

# Planting the Seeds of Environmental Awareness: Evaluating An Environmental Education Program for Grade 5 Students

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## *Abstract:*

Environmental education is a growing area of concern in the elementary classroom. Two Master of Teaching students conducted a study investigating the effectiveness of an urban, classroom-based environmental education program with Grade five students in Toronto, Ontario, Canada. The program focused on waste and consumption and the resulting environmental impacts. Activities included stories, games, reflection and discussion. Analysis from reflective journals, questionnaires, and researcher observations revealed three themes that may be especially important to the elementary environmental educator: Children focused on concrete, local awareness versus abstract, global awareness; they exhibited a strong sense of fairness of resource use and empathy toward humans; and they were strikingly anthropocentric and held strong utilitarian views of the environment. The study indicates several implications for future practice for the educator concerned with environmental education.

# Planting the Seeds of Environmental Awareness: Evaluating an Environmental Education Program for Grade 5 Students

*“Education is no guarantee of decency, prudence, or wisdom. More of the same kind of education will only compound our problems [...] It is not education, but education of a certain kind, that will save us.” - David Orr*

Reading the newspaper can be a disheartening task, particularly for environmentalists. Stories of environmental destruction and unsustainable industry choices are commonplace. For the health of the planet, and all who inhabit it, a radical shift in worldview and behaviour is necessary. For our environmentally destructive ways to stop we need a kind of education that will open our eyes to another path; we need a radical, dynamic and holistic environmental education to permeate our society.

## **INTRODUCTION:**

### *ENVIRONMENTAL EDUCATION*

Environmental education works to halt the growing human disconnection from nature because through this estrangement there is a crisis of human identity. The currently prevailing Cartesian/reductionist/mechanistic worldview is believed to foster feelings of separation, otherness, and domination. Within this worldview anthropocentric attitudes, instrumentalism, and human dominance to nature are accepted. Things are understood through division into discrete parts that can be analyzed. Environmental educators wish to help uncover and critically examine the dualisms that result from the Cartesian worldview including human-animal, inner-outer, reason-emotion, culture-nature, and teacher-learner. Environmental education attempts to run counter to this prevailing worldview and foster a more holistic paradigm that highlights the dynamic interconnectedness of everything (Selby, 2001). Environmental educators want to bring into view the power relationships and hierarchy that underlie the current education system (Henderson, 1997). They wish to encourage a biophilic ethic that promotes kindness and compassion, respect for all forms of oppression (human and non-human), and respect for the inherent value of all living things (Selby, 2001).

### *DEVELOPMENT OF ENVIRONMENTALLY MINDFUL ATTITUDES*

The ecological crisis is really a crisis of maladaptive behaviour and not a technological problem (Newhouse, 1990). In order for environmental education to be effective, it needs to help to shift attitudes and behaviours to be more environmentally

mindful. "Many educators believe that a small child possesses inherent attitudes of care and compassion for fellow creatures, both human and non-human. But the quality of our children's environmental awareness and their sense of wonder in the natural world must be supported, channeled and encouraged" (Sheehan & Waidner, 1998, p. 9). Attitude formation in environmental education has been extensively studied (Iozzi, 1989; Chawla, 1998; Palmberg & Kuru, 2000). While there is significant controversy in both the psychology and practical implications of attitude formation in the literature, researchers agree that both cognitive and affective components are necessary for effective environmental education (Milton, Cleveland & Bennett-Gates, 1995). Attitudes, knowledge, locus of control, and sense of responsibility then lead to environmentally responsible behaviour (Newhouse, 1990). For the purpose of this study, environmental attitude is defined as a system of affective and cognitive components, combined with a behavioural tendency, that are directed towards the environment (Mittelstaedt et al., 1999).

A predisposing belief in this study is that if attitudes lead to specific behaviours then a change in environmental attitudes will accompany a change in environmentally mindful behaviour. In a study by Mittelstaedt et al (1999), participants who expressed environmental awareness and appreciation for nature also took environmentally mindful actions. A more important belief that is a basis for this study is that for learning to take place, the cognitive and affective functions must work simultaneously and collaboratively (Milton et al., 1995). The power of the affective domain in encouraging behaviour is that it promotes a strong connection to learning and empowerment through a strong internal locus of control (Newhouse, 1990). Locus of control is an individual's perception of the power of his or her behaviour to result in change. An internal or personal locus of control therefore means that individuals believe that their actions can cause change. Consequently, individuals with a stronger internal locus of control are more likely to participate in environmentally responsible behaviour because they believe their actions can help precipitate change (Newhouse, 1990). In essence, in-depth knowledge, an internal locus of control, and the intention to act are all variables associated with responsible environmental behaviour (Chawla, 1998).

It is therefore important to consider psychological development when designing an environmental education program for children. In understanding how a child forms

attitudes in relation to the environment, we need to understand how a child organizes their understanding: How they view the world and process new information about it. It is also important to examine the elements of the natural environment that are particularly relevant to children at different ages and stages (Rejeski, 1982). As children's psychological development progresses they are able to displace their experiences perceptually, seeing other's point of view and identifying their own; affectively, gaining empathy for others; temporally, understanding the longer-term consequences of actions; and topologically, expanding the boundaries of understanding beyond the proximal environment (Rejeski, 1982). At ages 6 and 7, children are in a stage called literalism; they are confined by their egocentricity and parental constraints, but have a fascination with the proximal world and are developing a symbolic concept of nature. By the ages of 9 and 10, children are in a stage called organization; grouping and classifying the things around them. They also often view humans as separate from the environment in this stage, but are beginning to appreciate that humans have impact on the environment, often with deleterious effects. By the ages of 13 and 14, adolescents are in a stage called moralism; they have an increasing awareness of themselves, and their decisions are based on a combination of cognitive and affective components (Rejeski, 1982). The implications for these developmental stages for environmental education are numerous. Environmental education should include opportunities for children to acquire topical, temporal, affective, and perceptual displacement; be presented within a concrete context that children can easily understand; and most importantly, really effective environmental education will begin at young ages and be organized to build upon past learning as the child develops (Rejeski, 1982). Another key aspect of environmental education's attempts to cause a paradigm shift from a Cartesian to a more holistic worldview, is the promotion of self as intrinsically valuable (Selby, 2001). Through connecting environmental education to a child's psychological development, environmental education has the potential to combine an increase in environmental awareness and personal development, and therefore be effective in changing environmental attitudes and behaviours.

### *GOALS OF ENVIRONMENTAL EDUCATION*

Environmental educators hope that education can help participants develop a more internal locus of control, and acquire a strong environmental awareness so that their

environmental attitudes, and ultimately behaviour, will be environmentally mindful. The resulting practical concern, therefore, is what teaching/learning strategies will be most effective in promoting this process. Outdoor experiences have been most frequently cited as resulting in environmentally mindful attitudes and behaviours (Chawla, 1998; Palmberg & Kuru, 2000; Harvey, 1990). However, positive experiences in natural areas, adult role models, education, exposure to issues in media, negative experiences with environmental degradation, environmental organizations and many other factors also affect environmental attitudes (Chawla, 1998). Other individual variables such as ethnicity, age, gender and background experiences should also be taken into consideration when considering the most effective environmental educational practices (Gifford et al., 1983). Environmental educators must ensure that their practices are congruent with the philosophical aims of the discipline. The educator should have a warm relationship with participants; there should be opportunities for children to express their feelings; there should be an integration of cooperative learning structures; and there should be forms of interactive and experiential learning integrated into the program (Selby, 1996).

Given the philosophical basis of current environmental education, the psychological development of children, current understanding of environmental attitude formation, and the lack of classroom-based environmental education research, this study will examine the effectiveness of an urban, classroom-based environmental education program.

### **Research Questions:**

1. Is the environmental education program effective?  
Program effectiveness is identified by two attributes:
  - a. An increase in environmental awareness, indicated by:
    - i. Awareness of more global environmental issues.
    - ii. A more concrete basis for possible environmental action.
  - b. An increase in emotional connection to the environment.
2. What independent variables affect an individual's environmental awareness?
  - a. What is the role of self-esteem in environmental awareness and action?
  - b. What is the role of dwelling in a child's environmental awareness?  
Does environmental awareness differ for individuals living in apartments compared to houses?

**Methodology:**

Study Site: This research took place at Gracedale Public School, Toronto, Ontario, Canada. The school is located in a dense residential area and serves approximately 950 students from Junior Kindergarten to Grade five. Many of the students have English as a second language and are new Canadians. The school serves an ethnically diverse population with students from Somali, East Indian, Caribbean Black, and Middle Eastern backgrounds. Students fall in the low to middle socio-economic range.

Participants: Twenty-two Grade 5 participants, 21 females and one male, ranging in age from nine to eleven participated in the program. The participants were a diverse group in terms of ethnicity, background, country of origin, and first language. The names of the 22 participants were drawn from a hat which contained the names of all the students who had shown an interest in the program.

Facilitators: Two white female Master of Teaching students in their twenties cooperatively created the program and implemented it in February and March, 2002.

Program/Intervention: The environmental education program was essentially a series of activities, stories, and reflections that was aimed to help participants understand the consumption-waste connection and their role in this cycle. It consisted of four sessions in which participants learned about their connection to the non-human environment, finite resources and recycling, consumption and waste and consumer choice (Please see Table 1 for program overview). Each day participants reflected on what they learned through a short journal entry. In the final session participants created works of art that remained at the school as a reminder of what they learned. Participants filled out a short questionnaire prior to the first session and again three weeks after the last session.

*Table 1. Overview of Environmental Education Program*

DAY	ACTIVITY OVERVIEW
<b>Day One</b>	<ul style="list-style-type: none"><li>• Icebreakers to build group dynamics and get to know students.</li><li>• Web activity to explore connections in the environment</li></ul>
<b>Day Two</b>	<ul style="list-style-type: none"><li>• Students explore the concept of finite resources.</li><li>• This session highlights the value of the environment and its fragility</li></ul>
<b>Day Three</b>	<ul style="list-style-type: none"><li>• Students discuss waste and where it goes.</li><li>• This session emphasizes the link between consumption and waste and explores packaging</li></ul>

<b>Day Four</b>	<ul style="list-style-type: none"> <li>• Students explore human impact on the environment and alternative choices.</li> <li>• This session highlights choice</li> </ul>
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## **DATA COLLECTION AND ANALYSIS:**

### *Quantitative Data*

Questionnaires were completed before and after the program to assess participants' environmental awareness (Please see Appendix A for questionnaires). Environmental awareness was operationally defined as the total to questions that concerned environmental awareness (Answers to questions 6, 8, 10 and 14 were ranked and scored). The higher the total score represented higher environmental awareness. An answer of "Always" was scored as two, "Sometimes" scored as one, and "Never" scored as zero. Environmental Awareness was operationally defined in order to compare the mean difference of environmental awareness before and after the implementation of the program (using a paired t-test). Self-esteem was calculated by participants' responses to questions 3 and 13 (with the same scoring as with Environmental Awareness), in order to see if there was a correlation between self-esteem and environmental awareness. Lastly, participants indicated whether they lived in a house or in an apartment in order to examine whether there is a relationship between dwelling and environmental awareness.

### *Qualitative Data*

Three sources of qualitative data (pre-and post-program questionnaires, reflective journals and researcher observations) were gathered to look for emerging themes. Initial and final questionnaires contained three open-ended questions: How do you feel about the future of the environment? How do your actions affect the environment? How can you change your actions?

Reflective journals were completed following each Environment Club session. The following questions were given to guide reflections: What did you learn in today's Environment Club? How do the activities and what you learned this week in Environment Club make you feel? Have any of your daily activities or actions changed because of what you have learned at Environment Club? Do you have any other comments you would like to share? Is there anything you are interested in learning about or have been thinking about? Participants were given the opportunity to share their

reflections at each Environment Club session.

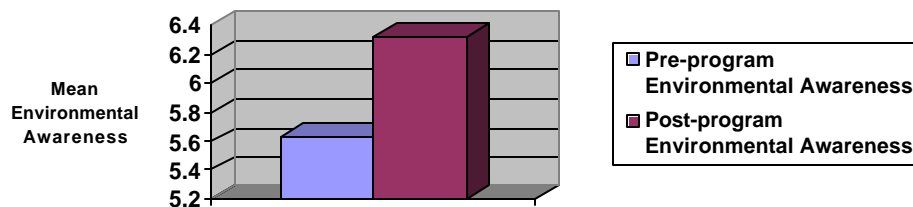
Lastly, both facilitators wrote observations following each session. Researchers considered the following questions to guide their observations: What are your hopes/concerns for the activities? What took place during the session? What are potential problems/considerations for the next session?

After all the qualitative data was collected, the facilitators independently read through the data to find general themes. Subsequently, the facilitators brought their ideas together for focused discussion. They agreed upon common themes that emerged from the qualitative data.

## **RESULTS AND DISCUSSION:**

### *Quantitative Analysis:*

#### **Change in Environmental Awareness Before and After Program**



The mean environmental awareness did increase slightly from 5.63 on the initial questionnaire to 6.32 on the final questionnaire; the difference was almost statistically significant to a 0.05 level ( $p=.09$ ). The qualitative results provide a deeper insight into the effectiveness of the program in terms of increasing participants' environmental awareness.

All but two participants scored the highest possible score on self-esteem (due to a ceiling effect caused by the measurement instrument); thus there was no differentiation between participants and no conclusions on the relationship between self-esteem and environmental awareness could be drawn. Lastly, no correlation between dwelling and environmental awareness was found.

### *Qualitative Analysis:*

Three themes emerged from the qualitative analysis: concrete, local versus abstract, global awareness; fairness of resource use and empathy towards humans; and anthropocentrism and a utilitarian view of the environment. Each theme highlights aspects of participants' experiences that are important in understanding and assessing the efficacy of the environmental education program.

### **Concrete, Local Awareness versus Abstract, Global Awareness**

Given that the participants were aged nine to eleven, it was not surprising that they focused on concrete and local issues. Gracedale Public School has a significant problem with litter and the principal spoke of this regularly on the announcements. In the beginning, when participants were asked about environmental problems, they focused on litter and the solution they gave was that people should put garbage in a proper place, such as a garbage can, and not on the ground. Their conception of a healthy environment was an environment that is "clean".

We might learn how to keep our earth clean.  
My actions affect the environment is to try and be more clean.  
I will clean up more. (*Tammy, Initial Questionnaire*)

By the end of the program, the general trend was that participants' original conceptualization of the problem being litter on the ground had shifted to people wasting things, and the need to reduce the amount of litter (versus simply throwing garbage in the proper place). This shift in focus can be clearly seen by Santi's comments:

It affects the environment by throwing trash on the road and by making Pollution.  
We can change it by not throwing anything on the road or try not to make Pollution.  
(*Santi, Initial Questionnaire*)

If I bring my lunch in a container instead of a bag. I can change my actions by recycling and bringing my lunch in a reusable container. I learned that we should recycle.  
(*Santi, Final Questionnaire*)

Amalla also clearly shows this shift. On her initial questionnaire she wrote that she could help the environment "by not littering" and on her final questionnaire, she wrote she could help the environment "by bring containers". Throughout many journals some form of the phrase "people shouldn't waste" was written. However, the description of the goal remained the same - to create a "clean" space.

I feel good about it [the environment] because I help the world by cleaning up and it is fun! I can try to start recycling. The world will be cleaner.

*(Carol, Final Questionnaire)*

By the end of the program, participants were able to offer more solutions for achieving their goal than simply putting litter in a garbage can. Many participants wrote of recycling as a means to cleaning up the environment. There was some thought with regards to reducing waste by wise consumer choice but these thoughts were minimal and very specific. For instance, participants wrote they could reduce garbage through using reusable containers but actions for reducing garbage were limited to this example.

In today's Enviro[n]ment Club I learned that instead of creating garbage if we reuse lunch containers and water bottles their won't be any problem with recycling or garbage.

*(Ramia, Final Questionnaire)*

Throughout the program most participants focused on concrete/tangible ideas that they dealt with directly in their daily lives. Given the age of the participants, it is not surprising that they had difficulty focusing on abstract, global issues. Nevertheless, there were exceptions; two participants went beyond focusing on solely concrete and local and articulated a beginning understanding of a more global perspective of environmental issues. These two individuals (Kaydian and Thahani) also exhibited a stronger personal internal locus of control compared to their peers who were focused on internal group-oriented locus of control, if they exhibited any ownership/responsibility for change at all.

On the initial questionnaire, Kaydian's responses were very concrete and local: "I can change my actions by stop littering." However, by the end of the program Kaydian was demonstrating a more global outlook, in addition to recognizing internal individual and group locus of control. On the final questionnaire, Kaydian wrote:

I feel that the future of the environment will always stay the same. Many people don't reuse, reduce, recycle. We need to help other people to show the world. My actions affect the environment by being wasteful but now I know these things I will try to be different. I can change my actions by bringing a container, recycle and help change.

Thahani as well recognized group and personal locus of control. On her final

questionnaire she wrote:

I feel that if everybody pitches in and tries to help the environment it will be a better place in the future. I can depend on my self to make a difference in-stead of others. I learned that if everybody tries to help we could make a difference.

Internal locus of control involves an individual's perception that they can effectively bring about change through their actions. This would intuitively be necessary for individuals to undertake pro-environmental actions. An external locus of control is the belief that one's actions will not make a difference. Ramsey (1993) subdivided internal locus of control into individual and group-oriented locus of control to form a broader understanding of internal locus of control. Individual locus of control involves an individual's perception that their behaviour alone will bring about change. Group-oriented locus of control refers to an individual's perception of their ability to orchestrate change as a group member.

Most participants articulated group-oriented locus of control for environmental issues (if articulating any internal locus of control); this relates to Ramsey's (1993) research, which showed that grade eight participants had a stronger affinity to the group-oriented locus of control.

The two participants who did clearly exhibit an individual locus of control also recognized the role of a group in bringing about changes. Thus, a hypothesis is that children first believe only groups can make a difference, then they recognize their role in the group, and lastly they acknowledge their role outside the group; following this developmental process, is a dynamic interplay between individual internal locus of control and group-oriented internal locus of control. Selby (1996) contends that "we can move toward an understanding of parts only by taking into account the dynamics of the whole" (p.128). Therefore, environmental education programs need to create a context for the exploration of individual and group-oriented locus of control as they have synergistic effects once they are both recognized.

Participants varied from weak to strong internal locus of control. This finding emphasized the importance of environmental education programs being present all year long, through each grade, to foster and nurture this developmental and dynamic process. There is a need for every teacher in a child's life to build up their internal locus of control and cater programs to their current developmental status. Environmental education

programs are about planting seeds that need to be continuously watered and nourished.

In sum, what we wanted to accomplish was hindered by the developmental level of our participants who needed to focus on concrete and local ideas. There were several clashes between participants' and facilitators' ideas which may have hindered the effectiveness of the program. There was a clash with regards to the level and reasoning of the goal. Participants emphasized local (i.e. school yard) whereas we wanted participants to branch from the local to adopt a more global perspective. Furthermore, participants approached each activity from a very anthropocentric stance (what's best for humans, "clean" environment) versus a biocentric stance (the facilitators' goal).

Nevertheless, most participants did show an increased awareness of the role of reducing consumption with the creation of garbage problem. Participants spoke of recycling and using reusable containers versus simply throwing garbage in a garbage can. Furthermore, given the participants' age it's logical that they would conceptualize problems in concrete and local terms; this may be the first step in more global awareness as Kaydian and Thahani were both able to go beyond the concrete and local to reach significant depth in their understanding.

### **Anthropocentrism and a Utilitarian View of the Environment**

Participants demonstrated a *very* anthropocentric worldview with few exceptions. The participants did not discuss the environment concerning its impact on animals, plants, insects, etc., only with regards to humans. Italics were added in the following excerpts from participants' writings to illustrate the theme of anthropocentrism.

I feel nature is *helpful*. (*Ramia, Reflective Journal*)

If *we* didn't have the environment would *we* still be alive? If *we* had no soil *we* wouldn't be able to get food right? (*Kaydian, Reflective Journal*)

So now we know we should recical [recycle] and not waist [waste] food because hom[e]less *people* do not have homes or food or clothing.  
(*Carol, Reflective Journal*)

Comments on the questionnaires, in the reflective journals, and during sessions all revolved around participants' concern for themselves or other humans, never with regards to animals or plants. The environment was discussed in terms of its

utilitarian/instrumental functions. On day one, participants had to state their favourite animal and give a reason why they chose that animal. In researcher observations we noted that many of the animals were chosen because of their human use. Below is an excerpt from one researcher's reflections:

Lots of responses about liking animals for their use. I.e. Horseback riding, pets (my cat, my dog). Thahani commented that she liked parrots "because you can *train* them to talk any language". Responses were very human-centred and physically-oriented (the appearance of the animal- fur, etc.)

Anthropocentric attitudes were also present in the participants' view of the purpose of the environment.

I feel the environment is a very useful place for *activities and stuff to be done*.  
(Amanie, Initial Questionnaire)

I feel hope about the land being clean because if it's clean more *people* would want to go outside.  
(Sara, Final Questionnaire)

Thus, they clearly view the environment as an area for human use. The participants' goal of a clean environment is very anthropocentric. The participants spoke of their local environment as it affects them (local awareness). Often the environment was symbolized as a manicured area, like a park.

The activity that seemed to have the biggest impact (described in detail in most journals) revolved around resource allocation for humans (See the description of the cookie activity in Appendix A). Again the children were drawn to the impact on *humans*. They were very concerned with fairness for humans and expressed empathy for humans. Both fairness and empathy were only extended to humans - not animals or plants - except for one student.

I learned that animals are as important as humans. They both need food to eat, a home for shelter and many more things that will help them stay alive. Yes, my daily activities have changed because environment is like a person.  
(Kaydian, Reflective Journal)

Kaydian is recognizing her connection to animals and their intrinsic worth; further her conception of the environment is evolving - she now does not view the environment as a

place solely for human use but is beginning to understand it's alive and inextricably connected to both animals and humans. She is beginning to see the interconnectedness of the world, and subsequently the interconnections of oppressions.

The great majority of participants held deep anthropocentric worldviews which is not surprising given our society and an educational curriculum which bombard students with this perspective. It is important to note that to combat such an engrained view requires a more intensive and extensive intervention than this program.

### **Fairness of Resource Use and Empathy Amongst Humans**

An overwhelming emotional connection to fairness emerged during day three's cookie activity. The activity involved resource allocation and examined the inequalities that exist in the world. Thus we discussed the amount of food available in Canada versus a developing country and the wealth and food discrepancies within Canada, particularly Toronto. This activity was very salient for the participants.

I get so much to eat but they get nothing. *(Dana, Reflective Journal)*

I learned that it is sometimes difficult to share such a small thing amongst such a large group. So some people have to divide there [their] food for others and it is unfair for them. *(Sonia, Reflective Journal)*

I think that its unfair because come people are rich and get a lot of stuff and other people don't. We also learned that the land is unfair. *(Howaida, Reflective Journal)*

I learned that ther[e] a lot of homeless people all around the world. And that life is not fair. *(Thahani, Reflective Journal)*

Thus the participants really seemed drawn to the idea of fairness - wanting a solution to be "fair". An interesting conclusion from this study is that it is easier for pre-adolescent children to connect with humans than animals. However, research in the past has shown that it is easy for children to connect to animals and there are several possible reasons for this bond. Animals are non-judgmental and another possible point of connection is that both animals and children are oppressed by adult humans. The finding that the participants did not connect with animals may indicate a growing trend in our increasingly human-centred society. With the continuous growth of cities (the never

ending urban sprawl), cities are becoming more and more human-oriented, with less and less space for animals or nature; children are influenced by this and may be losing their inherent connection to animals (at least that which was perceived in the past). Thus, maybe urban children do more easily connect with humans (versus animals) as they have had significantly less exposure to animals (than humans) in their lives. The participants were able to empathize with strangers (homeless people, not just homeless children) and thus go beyond local and concrete with humans as the subject.

What is the relationship between fairness and empathy? Is it a continuum with fairness at one end and empathy at the other? All the participants expressed the idea of unfairness not being right however, only some showed empathy (put themselves in the position of others, expressed desire to share/change things, etc.). Lisa acknowledged unfairness but did not seem to demonstrate any empathy toward others.

I also learned that homeless people have no homes and has [have] less things and money. *(Lisa, Reflective Journal)*

Other participants seemed to bridge from fairness to empathy.

Also we learned about people all over the world including Tronto [Toronto] who die because of hungury [hunger]. They make me feel sad and mad at the same time. I feel sad because they don't get to eat. It makes me feel mad because I get so much to eat but they get nothing. *(Dana, Reflective Journal)*

Today in Environment Club I learned that we should also be caring for other people. When we get food and waist [waste] it, many people [could have] the leftovers. I also felt bad because when we were talking about homeless people because they don't get even sharings of food. We get everything while other people are suffering. We also have to remember all those people too. *(Kaydian, Reflective Journal)*

Thus, the activity, a simple division of a cookie unfairly among the participants, was quite moving for particular participants. They could not figure out a "fair" solution but had this desire/need for the situation to be "fair". The need for fairness - for the particular kind of fairness articulated - drives our school system and society, which focuses on equality more than equity. Further, this focus on rules and fairness corresponds to the developmental level of the participants in this study. According to stage theorists such as Piaget, children progress through stages as they interact with the world around them. When they are younger they focus on rules and need things to be fair

and later they reach more abstract reasoning and break free from the mould of discrete “right” or “wrong” answers and see the complexity of issues.

The solution for the inequities in the world offered by the participants involved equal sharing of what they were given versus giving up something. Giving “leftover food” to others was offered as a solution versus eating less (sacrificing). The needs of the participants were considered paramount, and they were willing to help/share *after*; there was no re-examination of personal needs/desires.

Most participants did not recognize their role as an oppressor; they did not agree that they contributed to others’ pain and existing environmental problems (except for litter on the ground).

I don’t do nothing [anything] bad to the homeless people or the poor people. The activit[ies] don’t make me change because I’m not bad, I’m nice.

*(Maher, Journal)*

The things that I learned in the club today made me feel proud because my family worked so hard to achieve their goals.

*(Lisa, Reflective Journal)*

Because oppressions intersect and have compounding effects children need to learn that their actions, and lack of actions, affect others; they need to develop empathy for not just humans but also animals and nature. Many participants were beginning to empathise with other humans because they realized some where oppressed by other humans- this realization needs to be strengthened and linked to other oppressions, such as the oppression of animals by humans. Developing empathy for humans may be encouraging the development of empathy for non-humans. Kaydian was able to empathize with both animals and humans.

There seemed to be a connection between the three themes. The participants who were exceptions in one theme were exceptions in many areas. That is, Thahani and Kaydian showed empathy with humans (did not solely focus on fairness); both recognized the need to go beyond recycling, both had high environmental awareness, wrote deeper reflections and exhibited a strong internal (individual and group) locus of control. Furthermore, Kaydian connected to animals. Thus these three themes intersect and cannot be fully understood without addressing the relationships between each of them (i.e. an anthropocentric view reinforces a local and concrete worldview and vice versa).

In sum, fostering an environmental ethic is a complex and dynamic process and the effectiveness of any given program cannot be fully measured due to the interconnected nature of reality and the inability to always see the seeds we planted germinate.

## **IMPLICATIONS FOR FUTURE PRACTICE**

The great majority of the participants in the Environment Club were English as a Second Language (ESL) students with a wide range of English proficiency. Although we tried to make all activities very visual (reducing the language necessary to understand the concepts), more accommodations could have been made. Our participants with limited English should have been given the opportunity to write their reflections in their native language. Until individuals develop a high level of proficiency in the English language (often taking five to seven years), all emotional content and reflection should be done in the individual's first language as this leads to further understanding and growth. If the goal is for the participants to internalize and reflect upon their learning then being able to freely express their ideas, rather being impeded by the language, is important.

Reflective journals were included in the design of this program to help participants consider what they had learned in the sessions and what their new understandings meant to them. It was our hope that through reflection participants would internalize their learning and develop more critical environmental awareness. While participants showed some depth of thought in their reflections it was not to the extent we had originally hoped. Part of the reason for this discrepancy was a lack of understanding of the participant's background in using reflection, and in environmental education. We assumed the participants had more experience with environmental issues and likely had more awareness before the program than they did, and had therefore anticipated an ability to more deeply reflect through relating new learning to past learning. The major area of learning for us as facilitators revolved around the best way to aid reflection. There was some group discussion each session where participants shared journal entries and spoke fairly deeply about issues but overall the reflective thinking was done individually. For participants of this age and stage we believe a group reflection model would be most beneficial. The groups should be small, and group building activities should be done to ensure everyone feels comfortable sharing. Participants would benefit from other's

comments, even if they listened without sharing as they would gain perspective and appreciate a greater depth of thought.

We were unsure about the balance between guiding and leading participants' reflection. It is likely that participants of this age needed more guidance than they were given. To share openly, an affirming environment must be present (Selby, 1996) which involves validating the responses of all participants. The participants would have likely reached a deeper level of understanding if we had provided more specific questions that guided their reflection towards the more global understanding that we sought. We could have provided participants with environmental problem-based situations to analyze their reaction and inspire reflection as well as providing more structured discussion to guide their reflections. We asked participants to consider what they had learned, and how it would change their actions, but perhaps they needed more structure each session about the specific issues we were discussing. This would have also aided a better connection between sessions, which was another aspect of the program that needs to be improved. Participants only had one hour a week and there was too much time in-between sessions to keep the program really cohesive. We would recommend having sessions more often.

In addition we would add more sessions because one of the biggest limiting factors of this program was a lack of time. The superficiality of many participant comments is a reflection of the lack of time we had to reach a lot of depth, especially given the participants age and the scaffolding required to help them grapple with complex issues.

The program needed to be revamped after assessing participants' prior knowledge and experiences. This would entail a much more extensive initial questionnaire. Many things that we considered "givens" were not. For instance, we assumed that recycling would be engrained in the participants (in thought and actions) as it had been when we were their age. Thus we came thinking we'd try and focus the children on reducing and reusing. However, we needed to address recycling in addition to reusing and reducing as the participants would throw paper in the garbage can!

More action-oriented activities could have been part of the program beyond putting posters up (i.e. share with various classes, parents, etc.). This would help foster internal locus of control which most participants did not demonstrate.

There were many positives to the program. Firstly, participants were really

excited; they had lots of energy and enthusiasm and loved coming to Environment Club. As facilitators, we served as role models of people who care about the environment (participants noticed and commented on our reusable lunches) which is important. During the program participants listened to many environmental issue-based stories. Story time was magical and reiterated to us the importance of literature being in child-based programming. Numerous participants wrote about the stories retelling portions they liked and talking about what it meant to them. The stories had a clear impact that we did not anticipate. The use of literature is an effective part of an environmental education program for children. They enjoy stories and have a great deal of experience listening to stories and doing the reading comprehension activities that help them to find the main ideas, so including stories with an environmental focus was a great part of this program. In a future program we would use more stories and use story to help the participants express what they have learned and how they feel. For example having participants write and illustrate their own story about an environmental issue would help them reflect on what they learned and help the facilitator understand what they have learned.

One of the largest strengths we saw in the implementation of the program was that it was cooperatively led by two facilitators. The advantages to this occurred at many levels. We both enjoyed working with a colleague and feel we really benefited from having the opportunity to debrief with each other. We motivated each other and fed off each other's energy. This is really important as many environmental initiatives end due to teacher burnout. Further, while doing our analysis of the program we each brought different ideas thus creating a more complete picture of the whole. Logistically, having two facilitators (as long as they get along and have the same goals) can be wonderful. If something little was left in another classroom, emergencies arise, or if one participant is acting up, there is another person around to help. Further, two facilitators allows for division into smaller groups (which we did occasionally); in general, the participants receive more feedback. Most importantly, cooperative co-facilitating shows participants the benefits of working with another person. They experience a leadership team versus a dictator and they get to hear multiple perspectives. And a good liberal education is about introducing participants to different perspectives. We think team teaching helps to foster a community atmosphere as the facilitators are helping each other and always taking the other into consideration.

This program proved to be a positive learning experience for both the participants and the facilitators. Participants' showed evidence of an increase in environmental awareness and regardless of any effect, they had positive experiences that involved thinking about important issues that are often not part of their regular classroom experience.

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## Appendix A: Pre and Post Program Questionnaires

### Get to know you Questionnaire

Please answer the following questions as honestly as possible. There are no right or wrong answers. We just want to get to know you better. Thanks!

**Circle** the answer that is closest to describing your beliefs or behaviour.

- |  |     |           |       |
|--|-----|-----------|-------|
| 1. I eat baked beans.                            | Yes | Sometimes | Never |
| 2. I do well in school.                          | Yes | Sometimes | Never |
| 3. I am confident.                               | Yes | Sometimes | Never |
| 4. I like to play soccer.                        | Yes | Sometimes | Never |
| 5. I like to play outside.                       | Yes | Sometimes | Never |
| 6. I recycle.                                    | Yes | Sometimes | Never |
| 7. At home we compost.                           | Yes | Sometimes | Never |
| 8. I like animals.                               | Yes | Sometimes | Never |
| 9. I like ice cream.                             | Yes | Sometimes | Never |
| 10. I like nature.                               | Yes | Sometimes | Never |
| 11. I like Art.                                  | Yes | Sometimes | Never |
| 12. I have a garden.                             | Yes | Sometimes | Never |
| 13. I feel good about myself.                    | Yes | Sometimes | Never |
| 14. I bring my lunch in<br>a reusable container. | Yes | Sometimes | Never |
| 15. I am excited about Grade 6.                  | Yes | Sometimes | No    |
| 16. I live in an apartment.                      | Yes | No        |       |

Do you have any allergies?

**Please take time to think about the following questions and answer them as best as you can.**

How do you feel about the future of the environment?

How do your actions affect the environment?

How can you change your actions?

Thanks for completing this questionnaire. See you Thursday at lunch!

## End of Program Questionnaire

Please answer the following questions as honestly as possible. There are no right or wrong answers. We just want to see how you felt about the program. Thanks!

**Circle** the answer that is closest to describing your beliefs or behaviour.

- |   |     |           |       |
|---|-----|-----------|-------|
| 1. I liked coming to Environment Club.        | Yes | Sometimes | Never |
| 2. I do well in school.                       | Yes | Sometimes | Never |
| 3. I am confident.                            | Yes | Sometimes | Never |
| 4. I like to play outside.                    | Yes | Sometimes | Never |
| 6. I recycle.                                 | Yes | Sometimes | Never |
| 7. At home we compost.                        | Yes | Sometimes | Never |
| 8. I like animals.                            | Yes | Sometimes | Never |
| 9. I liked the cookie activity on Day One.    | Yes | Sometimes | Never |
| 10. I like nature.                            | Yes | Sometimes | Never |
| 11. I like Pokemon.                           | Yes | Sometimes | Never |
| 12. I have a garden.                          | Yes | Sometimes | Never |
| 13. I feel good about myself.                 | Yes | Sometimes | Never |
| 14. I bring my lunch in a reusable container. | Yes | Sometimes | Never |
| 15. I am excited about Grade 6.               | Yes | Sometimes | No    |
| 16. I live in an apartment.                   | Yes | No        |       |

**Please take time to think about the following questions and answer them as best as you can.**

How do you feel about the future of the environment?

How do your actions affect the environment?

How can you change your actions?

What did you like best about Environment Club?

What did you didn't you like about Environment Club?

What did you learn?

*Thanks for completing this questionnaire and for your participation during the four weeks.*