the care and health of land
Notions about suitable processes regarding plant and animal production, care and human health
Environmental preservation, conservation, recuperation, rehabilitation, according to local reality
Simple processes of recycling and reusing of materials
Necessary care of plants and animals
The correct processes for dealing with human waste in areas without sewage facilities
Practices in our daily lives that can help to avoid the excessive use of water, energy and food
To give value to conservative forms of extraction, transformation and the use of natural resources

Mentioned here should be that all teaching and learning resources used in elementary schools are hand picked by the Ministry of Education and include each of these components (Marques 2006).

With regard to the curriculum content presented here, obvious strengths and weaknesses come to my immediate attention. For instance, the focus given to the conservation and management component in comparison to that of the society and environment component is stark and unbalanced, a result of how the term *environment* is defined in Brazil. Specifically, the stress on natural systems and management and conservation illustrate a focus on naturalist and conservationist traditions in EE, centred on human relationships with nature, conservation, and resource quality and quantity, excluding the social environment (Sauvé 13-14).

Additionally, cultural diversity is under the thematic area of society and environment, while social and economic diversities remain unacknowledged. As a result, elements that

I believe are central to emancipatory environmental education including: issues of social justice: race, class, ethnicity, gender, sexuality, power, domination, unemployment, education, poverty, migration, and housing etc. remain outside of the curriculum content, preventing the necessary learning for individual and societal transformation.

That said I do see strengths in the content presented above. For instance, the natural cycles of food and water mentioned in the first component are essential ecological aspects of environmental education. Also, the need to investigate local realities and explore day to day practices and consumption are strengths evident in this curriculum. While I believe much more can be said about the curriculum content here, I will explore this further through my questionnaires in the following chapter allowing teachers to voice what they think regarding the content.

To conclude, this chapter has provided an overview of the national and state programs as well as curriculum parameters for environmental education in Brazil, illustrating what I believe to be the strengths, weaknesses, and challenges of EE at the policy level. Specifically, I have illustrated the gap between the national program for environmental education (ProNEA) and the national curriculum parameters. The following chapter will address the practice of formal environmental education, giving teachers an opportunity to address the teaching, learning and curriculum used in their classrooms.

Chapter 4: Exploring the Work of Teachers in Formal Environmental Education in Taboão da Serra

The purpose of this chapter is to present an overview of my methodology as well as document and explore my questionnaire results with four elementary school teachers regarding teaching, learning, and curriculum used in environmental education in the following schools: Cecília Mevieles, Dalva Barbosa Lima Janson, Oscar Ramos Arantes, and Vinícuis de Moraes, all located in Taboão da Serra. The overall goal here is to focus on teacher responses to illustrate what formal environmental education looks like through teacher definitions and practices together with my research framework.

4.1 Methodological Approach

The methodology used for my major paper research is grounded in qualitative approaches. Specifically, I used questionnaires and participant observation to gather information pertaining to the work of public elementary school teachers in environmental education in Taboão de Serra.

To begin, I was able to make contact with four elementary school teachers through the *Fruta no Qunital* program, a program designed by the Secretary of Education of Taboão da Serra in partnership with the Bacias Irmãs project, with the objective of training school administration and elementary and high school teachers in the practice of formal environmental education.

I believed that this project would be a good fit with my research interests as it provided me with a meaningful opportunity to interact with elementary school teachers and to explore formal environmental education in a municipality located in the Pirajussara watershed, therefore fulfilling project objectives.

I attended *Fruta no Quintal* meetings as a participant observer, documenting teacher engagement with various environmental themes through their questions, concerns, and comments put forward each week. The results of these observations helped provide me with some insight into what teachers believed environmental education to be as well as what they already knew and wanted to know regarding the themes discussed throughout *Fruta no Quintal* meetings.

During my third encounter with the group, and with the help of another member of the Bacias Irmãs project, I announced my research objectives, asking to distribute my questionnaires (see Appendix 2 for questionnaires) to the elementary school teachers interested in speaking about their understandings of and practices in environmental education. Four teachers expressed interest in my questionnaire. Thus, the criteria employed for selection of these teachers was based on both teacher interest and on whether the teacher worked in an elementary school in Taboão da Serra.

I then distributed my questionnaires giving each teacher one to two weeks to complete the questions and during the following sessions I would have short discussions with them, clarifying uncertainties and asking further questions related to their responses. This approach worked well in this learning environment because of my weekly participation and attendance at meetings. Additionally, teacher related time constraints were also avoided because of this approach.

Another EE activity, while not directly connected to my research interests, that I believe assisted in deepening my understanding of environmental education was a project carried out by ECOAR Institute for Citizenship in which I attended as a participant observer. Specifically, the project included a boat tour of the Tiete River, geared to public

elementary schools in São Paulo, and accompanied by three inspiring environmental education activities with the components of consciousness-raising, action and reflection. While this program took place outside of Taboão da Serra, I found it beneficial to my major paper research for two reasons. I was able to observe: student engagement in the practice of environmental education as well as 2/ three activities that together illustrated emancipatory environmental education. Finally, as the methods used for my major paper research have been elaborated on here, it is now necessary to move to an exploration of the results of my questionnaires given by four teachers in Taboão da Serra.

4.2 Interview Results and Analysis

In an effort to ensure anonymity to the teachers involved in my research, I have given them the following pseudo-names: Mariana, Adriana, Renata and Fabiola. That said below is an analysis, using my research framework, of questionnaire results documenting a range of themes regarding the teaching, learning and curriculum used in formal environmental education by four public elementary school teachers in Taboão da Serra as well as their perspectives on emancipatory environmental education.

Defining EE

To begin, when asked specifically about how each teacher defines environmental education the following themes became very evident. All four teachers mentioned the development of consciousness as an important element in environmental education, citing that good environmental education calls for consciousness-raising among all students. In addition, other elements of sound environmental education included decision-making with action, as well as respect, responsibility, and understanding for all living beings and

for local environments (2006). Specifically, these defining factors of environmental education are evident in my exploration of approaches to emancipatory environmental education cited in my first chapter, making the inclusion of these aspects encouraging. Adding to this definition of EE was Mariana who suggested that schools, family, and community were all very important contributors to the shaping of strong formal environmental education, pointing to the collective strength of these agents in transformative action (2006). Finally, the themes of management and conservation were also clearly evident in teacher responses as each made reference to at least one of the following ideas: environmental preservation and the use of natural resources, illustrating naturalist and conservationist traditions in EE. That said the mention of management and conservation in any discussion on formal environmental education in Brazil should be anticipated because as demonstrated above the bulk of the curriculum for the theme of *environment* is geared specifically to this thematic area therefore influencing how teachers define environmental education. Overall, their definitions did address the ecological component of environmental education, also making reference to some critical aspects of EE.

However these definitions of environmental education do raise significant concerns. Why? When defining environmental education, there was no mention of social justice issues including: gender, ethnicity, race, class, empowerment, respect for equality and human rights, power, colonialism, domination, discrimination, ethical awareness, the importance of cultural interchange or the value inherent in indigenous knowledge. I consider these social, political, economic and cultural elements as central to emancipatory environment education but teacher responses failed to include them.

Finally, I believe that this weakness points to the defining of environmental education at the policy level.

EE in Practice

When exploring the work of teachers, my questions regarding teaching and learning in formal environmental education revealed some fundamental themes. For instance, Mariana, Adriana and Renata indicated that when creating activities for their students they always tried to integrate environmental education with discipline objectives where possible (2006). This emphasis placed on incorporating the theme of environment into activities makes their interest in the theme of environment as well as their trust in the national curriculum parameters very obvious. For example, Adriana contended that she would choose a theme for an activity, for example natural resources, and include some of the objectives of science, Portuguese, and mathematics in the activity, therefore discussing the thematic area of management and conservation with other discipline objectives (2006).

Furthermore Adriana added that when creating activities student realities were always considered and that information discussed in the learning environment always encouraged reflection and the making of active citizens, factors she believed to be crucial to environmental learning (2006). However, while integrating student realities into teaching and learning practices is empowering, the realities can not be decided upon by the teacher but instead has to be done by the students, making the approach emancipatory. Finally, the responsibility attributed to teachers and their role in passing on environmental values from teacher to student was made clear by Mariana and Renata, as

they both made reference to this in their responses (2006). This practice intersects with the banking concept of education as these teachers are taking on the role of the authority in the classroom, passing on values instead of mutually discussing and reflecting on them through meaningful dialogue.

Moreover, mentioned by Adriana was the use of graphs, tables and texts to teach environmental education which according to Miller, speak to transmission based approaches to teaching and learning, and in my opinion fall short of stimulating learner empowerment (2006). Further exploration of EE activities, according to Renata and Mariana demonstrate some modes of teaching and learning cited in my first chapter. For instance, the water usage and distribution activity created by Renata, considering the needs of growing populations, was created to encourage reflection and discussion on individual water use (2006). This environmental education activity, using textbooks and individual student research, encouraged awareness of municipal water concerns as well as illustrated the role of individual consumption and the issues surrounding water distribution (2006). Here the objectives of this activity, the development of a critical consciousness and reflection are obvious, pointing to emancipatory approaches to EE. However, what I believe to be missing in this activity is transformative learning, referred to by Miller in my first chapter. An action component geared to the school, community or family, promoting empowerment, environmental praxis, and practical competence would have addressed this missing element. The value of an action component in teaching and learning is illustrated by Hammond when he says:

> If action is fuel for thought and an indispensable asset in the development of understanding and competence, why don't more school programs systematically engage students in personal and community action (7).

Furthermore, he argues that when students participate in these projects their actions are "evidence of the construction of knowledge and the development of understanding…further, when students are able to make thoughtful and appropriate decisions about when, why, and whether to apply knowledge and skills they are demonstrating the development of wisdom," and in my opinion participating in individual transformation, a desired outcome of an emancipatory environmental education (7). Another activity created by Renata was a municipal tour of Taboão da Serra where students observed local surroundings, including areas of commerce, tourism, forest reserves etc. (2006). The objective was for students to discuss and reflect on historic facts together with environmental issues evident in their local municipality, therefore participating in experiential learning.

Two obvious strong points of this activity include: students moving beyond the walls of their classroom to participate in place-based learning as well as students engaging with the challenges that exist in their local environment.

When Freire speaks of the problem posing model he speaks to this second point. He argues that the model supports students in responding to challenges and to "apprehending the challenge as interrelated to the other problems within a total context, not as a theoretical question" (81). When this happens, students reflect on the problems and identify what would need to happen in order to change the situation. What Freire asserts here speaks to the goal of this activity and the work of students in an emancipatory learning environment.

However, there are also some weaknesses evident in this activity. For instance, according to Taylor, "Environmental education should be taught by starting with the students'

experiences, interests, and the cultural and environmental references they have around them, then later investigating other types of environments and experiences" (3). Did students choose the areas of commerce, tourism and forest reserves to investigate? Further, why were housing settlements not included in this activity as environmental references, whose obvious use would have addressed socio-economic factors in the municipality? Addressing these questions in the planning and development stages with her students would have resolved these questions, creating a more emancipatory approach to teaching and learning environmentally.

Additionally, Mariana's in-class activity included teaching about recycling and the impact of garbage on the school community using school textbooks. She suggested that the objective of her activity was to teach students about these issues and their importance at school and at home (2006). While I do not believe this activity uses an emancipatory approach to teaching and learning I do see one advantage, the sharing of knowledge. That said I see the role of the teacher and the lack of focus on the development of a critical consciousness for transformation as the greatest weaknesses of this activity. Mariana decided on the activity, transmitted information to her students and used conventional resources to do so. She used a banking approach to environmental education in this activity, therefore denying the students an opportunity to participate in the construction of knowledge or identify what they know or want to learn. Further, individual and societal transformation is not at all possible through this activity because it does not call for empowerment, reflection, or action.

Moreover, when asked about teaching and learning EE Fabiola cited an activity grounded solely in transmission based approaches. She described using newspaper articles

featuring environmental issues to teach her students, this intersecting well with Freire's banking concept of education (2006). Specifically, among the many characteristics of Freire's model evidenced in her activity, I believe the most uninspiring to be the role of the teacher in the learning environment in shaping the construction of knowledge without the input of students necessary for student teacher mutual learning and praxis, evident also in Mariana' activity. Where again are the concepts of critical consciousness, empowerment, reflection, and action?

Additionally, Sorrentino speaks to some of the elements missing in Fabiola's approach. For instance, he states that what is fundamental to a teacher's practice in environmental education is that she/he have "existing knowledge in the areas of environment, ecology and environmentalism, education and environmental education; and that she/he promote critical reflections together with students in relation to their realities and their individual and collective dreams, wishes, and utopias"…, thus including students into the learning process (39). That said the insight provided here by Sorrentino raises an interesting question. Was Fabiola's approach, using newspaper articles, a reflection of her awareness of environmental issues, did she have the existing knowledge that Sorrentino spoke of? Additionally, when speaking to the problems associated with teaching and learning in formal environmental education, concerns were identified by both Mariana and Adriana. Lack of consciousness and resistance to change in habits were two common problems experienced in Mariana's classroom, problems that I believe require further in class work relating to student realities, drawing from more creative and innovative approaches in environmental education, to create meaningful and politicized spaces for discussion on these issues (2006). In addition, Hooks says: "To the extent that professors bring this

passion, which has to be fundamentally rooted in a love for ideas we are able to inspire…", illustrating that when teachers are committed to students and the process of learning, they can inspire change (195).

Moreover, Adriana raised an interesting concern when she suggested that difficulties in teaching environmental education were linked to her students' socio-economic status and whether they felt like recognized citizens. Specifically, Adriana stated that her students lived in irregular housing settlements where access to water services and water supply, sewage networks, and electricity were virtually unavailable (2006). These factors, she believed, were obstacles in the classroom, preventing students from feeling like recognized citizens, influencing their eagerness to participate in environmental education. Here I find that Adriana's experience brings into question her understanding of consciousness-raising and its role in environmental education. As I stated earlier, consciousness-raising according to Freire involves bringing into question political, social, and economic systems and in doing so empowers participants to engage in individual and societal transformation. That said, what Adriana believes is a problem when teaching and learning EE, I see as a grand opportunity for sound emancipatory environmental education. Beginning with the student realities and experiences here would allow for dialogue on gender, ethnicity, class, power, discrimination, political, social and economic systems, as well as relevant ecological concerns, with space for stimulating collective agency through the creation of an action project. Therefore, while she did make mention of consciousness- raising when defining EE, her point of reference may solely have been ecological, overlooking the social, economic, political, and cultural influences seen in emancipatory environmental education.

In addition, any discussion on teaching and learning must include an analysis of curriculum content and my questionnaire gave teachers this opportunity. According to my results, all teachers were aware of the national curriculum parameters, this pointing to the work of ministry personnel, curriculum developers, school administration, teaching colleges, and teachers striving to make the contents of this document known.

That said, some interesting themes regarding the PCN's were revealed by these teachers. For instance, Mariana and Fabiola both argued that the PCN's needed to be taken more seriously in practice by teachers, pointing to in my opinion some of the weak aspects of the EE activities discussed above (2006). Perhaps, this issue of seriousness is not a reflection of teacher interest in the PCN's and the theme of environment but rather teacher understanding and confidence in teaching EE. I say this because after doing some research into what literature is available to teachers I found a series of books, approved by the ministry, focusing more on the history and legislation of EE then on its practice, this influencing how teachers work with the PCN's in environmental education.

In addition, Renata suggested that in her school, teachers collectively discussed and reflected on the PCN's and planned for classroom activities together, debating on how the theme of environment intersected with the objectives of each discipline. While the issue of interest in addressing curriculum content has been addressed above, the effort on the part of teachers in Renata's school to collectively create lesson plans is a step in the right direction. What's missing however is space for student input in the decision-making and planning and development stages, emphasized by Taylor in chapter 1.

Finally with regard to curriculum content, I had hoped that some of the teachers would have questioned its content, using some of the ideas cited in the work of Giroux and

Fawcett, to bring into question its purposes. Unfortunately, while the curriculum shows

obvious signs of a traditional curriculum aimed at maintaining the status quo,

fragmenting understandings of the term *environment*, no concerns regarding whose

interests were represented in the content, how the knowledge was to be transmitted, or

what values and norms were embedded in the content etc. were raised in questionnaire

results. With that said I believe that this may have been a result of the definitions for the

term *environment* illustrated in policy guidelines and teacher training colleges,

influencing how these teachers understand and work as well as influencing their

expectations of a curriculum.

Emancipatory EE

Moreover, my questionnaire also addressed emancipatory environmental education.

Adriana argued that the goal of emancipatory environmental education is social

transformation and is based on dialogue, reflection, the exercise of citizenship, and the

creation of collective spaces (2006). These factors, I believe, are very much in line with

the principles outlined in the Treaty for Sustainable Societies and Global Responsibility,

and with my understanding of EE, making them in my opinion approaches to

emancipatory EE. What is interesting here is the difference between her definitions of EE

and of emancipatory EE, illustrating her awareness of the tradition she is practicing in her

classroom.

Further when asked about the direction of EE in her school, Adriana suggested that her

school would move toward emancipatory environmental education only if sufficient

information was given to students, illustrating why it is important to actively participate

in one's society for the purposes of social transformation (2006). However when presented with the opportunity to work with emancipatory EE and social transformation, she chose to view housing conditions and citizenship as problems. Furthermore, who would create this 'sufficient information' and how would it be approached in the learning environment are important questions to consider in emancipatory environmental education.

Additionally, when Renata spoke about emancipatory EE she mentioned the significance of addressing social realities in the teaching practices and in the curriculum. She also argued that teachers should select the content and decide on the best way to tackle environmental issues (2006). Again, working with social realities is a fundamental aspect of emancipatory EE, acknowledged by Freire, Marino and Taylor. What is problematic here again is the notion of teacher-centered decision-making in teaching and learning, cemented by Renata's use of the term 'client' when referring to her students and her role as a teacher (2006).

As well, Renata believed that her school was moving in the direction of emancipatory EE, fulfilling the objectives she outlined above. However, she argued that government support at the municipal, state, and national levels was absent (2006).

Moreover, Mariana when speaking of emancipatory EE suggested that the overall goals were to save the planet and to reach students (2006). In terms of the direction of EE, her school was finding new and innovative ways to teach and learn about the environment, suggesting a move in that direction. However, she argued that greater focus on teachers was necessary as they still lacked consciousness regarding the theme of environment (2006). While her definition of emancipatory environmental education falls short of the

multiple elements discussed in my first chapter, I agree with her statement about teacher re-education, as their role is vital in emancipatory EE.

Interestingly, Fabiola did not answer any of the questions relating to emancipatory environmental education, bringing into question her knowledge of traditions in environmental education and her awareness and experience in teaching EE. What is obvious here is that her responses throughout this section have been weak and thus speak to diversity in teacher awareness and practice in environmental education in Taboão da Serra.

Overall, giving teachers the opportunity to discuss the themes noted above has illustrated strengths, weaknesses and challenges regarding understandings and practices in formal environmental education among these teachers. The following section will draw on this analysis, discussing the direction of formal environmental education in elementary schools.

4.3 Exploring the Direction of Environmental Education in Taboão da Serra

To begin, teacher responses have demonstrated some elements of emancipatory environmental education as well as interest in teaching the theme of *environment*, through their attempts to incorporate EE in classroom activities and their weekly engagement in the *Fruta no Qunital* program, laying the foundation for what I believe to be movement towards emancipatory environmental education.

Based on content and analysis discussed in my previous chapters, my recommendations for movement toward emancipatory environmental education in Taboão da Serra are as follows:

- Redefine the fragmented definition for the term *environment* at the policy level, using ProNEA, thus expanding the current focus of the national curriculum parameters and the training teachers receive in universities for the theme of *environment*;

- Re-train teachers through on-going workshops like *Fruta do Quintal,* involving non-government organizations already working with emancipatory EE, with focus on re-defining the term *environment*, the creation of innovative/creative EE activities, curriculum content, the role of the teacher in an emancipatory learning environment, all emphasizing transformative change;

- Create literature to be distributed at the ministry and local levels pertaining to the same issues addressed above with the help of teachers, curriculum developers, school administrations, and students;

- At the school level, improve current ecologically-centred EE activities to include the approaches to teaching and learning used in the problem posing model of education;

- At the school level, incorporate transmission, transactional, and transformative learning in all EE activities, also including an action component;

- At the school level, curriculum coordinators, teachers, students, and the school community should participate in the planning, development, and implementation of EE activities.

Overall I believe that addressing the recommendations noted above, recognizing their potential for transformative change will assist in moving current understandings and practices in formal EE in Taboão da Serra toward emancipatory EE. Finally, while I do recognize the vast change that these recommendations call for at the ministry and school levels, if elementary schools in Taboão da Serra want to move in this direction, this is some of what will be required of the Ministry of Education, the Secretary of Education for Elementary Schooling, teaching colleges, teacher training programs, teachers, school administration, and students.

4.4 Final Conclusions

In closing, while I have identified my recommendations for movement toward

emancipatory environmental education, there is a limitation in my major paper research.

Specifically, my analysis of understandings and practices in EE includes just four

elementary school teachers from Taboão da Serra. While I had hoped to speak with 10

teachers participating in the *Fruta no Qunital* program only four were interested in

participating in my research. While research in São Paulo and Embu was possible,

working in one municipality, with teachers from a program geared to formal

environmental education, helped to localize my research investigation and analysis. That

said I believe that Mariana, Renata, Adriana, and Fabiola meaningfully addressed the

current work of elementary school teachers in formal environmental education in Taboão

da Serra.

Finally, further research in formal EE in Taboão da Serra should include: a) perspectives

from male teachers; b) approaches to EE used in private schools and high schools; c)

participant observation throughout the planning and implementation stages of EE

activities; d) analysis of pedagogical approaches and the role of the teacher, classes, and

literature used in teacher colleges with EE as its focus; e) room for students in the

research process, and f) finally investigations into possible connections between local

NGO's and elementary schools.

Overall, my research has illustrated the strengths, weaknesses, and challenges evident in

formal environmental education in Taboão da Serra through analysis of policies and

practices as well as addressing the possibilities for movement towards emancipatory EE.

Furthermore, the understandings and practices in formal EE as illustrated through teacher

responses do illustrate that moving in the direction of emancipatory environmental

education is indeed possible. Finally, this major paper illustrates a new vision for formal

environmental education which can transform environmental learning in classrooms.

References

Agenda 21, Chapter 36. 15 December 2004. United Nations Department of Economic
and Social Affairs. 12 March 2006 <http://www.un.org/esa/sustdev/documents/
agenda21/english/agenda21chapter36.htm>

Belgrade Charter. 22 October 1975. UNESCO. 12 March 2006 ≤http://portal.unesco.org/
education/en/file_download.php/47f146a292d047189d9b3ea7651a2b98
The+Belgrade+Charter.pdf >

Brazil's National Education Policy: Maria Helena Guimaraes de Castro. April 2002.
Brazil. Ministerio da Educacao. December 1, 2004. <http://www.portal.unesco.org/
education/en/ev>

Carvalho, Isabel Cristina de Moura. "Educação Ambiental: a formação do sujeito
ecológico" São Paulo: CORTEZ, 2004.

Carvalho, Isabel Cristina de Moura. "Qual Educação Ambiental? Elementos para um
debate sobre educação ambiental e extensão rural" *Agroecologia e Desenvolvimento
Rural Sustentável* 2 (2001): 43-51.

Di Chiro, Giovanna. "Nature as Community: The Convergence of Environment and
Social Justice" *Uncommon Ground: Rethinking the Human Place in Nature.* Ed.
William Cronon. W.W. Norton & Company, 1996, 298- 320.

Egan, Kieran. "What is Curriculum?" *Journal of the Canadian Association for
Curriculum Studies* 1 (2003): 9-16.

Fawcett, Leesa. *Curriculum Handout.* Environmental Education 6140, 2005.

Freire, Paulo. *Pedagogy of the Oppressed: 30th Anniversary Edition.* New York, NY: The
Continuum International Publishing Group Inc, 2003.

Giroux, Henry. "Toward a New Sociology of Curriculum." *Educational Leadership* 1979: 248-253.

Graveline, Fyre Jean. *Circle Works: Transforming Eurocentric Consciousness*. Halifax, Nova Scotia: Fernwood Publishing, 1998.

Hammond, William F. "Educating for Action: A framework for thinking about the place of action in environmental education" *Green Teacher* 50 1996:6-14.

Hooks, Bell. *Teaching to Transgress: Education as the practice of Freedom*. New York, NY: Routledge, 1994.

Huckle, John. "Locating environmental education between modern capitalism and Postmodern socialism: A reply to Lucie Sauvé." *Canadian Journal of Environmental Education* 4 1996: 36-45.

marino, dian. *Wild Garden: Art, Education, and the Culture of Resistance.* Toronto: Between the Lines, 1997.

Marques, Terezinha. Personal Interview. 1 June. 2006.

McCutcheon, Gail. "Curriculum and the Work of Teachers." *The Curriculum.* Ed. Landon E Bayer and Michael W. Apple. Albany: SUNY Press, 1988.

Miller, John P. *The Holistic Curriculum.* Toronto: OISE, Inc, 1996.

Ministério da Educação*:* Secretaria de Educação Fundamental. *Parametros Curriculares Nacionais: Meio Ambiente e Saude, 2nd edition.* Brasília, 2000.

Neves, Elioza Dias. "Teachers Working in the Field of Environmental Education: Musings of a Practicioner." *Canadian Journal of Environmental Education* 10 2005:

173-179.

Oliveira, José Flávio De. *Programa Estadual De Educação Ambiental.* São Paulo: Governo Do Estado De São Paulo: Secretaria De Estado Do Meio Ambiente.

Orr, David W. *Ecological Literacy: Education and the Transition to a Postmodern world.* Albany, New York: State University of New York Press, 1992.

Peter, Kevin A. "Multicultural Environmental Education" *Green Teacher* 54 1997-98: 14-15.

Programa Nacional De Educação Ambiental (ProNEA), 3ʳᵈ edition. November 2003. Documenta em Consulta Nacional, MMA e MEC. 15 March 2006. <http://www.mma.gov.br/estruturas/educamb/_arquivos/pronea_3.pdf>

Reigota, Marcos. "*O Que é Educação Ambiental*?" São Paulo: Brasiliense, 1994.

Russell, Constance L and Paul Hart. "Exploring New Genres of Inquiry in Environmental Education Research." *Canadian Journal of Environmental Education* 8 (2003): 5-8.

Sauvé, Lucie. " Currents in Environmental Education: Mapping a Complex and Evolving Pedagogical Field" *Canadian Journal of Environmental Education* 10 (2005): 11-37.

Sorrentino, Marcos. "Reflexões sobre o panorama da Educaçao Ambiental no ensino Formal" *Panorama da educaçao ambiental no ensino fundamental*. MEC. Brasília, 2001. 39-41.

Sterling, Steven. "Education in change" *Education for Sustainability*. ED. John Huckle. London: Earthscan, 1996.

Stromquist, Nellie P. "The Theoretical and Practical Bases For Empowerment."

   In *Women, Education and Empowerment: Pathways to Autonomy*. Carolyn

   Medel-Anonuevo, Ed. Report of the International Seminar held at UIE,

   January 27- February 2, 1993, Hamburg, Germany. Paris: UNESCO.

Taylor, Dorceta E. "Making Multicultural Environmental Education a Reality" *Race,*

   Poverty and the Environment. Vol 6 Winter/Spring 1998: 3-6.

Tbilisi Declaration. April 1978. UNESCO. 12 March 2006.

   <http://unesdoc.unesco.org/images/0003/000327/032763eo.pdf>

Teixeira, Débora de Lima. Personal Interview. 4 April. 2006.

Treaty on Environmental Education for Sustainable Societies and Global Responsibility,

   Non-Governmental Organization Alternative Treaty, Global Forum, Rio de Janeiro,

   June, 1-5.

Viezzer, Moema L., and Omar Ovalles. "*Manual Latino-Americano de Educ-ação*

   Ambiental" São Paulo: Gaia, 1995.

Appendix A: The Non-Governmental Treaty of EE for Sustainable Societies and Global Responsibility

This treaty, as in education, is a dynamic process and should therefore promote reflection, debate and amendments.

1. We signatories, people from all parts of the globe, are devoted to protecting life on earth and recognize the central role of education in shaping values and social action. We commit ourselves to a process of educational transformation aimed at involving ourselves, our communities and nations in creating equitable and sustainable societies. In so doing we seek to bring new hope to our small, troubled, but still beautiful planet.

Introduction

2. We consider that environmental education for equitable sustainability is a continuous learning process based on respect for all life. Such education affirms values and actions which contribute to human and social transformation and ecological preservation. It fosters ecologically sound and equitable societies that live together in interdependence and diversity. This requires individual and collective responsibility at local, national and planetary level.

3. We consider that preparing ourselves for the required changes depends on advancing collective understanding of the systemic nature of the crises that threaten the world's future. The root causes of such problems as increasing poverty, environmental deterioration and communal violence can be found in the dominant socio-economic system. This system is based on over-production and over-consumption for some and under-consumption and inadequate conditions to produce for the great majority.

4. We consider that inherent in the crisis are an erosion of basic values and the alienation and non-participation of almost all individuals in the building of their own future. It is of fundamental importance that the world's communities design and work out their own alternatives to existing policies. Such alternatives include the abolition of those programs of development, adjustment and economic reform which maintain the existing growth model with its devastating effects on the environment and its diverse species, including the human one.

5. We consider that environmental education should urgently bring about change in the quality of life and a greater consciousness of personal conduct, as well as harmony among human beings and between them and other forms of life.

Some Principles of Environmental Education For Equitable And Sustainable Societies

6. Education is the right of all; we are all learners and educators.

7. Environmental education, whether formal, non-formal or informal, should be grounded in critical and innovative thinking in any place or time, promoting the transformation and construction of society.

8. Environmental education is both individual and collective. It aims to develop local and global citizenship with respect for self-determination and the sovereignty of nations.

9. Environmental education is not neutral but ideological. It is a political act.

10. Environmental education must involve a holistic approach and thus an interdisciplinary focus in the relation between human beings, nature and the universe.

11. Environmental education must stimulate solidarity, equality and respect for human rights involving democratic strategies and an open climate of cultural interchange.

12. Environmental education should treat critical global issues, their causes and interrelationships in a systemic approach and within their social and historical contexts. Fundamental issues in relation to development and the environment, such as population, health, peace, human rights, democracy, hunger, degradation of flora and fauna, should be perceived in this manner.

13. Environmental education must facilitate equal partnerships in the processes of decision-making at all levels and stages.

14. Environmental education must recover, recognize, respect, reflect and utilize indigenous history and local cultures, as well as promote cultural, linguistic and ecological diversity. This implies acknowledging the historical perspective of native peoples as a way to change ethnocentric approaches, as well as the encouragement of bilingual education.

15. Environmental education should empower all peoples and promote opportunities for grassroots democratic change and participation. This means that communities must regain control of their own destiny.

16. Environmental education values all different forms of knowledge. Knowledge is diverse, cumulative and socially produced and should not be patented or monopolized.

17. Environmental education must be designed to enable people to manage conflicts in just and humane ways.

18. Environmental education must stimulate dialogue and cooperation among individuals and institutions in order to create new lifestyles which are based on meeting everyone's basic needs, regardless of ethnic, gender, age, religious, class, physical or mental differences.

19. Environmental education requires a democratization of the mass media and its commitment to the interests of all sectors of society. Communication is an inalienable right and the mass media must be transformed into one of the main channels of education, not only by disseminating information on an egalitarian basis, but also through the exchange of means, values and experiences.

20. Environmental education must integrate knowledge, skills, values, attitudes and actions. It should convert every opportunity into an educational experience for sustainable societies.

21. Education must help develop an ethical awareness of all forms of life with which humans share this planet, respect all life cycles and impose limits on humans' exploitation of other forms of life.

Plan of Action

The organizations that sign this Treaty will implement policies to:

22. Turn the declarations of this Treaty and of other Treaties produced by the conference of citizens' groups during the Rio 92 process into documents for use in formal education systems and in education programs of social movements and social organizations.

23. Work on environmental education for sustainable societies together with groups that draft other Treaties approved during Rio 92.

24. Make comparative studies of the treaties of citizens' groups and those produced by the United Nations Conference on Environment and Development (UNCED) and use the conclusions in educational activities.

25. Work on the principles of this Treaty from the perspective of local situations, necessarily relating them to the state of the planet, creating a consciousness for transformation.

26. Promote knowledge, policies, methods and practices in all areas of formal, informal and non-formal environmental education and for all age groups.

27. Promote and support training for environmental conservation, preservation and management, as part of the exercise of local and planetary citizenship.

28. Encourage individuals and groups to take positions, and institutions to make policies, that constantly review the coherence between what is said and what is done, as well as the values of our cultures, traditions and history.

29. Circulate information about people's wisdom and memory, and support and inform about appropriate initiatives and technologies in relation to the use of natural resources.

30. Promote gender co-responsibility in relation to production, reproduction and the maintenance of life.

31. Stimulate and support the creation and strengthening of ecologically responsible producers' and consumers' associations, and commercial networks, that provide ecologically sound alternatives.

32. Sensitize populations so that they establish Peoples' Councils for Environmental Management and Ecological Action to research, discuss, inform and decide on environmental problems and policies.

33. Create educational, judicial, organizational and political conditions to guarantee that governments allocate a significant part of their budgets to education and the environment.

34. Promote partnership and cooperation among non-governmental organizations (NGOs), social movements and the UN agencies - United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Environment Programme (UNEP), Food and Agriculture Organization (FAO) and others - at national, regional and international levels to jointly set priorities for action in education, environment and development.

35. Promote the creation and strengthening of national, regional and international networks for joint action between organizations of the South, North, East and West with a planetary perspective (e.g. foreign debt, human rights, peace, global warming, population, contaminated products.)

36. Ensure that the media becomes an educational instrument for the preservation and conservation of natural resources presenting a plurality of views and reliable and contextualized information; and stimulate the broadcasting of programs generated by local communities.

37. Promote an understanding of the causes of consumerist behavior and act to change practices and the systems that maintain them.

38. Search for self-managed, economically and ecologically appropriate alternatives of production which contribute to an improvement in the quality of life.

39. Act to eradicate sexist, racist and any other prejudices, as well as contribute to the promotion of cultural diversity, territorial rights and self-determination.

40. Mobilize formal and non-formal institutions of higher education in support of teaching, research and extension towards the community in environmental education, and the creation in each University of interdisciplinary centers for the environment.

41. Strengthen social organizations and movements in order to enhance the exercise of citizenship and an improvement in the quality of life and the environment.

42. Assure that ecological organizations popularize their activities and that communities incorporate ecological issues in everyday life.

43. Establish criteria for the approval of education projects for sustainable societies, discussing social priorities with funding agencies.

Coordination, Monitoring and Evaluation Systems

All signatories of this Treaty agree to:

44. Distribute and promote the Treaty on Environmental Education for Sustainable Societies and Global Responsibility in all countries, through joint campaigns by NGOs, social movements and others.

45. Stimulate and create organizations and groups of NGOs and social movements to initiate, implement, follow and evaluate the elements of this Treaty.

46. Produce materials to publicize this Treaty and its unfolding into educational action, in the form of texts, educational materials, courses, research, cultural events, media programs, fairs of popular creativity, electronic mail and other means.

47. Form an international coordination group to give continuity to the proposals in this Treaty.

48. Stimulate, create and develop networks of environmental educators.

49. Ensure the 1st Planetary Meeting of Environmental Education for Sustainable Societies is held within three years.

50. Coordinate action to support social movements which are working for improving the quality of life, extending effective international solidarity.

51. Foster links between NGOs and social movements to review their strategies and programs on environment and education.

Groups to be Involved

This Treaty is aimed at:

52. Organizations of social movements - ecologists, women, youth, farmers and unions, neighborhood, ethnic and artistic groups and others.

53. NGOs committed to grassroots social movements.

54. Professional educators interested in establishing programs related to environmental issues in formal education systems and other educational activities.

55. Those responsible for the mass media who are ready to accept the challenge of openness and democracy, thus initiating a new concept of mass communication.

56. Scientists and scientific institutions that take ethical positions and are sympathetic to the work of social movements and organizations.

57. Religious groups interested in working with social organizations and movements.

58. Local and national governments able to act in tune and in partnership with the aims of this Treaty.

59. Business people committed to working within a rationale of recovery, conservation and improvement of the environment and the quality of life.

60. Alternative communities that experience new lifestyles in harmony with the principles and aims of this Treaty.

Resources

All signatories of this Treaty are committed to:

61. Allocate a significant part of their resources to the development of educational programs related to an improvement of the environment and quality of life.

62. Demand that governments allocate a significant percentage of Gross National Product to supporting programs of environmental education in all sectors of public administration, with the direct participation of NGOs and social movements.

63. Propose economic policies that stimulate business to develop and apply appropriate technology and create environmental education programs for the community and as part of personnel training.

64. Encourage funding agencies to prioritize and allocate significant resources to environmental education and ensure its presence in projects they approve wherever possible.

65. Contribute to the formation of a cooperative and decentralized global banking system for NGOs and social movements that will use part of its resources for educational programs and at the same time be an exemplary exercise in using financial resources.

Appendix B: Questionnaire

1. How do you work with environmental education?
2. What does environmental education mean to you?
3. Are you aware of the national curriculum parameters?
4. What do you think about the national curriculum parameters for the theme of environment?
5. Can you give an example of a lesson where you incorporated environmental education?
6. Have you encountered any problems when teaching the theme of environment?
7. What if anything, do you think emancipatory environmental education means, or could potentially do?
8. Do you think these are good goals for EE? Do you think EE in your elementary school is moving in this direction? Why or Why not?
9. If not, what changes should be made in teaching, learning, and the curriculum currently being used?