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Values Orientation of an Environmental Education Centre: A Case Study

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Abstract

With ecological crises remaining at the forefront of public concern it is now more important than ever to develop connections between human beings and the natural world. Consequently, environmental education programs have included values in their objectives in an effort to stimulate appreciation for and dedication to maintaining the health of the planet.

This case study examines the values and values education approaches implicit in the Fort Whyte Centre for Environmental Education in Winnipeg, Manitoba. Based on the theoretical framework of both values education and environmental education, analysis revealed that embedded in the program are the values of respect, appreciation and care-taking. Furthermore, it indicates that early childhood experiences in nature are integral in sustained dedication to the environment. Finally, it was apparent that ingrained in the strategies employed by the facility are elements of values education models.

Outlining values in program objectives ensures that these beliefs are a central focus of the lessons. Concurrently, teacher training programs must directly teach values education approaches with reference to environmental education. Ecological dilemmas are moral-ethical issues and must be dealt with as such. By neglecting to adequately prepare instructors to deal with these issues programs cannot achieve their objectives. Environmental value systems cannot be developed unless programs are specifically designed to achieve this goal.

Sommaire

Puisque les crises écologiques se retrouvent régulièrement au premier plan des préoccupations publiques, il est plus important que jamais de développer les liens entre les humains et leur environnement naturel. C'est pourquoi les programmes d'éducation à l'environnement ont inclus dans leurs objectifs l'apprentissage de valeur afin de stimuler l'intérêt et la détermination à maintenir la santé de notre planète.

Cette étude de cas examine les valeurs et les approches didactiques implicites dans le programme du centre d'éducation sur l'environnement de Fort Whyte à Winnipeg au Manitoba. En utilisant à la fois la théorie de l'enseignement des valeurs et celle de l'éducation à l'environnement, l'analyse révèle que les valeurs de respect, appréciation et responsabilité sont imbriquées dans le programme. De plus on y constate que les contacts précoces avec le nature durant l'enfance sont essentiels à un engagement soutenu en faveur de l'environnement. Finalement, il appert que les stratégies du centre contiennent des éléments des modèles d'enseignement des valeurs.

Les programmes d'orientation qui visent à enseigner des valeurs spécifiques procurent une meilleur chance de rétention des leçons . De même les programmes de formation des enseignants en environnement devraient être axés sur les approches didactiques de l'enseignement des valeurs. Les dilemmes écologiques soulèvent des problèmes d'éthique et de morale et doivent être abordés sous cet angle. En outre, les étudiants ne peuvent développer des systèmes de valeurs reliées à l'environnement si les programmes d'enseignement ne contiennent pas cet objectif précis.

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Chapter 1

Introduction

1.0 Introduction

A stretch of highway slowly melts from skyscrapers and suburban communities to vast stretches of Manitoba prairie. The last remnant of city life fades as paved concrete with yellow painted lines blends into a dusty gravel road. The path weaves among farmers' fields eventually leading to the chain linked fence and stark white sign indicating the Fort Whyte Centre for Environmental Education. Marshes, forests, Canadian geese, muskrats, wood ducks, mallards and cattails reside in the two hundred-acre refuge. A twenty-minute drive from Winnipeg, the facility provides a haven for wildlife and city dwellers alike. Trails twist through wetlands, ponds, and woods, boardwalks stretch across swamps and docks grace the shores of the four small lakes. Wind rustles through the trembling aspen, Red winged blackbirds announce the arrival of spring, while frogs synchronise during their mating calls, and senses are refreshed with sounds and smells to replenish the spirit. "It is an experience to value" (Smyth, 1996, p.54).

The centre is a respite from the hustle and bustle of urban living while simultaneously offering opportunities to connect with the natural world. With ecological crises gracing the covers of newspaper headlines on a daily basis, efforts to improve relations between the environment and human beings are of utmost importance. Fort Whyte has managed to provide a sacred space for many species while concurrently educating about the ecosystem. The focus of this investigation is to determine the implicit values and utilization of values education approaches in the program offered at Fort Whyte.

1.1 Background

1.1.1 Personal Interest

The inception of this project has its roots in the forests of Manitoba and on the shores of West Hawk Lake where my summer vacations were spent as a child. Every year my Mom would pick my brother and me up on the last day of school and we would not return to the city until the day before classes began the following September. We would spend our summers at my family cottage, which was rustic to say the least. There were no telephone, television or microwave. I never seemed to notice the lack of the modern conveniences to which I had become accustomed in my urban environment. Some of my fondest memories are from the cottage where my brother and I would fill our days swimming in the lake, catching minnows, chasing frogs and building forts in the woods. Even the weather would not deter our explorations: rain seemed to transform the woods and make everything even more interesting.

These experiences gave me the opportunity to learn many valuable lessons. Nature provided an interactive learning environment in which I came to understand the vital interconnections of all living things. As John Muir (quoted in Adams, 1996) has so eloquently articulated on numerous occasions, "Here [in nature] without knowing it we still were at school; every wild lesson a love lesson, not whipped but charmed into us" (p. 147). Concepts that had been reviewed in science class slowly came to life. I observed frogs and minnows, birds and ladybugs all in their natural habitats. At the same time, I learned about respect, the value of inquisitiveness, co-operation, self-reliance and independent thought. Immersion in the natural world provided a live model of the life cycle. With the forest as a

playground, I had opportunities to develop complicated construction plans for forts and secret hideouts.

As I progressed through my Bachelor of Education program at university, the lessons learned as a youngster at the lake surfaced once again on two different levels. Firstly, I became increasingly aware of environmental problems such as ozone depletion, global warming, and increases in animal and plant extinction. Reading and researching issues related to the environment became a personal hobby and it slowly became apparent that there was a gorge between the natural world and the sterile habitats of human beings. As a child I had seen, and understood that all components of nature are interconnected. More importantly, we as human beings rely on the health of the ecosystem more than they count on us. As David Suzuki (1996) points out,

> "If human beings suddenly vanished overnight, except for a few human-specific species of parasites, other life forms would hardly register the loss, although the condition of many would improve markedly. Yet, if all insects disappeared, life on the planet as we know it would be totally transformed" (Milbrath, 1996, Forward).

It occurred to me that if opportunities were devised to immerse youngsters in nature, as I had experienced as a child, they could blossom into adults who were conscious of the impact of their actions on the planetary ecosystem. Children must be taught to treat nature with respect, not only because of our dependence on it as illustrated by Suzuki, but also because it is our responsibility as an adaptable species. All other animals are not as flexible as we are in terms of their ability to change habitats. Therefore, it is essential that we preserve and maintain their homes.

Concurrently, it was also becoming apparent that children were even farther removed from nature than I could have ever

imagined. During my student teaching placement I discovered that the closest my students got to wilderness was their local manicured park. The schoolyard was their only other contact with the natural world, but it consisted mainly of concrete and mud. When insects were found outside they were either crushed or caught in glass jars. It was not a pleasant prospect for the creature and spoke volumes about the way in which these children perceived the natural world; it was theirs for the taking to do with as they wished. David Suzuki proved to be an excellent source for both information and insight into this topic. In an interview recorded in Rescue the Earth! (1990), by Farley Mowat, he describes the evolution of separations from nature and of their grave implications.

> If you look at a very young infant and show it a butterfly or flower or spider or snake or slug for the first time, you will not see revulsion or fear, you will always see instant fascination. I think that's genetic. It's a built-in interest in others... it's almost as if infants have no sense of separation between [humans] and other animals...if you take a six or seven-year-old city child and dip into an aquarium and pull out a salamander and offer it to him [or her], you will see the child recoil in fear or disgust. I find it difficult to reconcile that reaction with the reaction of an infant. What's happened in the interim? They have been taught that nature is dirty, disgusting or dangerous; that nature is an enemy. If mummy or daddy find a cockroach in the kitchen sink, or a mosquito or ant or housefly or mouse in the house, or slugs in the garden, they march out with an arsenal of chemical weapons and do war with nature. The message is very clear - mummy and daddy hate nature. I think once you teach children that, then as adults they feel they should pound nature into submission and make it over the way they want (p. 185-186).

The more time I spent teaching, the more I realized that Suzuki's example was disturbingly accurate. Children were detached from nature, some are frightened of living creatures, and disrespectful of

the few plants and insects that inhabited the school ground. These observations evoked a sense of sadness and I felt that these behaviours needed to change. They are not inherent in youngsters but are learned. It is therefore possible to help children maintain their innate appreciation for the other living creatures of the earth.

This realisation led to an initial interest in environmental education. It subsequently became clear that in the objectives and delivery of these programs are values. They are embedded in the nature and definition of environmental education and an exploration of their role in a program such as the one established by Fort Whyte evoked both personal and professional interest.

Prior to embarking on an in-depth analysis of these issues it is essential to build an information base. A concise review of instrumental terms and concepts is fundamental to facilitate understanding of the study.

1.1.2 Definition of Education

This research endeavour is concerned with the education of elementary school students at an environmental facility. Therefore it is necessary to be clear about what is meant by education. For the purpose of this exploration it will be understood as,

> "The work of supplying the conditions which will enable the psychological functions to mature in the freest and fullest manner" (Dewey quoted in Kohlberg, 1975, p. 226).

Education is the process of facilitating the emotional, intellectual and spiritual growth of students by presenting ideas and concepts that elicit contemplation and investigation eventually leading to competency in personal judgements. Learning occurs on a continual basis in which a sharing of knowledge transpires. Lessons are not isolated to structured educational environments. They transpire on a continual basis in a variety of settings and with multiple individuals. In addition, "The goal (of education)

should be toward information that is educational, which leads to critical knowledge, which implies the technical domain as well as political reflection" (Freire, 1996, p. 100). It is insufficient to simply relay facts and information. Education, in this study, also refers to the development of critical thought and complete comprehension.

1.1.3 Definition of Environmental Education

Environmental education is a holistic approach to studying the environment and the interrelationships that exist between species and habitats. This includes connections between cities and jungles, human beings and fireflies, wildflowers and cattails. The North American Association of Environmental Education (NAAEE) and UNESCO define it as,

> "The process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among human beings, their culture, and their biophysical surroundings. Environmental education also entails practice in decision making and self-formulation of a code of behaviour about issues concerning environmental quality" (UNESCO, 1977, p. 25).

It is anticipated that by engaging in lessons and discussions of this nature, students will not only learn to maintain the health of the planet, they will hopefully develop a sense of responsibility for its welfare. As John Smyth (1996) states, "Education is meant to give people the best possible chances to develop as environmental citizens, armed with knowledge and understanding and practised in applying them to real situations" (p. 64). Environmental education seeks to develop an interest and appreciation for the ecosystem. At the same time, it is designed to stimulate behaviour that will benefit all forms of life.

1.1.4 Definition of Values

A value is a difficult concept to define, as it is a personal notion that guides preferences, opinions and choices. As Rokeach (1973) asserts,

> "To say that a person has a value is to say that he [or she] has an enduring prescriptive or proscriptive belief that a specific mode of behaviour or end-state of existence is preferred to an opposite mode of behaviour or end-state. This belief transcends attitudes toward objects and toward situations; it is a standard that guides and determines action, attitudes toward objects and situations, ideology, presentations of self to others, evaluations, judgements, justifications, comparisons of self with others, and attempts to influence others" (p. 25).

Values are the beliefs we maintain as individuals, they are apparent in the decisions we make, the manner in which we present ourselves to others and the situations we approve or disapprove of. However, values are not constant throughout our lives. As Smyth (1996) describes,

> "Values thus act as part of a filter for new experience, and guide its interpretation. Personal values develop an organic quality by which old values and new are blended into an ostensibly self-consistent (if irrational) system"(p. 57).

New experiences and concepts that are presented to us on a daily basis continually adjust values. As a unit they integrate into our value systems that help us to navigate through life. It should also be noted that for the purposes of this paper values and beliefs will be used interchangeably.

1.1.5 Definition of Values Education

Values education entails instruction designed to specifically teach values. There are several approaches proposed by the field that will be discussed in greater detail in Chapter 2. However, it is helpful to begin with a concise definition. Values education is the

> "promotion and development of values in the context of education as a lifelong process to help individuals develop as responsible and caring persons and live as participating members of a pluralist society" (Taylor, 1995, p. 24).

Courses are constructed to assist in value development by engaging in lessons that emphasize decision-making processes. Each typology advocates different methods and activities, but all are focused on the goal of value construction.

1.2 Objectives and Rationale for the Study

Original environmental education curricula, developed in the 1960s when ecological degradation became public knowledge, concentrated on increasing awareness of the central issues regarding these problems. According to Hungerford and Volk (1990), this was based on the "assumption that if people are aware of the environment and its problems they will be motivated to act in a more environmentally responsible way" (p.9). The intentions of initial programs were commendable but did not achieve the anticipated results. Simply providing information does not foster a dedication to improving environmental disasters. Consequently, ecological destruction continues and environmental education has shifted its focus.

The current definition of environmental education includes values. The rationale behind this adjustment is that positive ecological change can only occur when these issues are integrated into personal belief systems. Stanley Cummings (1974), an environmental educator, has expressed the justification for this addition. He maintains that "valuing is the link between thinking and action" (p. 18). Previous programs focused solely on the scientific aspects of environmental problems and therefore failed to provide learners with the necessary motivation to act on their

concerns. The integration of values assists learners in the development of belief systems with regard to environmental issues.

This research endeavour is designed to identify the values and values education approaches in an established environmental education centre. The purpose of this study is not to evaluate the effectiveness of the program in place; it seeks to discern the various beliefs ingrained in the facility and approaches they employ. There are a number of reasons for embarking on an investigation of this nature. Firstly, though values are stated in the definition of environmental education proposed by UNESCO and the NAAEE, they have not been clearly identified. By not designating the specific values to be taught considerable latitude has been left up to the discretion of individual programs and facilities. Therefore, it is possible that this research may reveal that the environmental education program at Fort Whyte has neglected to integrate values into their lessons. Secondly, as Lamb (1975) explains, in order to identify solutions to the problems afflicting the ecosystem it is essential to incorporate values into environmental education. He argues,

> "If environmental educators want to help their pupils develop an environmentally sound value system, they must orientate their teaching toward such a value system" (p. 14).

Ecological advancement will only become a reality when programs and facilities focus specifically on teaching values.

Further justifications for a study of this nature will be discussed in Chapter Two after a presentation of the literature and research on this topic.

1.2.1 Research Questions

The present study is an enquiry into the values orientation of the Fort Whyte Centre for Environmental Education. To undertake such an enquiry, the following research questions were formulated to guide the investigation.

1. What models of values education are reflected in the educational material used by the Centre?

2. Are there any specific external value influences on the Centre, for instance ones related to provincial or environmental funding bodies?

3. What are the value orientations of the Centre's administration personnel and what are their perceptions of the philosophy of the Centre's work?

4. How much are the teachers aware of the values that their environmental education programs are teaching?

5. How do teachers and administrators believe they were influenced in terms of their approaches to environmental education?

6. How much are the staff in accord with the administrative orientation of the Centre and how much have they brought their own orientation?

1.3 Profile of the Fort Whyte Centre for Environmental Education

1.3.1 Description of the Facility

The Fort Whyte Centre for Environmental Education is located on 200 acres of land just outside the city limits of Winnipeg, Manitoba. It is home to a variety of plants and animals native to the region including Canadian geese, white tailed deer, muskrats, ground squirrels, frogs and an assortment of ducks, just to mention a few. Wildlife flock to the area as their options for residences continues to decrease with the persistent development of golf courses, suburban communities and shopping malls.

Embedded within the area are two kilometres of trails that wind through waterfowl gardens, bird and deer feeding stations, lakes, wetlands and forests. It is hard to believe that a place, which is now a natural habitat with an abundance of life, was once a barren cement pit. The donation of the land, in 1966, to the Fort Whyte Foundation by LaFarge Limited dramatically changed the future of the site (See Appendix A).

In the early 1970s when the centre began to offer guided tours they did not anticipate the wide spread public response. Their original projections greatly underestimated both the need for and interest in this type of facility. By 1983, annual attendance had risen to 10, 000 and consequently a new interpretative centre was designed and constructed. It was created applying environmentally friendly components. For example, the majority of the windows are located along the south side to optimize the light source thereby reducing the amount of artificial illumination required. To further reduce the energy consumption of the building, the lights in the vestibule and coatroom are activated by body heat. An indoor pond has been built to house ducks that reside at the facility year round. They can be viewed through a one-way glass to ensure the birds are not significantly disturbed. These are some of the elements of the centre that combine to provide an excellent environment in which to enjoy, appreciate and learn about nature.

The building itself is divided into numerous sections each designed with a specific purpose. The main auditorium has room for a large overhead screen for films or slides and is carpeted so that children can sit on the floor. Corporations have sponsored various sections of the complex such as the touch museum, energy museum, winter waterfowl room and an aquarium for native Manitoban fish. There is a smaller teaching area with rising

benches as well as an ant farm. There is a library, which contains an extensive collection of books and journals pertaining to prairie wildlife, accessible to those who join Fort Whyte as annual members (See Appendices B).

1.3.2 Mandate of the Centre

When the centre was established by the Fort Whyte Foundation in 1974 its mandate was articulated as "Education in the art and science of keeping this planet habitable for all forms of life" (D7-1). Since that time the facility has remained dedicated to this objective by developing programs for elementary and high school students, groups of scouts and girl guides, as well as accommodating birthday parties. Sundays are allocated as days for public tours and lectures with specific themes such as *Introduction to Birding, Backyards for Life* and *Paddling Pursuits.* The Centre has also realised the potential impact of out-reach services. One such example is their water education program for grades 5 through 8 titled *Slow the Flow.* Classroom teachers attend a workshop in their schools, or at Fort Whyte, and are given all the materials and information necessary to implement the lessons in their classes. The co-ordinator of the program also visits the schools to help with the activities and experiments.

This dedication to education is not limited to children. A new project was initiated in the Spring of 1998 called *Winnipeg Wild.* It is an attempt to educate and prompt residents of Winnipeg to bring biodiversity into their back yards, school grounds, boulevards and industrial sites. Graham Wren (1998), editor of the Fort Whyte publication "Branta", writes that the goal is to "transform [our] green-spaces into biologically diverse and healthy urban habitats"(p. 2). The centre offers workshops and resources to interested individuals and organizations in an effort to ensure that wildlife has a place to grow and live within the city.

1.3.3 Sources of Revenue

The centre is a privately operated, non-profit facility that receives its funding from numerous sources. Approximately 34 per cent of their annual revenues come from donations or sponsorships. These are either from individuals or foundations that are not publicly funded by governmental organizations. An additional 14 per cent of their income is from public sector grants, from sources such as the City of Winnipeg, Environment Canada or the Province of Manitoba. For example, on June 17, 1998 the Canada-Manitoba Infrastructure Works Agreement announced that Fort Whyte would receive $150, 000 to improve its floating boardwalk. "The funds will be used to repair last spring's extensive flood damage to the boardwalk system. It will also be used to expand the physical access for visitors studying wildlife at the centre" (Manitoba Government News Release Web Site, 1998). It should also be mentioned that the centre also views any money donated for a specific project as a grant. For instance, the touch museum is currently under renovation as a result of money donated by a company that will have its name associated with that section of the centre. Another illustration of a grant is a program initiated by a company who pays for 800 children a year to visit the facility. The enterprise selects the schools and Fort Whyte arranges the particulars regarding their tour. Admissions to Fort Whyte account for 25 per cent of their earnings and family or individual memberships make up 10 per cent. Their remaining revenue is comprised of sales from their boutique, special event fundraisers such as raffles and endowment income (See Appendix C).

1.3.4 Staff and Volunteers

The Fort Whyte staff consists of 14 full time and 12 part time positions (See Appendix D). Six of the full time employees

comprise the education department. Members of the education staff dedicate fifty percent of their time to their specific responsibilities and the rest to working as *interpreters*. *Interpreter* is the title selected by Fort Whyte for their tour guides. On any given program the leader is either a paid employee or a volunteer.

Individuals interested in volunteering at the centre are invited to an information session to determine if the activities involved match their interests and availability. They then submit to the volunteer co-ordinator an application form outlining their previous experience, both employment and volunteer. They are also required to provide two references. All who are interested in working at the centre are found a position, but it may not always be the particular post they applied for.

Those selected to work as interpreters have a background in teaching as well as some scientific knowledge as it relates to the environment. With the changing of the seasons, staff and volunteers participate in training sessions to review the integral components and activities of the educational programs at the Centre. These workshops also provide an opportunity to discuss the appropriateness of the proposed activities to the learning styles of the children who will participate in the various lessons.

Outlines, detailed descriptions and additional background information are distributed. During the training sessions the program is presented to the interpreters as if they were the students. In this way they are able to ask questions and comment as issues and scenarios arise. Throughout the exercise the participants are encouraged to consider the needs of the children in order to create an optimal learning environment. The Centre strives to ensure that volunteer interpreters have all the information and materials necessary to provide an excellent program to the classes who visit.

1.3.5 Programs

The programs developed by Fort Whyte are age appropriate and organized by grade level (See Appendix E). Considerable emphasis is placed on developing lessons that are effectively related to the Manitoba curriculum guides. The Centre recognizes the limited time and resources of teachers and has consequently ensured that the programs are as accessible as possible. At the same time, Fort Whyte takes into account the valuable insights teachers have to offer and requests that participating educators fill in feedback sheets to comment on the programs as well as on the individual tour guide (See Appendix F). These suggestions play a vital role in the development of the programs. In recent years teachers have been requesting more "hands-on" activities, programs have consequently been adjusted to meet this demand.

The programs change with the seasons to provide children with opportunities to explore the concepts covered in the natural environment. Tours begin in the parking lot where the children are divided into groups. There are never more than fifteen children per Fort Whyte interpreter. Visiting classes are also requested to ensure that either a teacher or volunteer parent accompanies each group to handle any behaviour or discipline problems. The children then proceed inside the centre with their interpreter. Every program begins with an overview of the main concepts of the lesson. These are introduced with visual representations, such as a mounted animal or a picture drawn on an erasable board. In this way the students are active participants in the learning process from the outset. The group is then led outdoors to interact with nature and to participate in activities designed to focus upon pivotal concepts of the program. Finally, they return to the interpretative building to "wrap up" their session so that connections can be made between the experiences gained in the

Centre and the everyday lives of the students. The goal is to encourage the students to make a commitment to improving the environment by applying the principles learned to their own personal surroundings.

1.4 Organization of the Thesis

The preceding highlights the terminology and site that will be referred to in the following review of an environmental education program. To facilitate this discussion the document has been organized in the following manner:

- Chapter 2 outlines the main elements of the literature pertaining to values education and environmental education thereby establishing a theoretical framework.

- Chapter 3 describes the methodology employed in the investigation of the Fort Whyte Centre for Environmental Education.

- Chapter 4 discusses the results of this study. It employs the framework introduced in Chapter 2 to illustrate the evidence of values and values education approaches in the program at Fort Whyte.

- Chapter 5 provides answers to the questions that fuelled this exploration as well as proposing implications for education and suggestions for future researchers in this field.

Chapter 2

Background Literature for the Study of Values Education and Environmental Education

2.0 Introduction

To ensure a clear understanding of the values and values education approaches implicit at the Fort Whyte Centre, it is essential to present the research and literature related to this topic. Discussion of values education, environmental education and the existing relationship between the two will provide the necessary background information. There are six main values education models that will be described by highlighting their philosophical foundations and teaching methods. Exploration of these approaches will be conducted in a chronological order as they evolved with the field of values education. This will establish a theoretical framework that will provide a base for data analysis. The chapter concludes with a brief summary of previous research studies that justifies a more extensive review of the role of values in environmental education.

2.1 Values Education

Embodied in education, regardless of the philosophical approaches advocated by a specific school or learning centre, are values. In many instances both teachers and administrators are not conscious of the beliefs they transmit to students on a daily basis. The manner in which desks are arranged, questions are asked or answered and homework is assigned all translate into values that students assimilate into their personal code of conduct. The unconscious "delivery" of values is potentially problematic but with a degree of awareness can be rectified. As Michael Silver (1976) articulates in his book Values Education, it is imperative

that all educators be aware of their own personal value perspectives. He writes;

> "The question for educators to think about is whether they want values to develop haphazardly in students without any conscious and specific involvement on our part, or whether they intend to help students explore and come to some well-substantiated conclusions about values. The purpose of schooling is to broaden and enrich the minds and hearts of students so that they can shape their own values and arrive at their own judgements." (p. 12).

Awareness of personal values can assist educators in ensuring that they are comfortable with the beliefs they are sharing with their students. Cognisance of their beliefs will encourage them to implement precautions to ensure that lessons and activities are appropriate and coincide with the agreed upon values of the facility, school or community.

Values have always been embedded in educational programs. Values education has roots in North American schools dating back to the 1800s. According to Lickona (1993) initial approaches "tackled [values] head on – through discipline, the teacher's example, and the daily school curriculum. The Bible was the public school's sourcebook for both moral and religious instruction" (p. 6). By indoctrinating specific values held by the community, this technique served as a means to mould children into responsible and respectable citizens. The beginning of the twentieth century brought with it a radical educator named John Dewey who advocated a humanistic and experiential approach to education. He claims that values are formed through a "dynamic process of social problem solving rather than a set of inert ideas or habits" (Hersh, Miller and Fielding, 1980, p. 14). Students, he maintains, must be active participants in the learning process thereby allowing them to engage their reasoning abilities in

problem resolution. The turbulent 1960s and 1970s brought radical transformations to values education. As Kirschenbaum (1992) writes,

> "Traditional roles and values were seriously questioned – and in many cases rejected – by the younger generation. The status of blacks, women, students, and other minorities changed dramatically, in one of the fastest social revolutions in human history. As might be expected, values education began to reflect these changes in society" (p. 772).

Models of values education developed during this period are concerned with teaching students to carefully consider the issues related to value questions. These approaches discourage indoctrination and require freedom for students to form their own opinions.

The various values education methods that emerged reflect specific objectives and instructional strategies and represent a wide range of ideologies and perspectives. All, however, are concerned with assisting students to establish sound value systems. Though there has been significant change within the field over the last thirty years, for the purpose of this study it will be sufficient to review the models that are active at the present time.

2.1.1 Inculcation

Rationale and Purpose

Inculcation is the oldest and most extensively applied approach to values education, though often unconsciously engaged. Condemnation for talking out of turn and praise for sharing are both examples of this method. As Rokeach (1975) asserts, inculcation is the "kind of values education that pervades all educational subject matter"(p. 121). Children are expected to assume particular values that are relayed through the educational process. Students are not granted the freedom to select personal values and opinions. Lessons are void of activities to develop

reasoning abilities regarding ethical dilemmas. Students are expected to assume values because authority figures have deemed them appropriate. Knapp (1983) provides a concise description of inculcation; "[it] is a process in which students are asked to accept particular values by reasons of authority and tradition" (p. 23). The main objective is to instill in children values that are considered desirable. This approach seeks to ensure that students are socialised to accept the standards of behaviour established by their community and culture.

Teaching Methods

Inculcation relies mainly on lecturing, reinforcement and modelling to teach values. In many instances the "teacher simply tells the learner what is good or bad, or what is right or wrong" (Heimlich and Harako, 1994, p.27). Students are expected to assimilate the values and opinions presented by the teacher into their value systems because of tradition. The reinforcement process is achieved through praise and encouragement or punishment and condemnation. These may take the form of tangible rewards or positive and negative comments. The other widely applied technique is modelling in which the teacher personifies the values to be instilled into the students or identifies and upholds an individual who espouses those particular traits. Research has indicated that a combination of reinforcement and modelling is the most effective means of inculcating values (Superka, Ahrens, Hedstrom and Ford, 1978, p. 8).

2.1.2 Action Learning

Rational and Purpose

Action Learning emerged from the educational philosophy of John Dewey (1938) who maintains that education be based on experience. He argues that "it is a sound educational principle that students should be introduced to scientific subject-matter and

be initiated into its facts and laws through acquaintance with everyday social applications" (p. 80). The application of this philosophy in values education results in a method that advocates immersing students in situations that provide opportunities to act in accordance with their values. Participating in community projects compels students to consider their value choices. These interactions require students to make conscious decisions regarding their beliefs while at the same time putting these ideals into operation. As a consequence, they experience first-hand the effects of their choices. In this way they have the occasion to recognize that value dilemmas are not always as manageable as they are presented in textbook exercises and classroom discussions. It is essential to acknowledge that these connections are not always visible to the students. Consequently, "A thorough post-activity discussion is essential to creating realisations from the implicit nature of moral involvement through the action learning experience"(Caduto, 1983, p. 17). The teacher must ensure that students have ample opportunity to discuss their project and to justify their selected course of action. These aspects of the approach encourage students to articulate and act in accordance with their value systems. It follows with the notion advocated by David Suzuki as quoted in Rescue the Earth! (Mowat, 1990), "I think I define what I am and who I am and what my values are by what I do" (p. 181).

Teaching Methods

The teaching methods are apparent in the above description of the objectives of action learning. As Knapp (1983) asserts, "this approach emphasizes out-of-classroom and community-based learning"(p. 24). Students also engage in activities to develop their interpersonal relations and group organization skills. Techniques

pertaining to the mobilization of community projects are necessary for the success of programs of this nature.

2.1.3 Behaviour Modification

Rational and Purpose

Many educators overtly detest the method of behaviour modification. It is, however, implicit in the organization and operation of the majority of classrooms. Developed from the work of B.F. Skinner, a psychologist working in the field of behaviourism in the 1950s, behaviour modification proposes that providing external reinforcements, either positive or negative, alters behaviour (Hunt, 1993, p. 271). In terms of values education, Caduto (1983) states that "This theory assumes that attitudinal and valuational changes follow changes in behaviour"(p. 19). It is anticipated that children will develop value patterns that the teacher has identified as desirable. They are encouraged to act and think in specific manners. Hopefully all educators are aware of the presence of values in the classroom as "the environment the teacher creates is influential in the values children will eventually embrace" (Silver, 1976, p. 25).

Teaching Methods

Behaviour modification employs positive and negative reinforcements to alter conduct. In educational settings teachers may provide tangible rewards for appropriate behaviour. As Hunt (1993) argues, educators can increase the frequency of behaviours by positively reinforcing them when they occur (p. 273). By encouraging desired behaviours in this manner teachers have the opportunity to mould not only the actions of students but also their value systems.

2.1.4 Values Clarification

Rational and Purpose

Values clarification emerged during the 1970s, along with values analysis and moral development from the humanistic education movement. In maintaining its roots it places the student at the centre of its focus. It advocates the awareness of personal values, interconnections between ethical concerns, the sharing of values and the behaviour that coincides with established personal standards. The method strives to provide students with opportunities to develop the skills necessary to make decisions of this nature. According to Superka et al. (1976) students must work through a series of processes before they can accurately determine their value stance on a particular issue (p. 36). They must have the convenience to choose freely from alternatives and be provided with ample time to consider all options. The learner must also be encouraged to take pride in their opinion and be willing to publicly articulate and discuss their viewpoint. Ultimately, students are expected to behave in a manner that coincides with their value system and should do so on a regular basis. According to Miles (1977),

> "The approach involves no normative judgement of right or wrong, or good or bad, but gives students insight into difficult value issues before them, into their personal position on the issues, and gives practice in the process of perceiving and evaluating alternatives. Thus, they gain skill in decision making which is essential to working on problems of all kinds" (p. 9).

It engages students in the decision-making process thereby providing assistance in formulating personal values. The teacher does not lecture or preach, but rather acts as a guide to facilitating the development of rational problem solving procedures with

regard to value dilemmas. As Raths, Harmin and Simon (1976) emphasize, of central importance to the approach is that "the alternatives have meaning for them [the students]. When we are concerned with values we must be willing to give the child the freedom to choose ... a coerced choice is no choice at all" (p. 205).

Teaching Methods

The values clarification model suggests a wide range of teaching methods. A number of the proposed techniques are also employed by other approaches. In values education activities are specifically directed at assisting the learner in the development of an individual value system. Alexander Frazier (1980) outlines suggestions for teachers wishing to engage in values clarification activities. He writes,

> "Teachers may want to prepare study materials that pose problems related to such value-laden topics as money, friendship, leisure, politics, religion, and morals. Role playing, making reports, being interviewed, and taking part in action projects are other useful activities for focusing attention on values" (p. 15).

By providing opportunities to interact with topics and issues related to value questions, students are able to consider their own opinions and beliefs. In addition to the exercises outlined above, Raths, Harmin and Simon (1976) suggest that "the most flexible of the value clarifying strategies is called the clarifying response. It is a response a teacher makes to something a student has said or done when the purpose is to encourage that student to so some extra thinking" (p. 208). The subsequent chart is an outline of the fundamental elements of this technique.

Table 1
The Effective Clarifying Response

1. The clarifying response avoids moralizing, criticizing, giving values, or evaluating. The adult excludes all hints of *good* or *right* or *acceptability*, or their opposites in such responses.
2. It puts the responsibility on the students to look at their behaviour or ideas and to think and decide for themselves what it is *they* want.
3. A clarifying response also entertains the possibility that the student will *not* look or decide or think. It is permissive and stimulating, but not insistent. The student will often be expected to decline to answer when asked clarifying questions.
4. It does not try to do big things with its small comments. It works more at stimulating thought related to what a person does or says. It aims at setting a mood. Each clarifying response is only one of many; the effect is cumulative.
5. Clarifying responses are not used for interview purposes. The goal is not to obtain data, but to help students clarify their own ideas and lives if they want to do so.
6. Usually an extended discussion does not result. The purpose is for the student to think, and this is usually done best alone, without the temptation to justify thoughts to an adult.
7. Clarifying responses are often for individuals. An issue that is of general concern, of course, may warrant a general clarifying response – say to the whole class – but even here the *individual* must ultimately do the reflecting. Values are personal things. The teacher often responds to one individual, although others may be listening.
8. The teacher does not respond to everything everyone says or does in a classroom. There are other responsibilities, for instance clarifying for those students who need it the most.
9. Clarifying responses operate in situations where there are no *right* answers – as in situations involving feelings, attitudes, beliefs, or purposes. They are *not* appropriate for drawing a student toward a predetermined answer.
10. Clarifying responses are not mechanical things that carefully follow a formula. They must be used creatively and with insight, but with their purpose in mind. When a response helps a student to clarify thinking or behaviour, it is considered effective.

From: Raths, Harmin and Simon, 1976, p. 198.

Responding to questions and comments in this manner encourages students to consider and question their value positions.

2.1.5 Values Analysis

Rational and Purpose

Values analysis was developed in the 1970s when social scientists were striving to gain recognition from the scientific community. Emerging from this context, values analysis encourages students to tackle moral and ethical dilemmas with

logical thinking and scientific investigation procedures. Ronald Harshman (1978) describes the approach well when he writes,

> "The objective of value analysis is making or judging policy decisions through application of processes of reasoning or rational judgement. Defining, collecting facts, judging the truth of facts to the individual, and testing the acceptability of value rules are the primary processes emphasised" (p. 31).

This model is concerned with developing skills for students to apply when faced with value questions or issues. It maintains that ethical dilemmas should be approached with systematic, scientific procedures.

Teaching Methods

This approach is implemented by presenting the learners with an ethical dilemma and then engaging in a rational discussion of the issues. Problems are explored either individually or in group interactions and frequently focus on social value predicaments. Harshman (1978) outlines the following steps taught by the values analysis approach.

1. Identifying and clarifying the value question.
2. Gathering and organizing the facts or statements claimed to be facts.
3. Assessing the truth of purported facts.
4. Clarifying the relevance of the facts to the value question.
5. Arriving at a tentative value decision or solution.
6. Deciding if the possible solution or decision is acceptable to the individual or individuals making the decision (p. 31).

All ethical questions and controversies are dealt with in a logical and rational manner by employing debates, demanding evidence and engaging in discussions.

2.1.6 Moral Development

Rationale and Purpose:

The moral development approach to the teaching of values is based on work conducted by Lawrence Kohlberg in the 1970s. He

maintains that moral reasoning is comparable to the stage-like process of physical and psychological development. Clifford Knapp (1983) describes moral development as an "approach built upon the identification of a universal and sequential stage development of values and is designed to lead students to progressively more complex and higher levels of moral reasoning" (p. 23). Consider how infants typically learn to walk. They begin by holding their parents' hands while their legs are manipulated, slowly they manoeuvre themselves by walking along pieces of furniture holding on to stabilize themselves. Eventually, unsteadily but independently, they are able to take two or three steps from one adult to another. Parents slowly widen the gap encouraging the child to move longer distances. This is a metaphor for the moral development approach. Teachers introduce moral dilemmas that are discussed in group settings. The instructor poses questions and presents issues that compel the students to advance their thinking to higher levels of reasoning. This interaction of ideas is similar to the parents who expand the space for their baby to walk.

Kohlberg developed a series of stages of moral development, which expands on the work of Jean Piaget. He maintains that with physical and intellectual growth children pass through various levels of moral reasoning. Exposure to individuals with higher reasoning capabilities helps students to question and justify their own opinions. Children can and will adjust their reasoning patterns. The concepts and ideas proposed in lessons are typically above the current analytical abilities of the class. Learners are continually encouraged to stretch their thought processes to formulate conclusions. According to Kohlberg (1975) there are conditions critical to the process of learning to value. Teachers must organize activities and discussions that include the following elements,

- Exposure to the next stage of reasoning.
- Exposure to situations posing problems and contradictions for the child's current moral structure, leading to dissatisfaction with his [or her] current level.
- An atmosphere of interchange and dialogue combining the first two conditions, in which conflicting moral views are compared in an open manner (p. 238).

Advancement is not only a result of the guidance of the educator. Interaction with peers who have achieved a higher reasoning stage also facilitates the process. As Alexander Frazier (1980) states, "children move from one level to another in both moral judgement and moral reasoning as their experience broadens" (p. 12). A variety of situations, settings and perspectives are essential elements of the moral development model of values education.

Teaching Methods

One of the most common activities employed is the moral dilemma and discussion approach. Students are provided a topic, either factual or hypothetical, to debate. During the group portion of the lesson they interact with one another and are required to explain and defend their opinions. As Superka et al. (1976) comment "moral development urges students to discuss the reasons for their value choices and positions, not merely to share with others, but to foster change in the stages of reasoning of students" (p. 9). Discussion of the rationale guiding their positions introduces learners to alternate models of reasoning. This is intended to prompt students to reconsider their opinions. At the same time, these descriptions serve as models for their classmates. By sharing the logical progression of the development of their value decision, other students are motivated to reconsider their own perspectives. This, according to Kohlberg (1975), is an essential element of the approach as it exposes children to reasoning levels

above their own and thereby encourages movement through the stages.

Conclusion of Values Education Section

This is a brief summary of the main currents of values education approaches, which provides a framework with which to analyse the teaching methods employed by Fort Whyte. Though each model is unique in its design, it is interesting to note that a conglomeration of the techniques provides another interesting option in values education. In recent years the notion of combining methods has gained popularity. Thomas Lickona (1991) argues that an "integrated approach aims to develop the three interrelated aspects of character: thinking, actions and the moral affect that serves as a motivational bridge between knowing what is right and actually doing it" (p. 67). Combining the strengths of the six models presents the possibility of providing students with the necessary skills to confidently make value judgements. As Kirschenbaum (1992) argues, "why not take the best elements of each [model], synthesize them, and improve them from there?' (p. 775). Value dilemmas are complicated and multifaceted. In arriving at solutions it is essential to consider multiple perspectives. It is therefore logical to consider the combination of various values education approaches in an effort to ensure that students are equipped to handle ethical issues.

2.2 Environmental Education

Environmental problems brought forcefully to public attention in the 1960s led to subsequent demands for environmental education. Initial programs focused solely on providing knowledge regarding ecological crises. Consequently, environmental education was integrated into existing science, ecology and social studies classes. According to Wheeler (1975) and Hart (1981) the period from 1966 to 1968 comprised the ill-

defined formation stage of environmental education. Unfortunately, the method did not achieve the intended results as Hungerford and Volk (1990) document in their article "Changing Learner Behaviour Through Environmental Education". Their research indicates that an increase in environmental knowledge does not lead to changes in behaviour with regard to the ecosystem. Simply providing information does not stimulate concern and subsequent active response. As a result, few of the original objectives were attained.

Programs were restructured in the mid-1970s to emphasize the connections implicit in the ecosystem as well as to focus attention on students' values. Rodney Allen wrote in 1975 that "in recent years environmental educators have turned from programs which focus only on factual information about natural phenomena to a concern for student attitudes and values" (p. 1). The field was beginning to develop into an integrated approach providing intellectual and moral instruction.

At the same time, attention was also given to illustrating the relationship between human beings and wildlife as well as between cities and natural areas. John Disinger, in his guest editorial review in the Journal of Environmental Education in 1985, stated,

> "Environmental education properly deals with the interactions of science and technology with society, with emphasis on associated environmental ramifications. The environment of concern, for environmental educators cannot be limited to the natural or pastoral environments, but includes, and should stress, the human environment. It follows that the human environment must include, and may stress urban environments" (p. 1).

The purpose of environmental education is to introduce students to the interconnectedness of all organisms and species. Through these lessons learners are also encouraged to increase their reactions to ecological problems by behaving in an environmentally

sensitive fashion. As a result, they engage in exercises to develop skills necessary to both analyse and resolve these situations and predicaments.

Environmental education is not just important because of its mandate to help save the planet. It has the potential to positively impact various facets of students' lives and development. Firstly, it can greatly enhance critical thinking proficiency.

> "Environmental education includes a human component in the exploration of environmental problems and solutions. It rests on a foundation of knowledge about social and ecological systems. At the same time it includes the affective domain, the attitudes, values and commitments necessary to build a sustainable society. Finally, it contains opportunities to build skills that enhance learners problem solving abilities" (National Consortium for Environmental Education and Training Web Site, 1998).

By engaging in discussions relating to the crisis facing our ecosystem, students have the opportunity to improve their ability to discover resolutions for environmental dilemmas. These lessons can help to advance proficiency in inquisitiveness, problem solving and critical thinking.

An additional advantage of environmental education is its potential to educate the whole child. Development through the stages of infancy to adulthood is often accompanied by a distinct disconnection from nature. Youngsters are innately attracted to all forms of life, from butterflies to spiders, puppy dogs to chimpanzees. As Rebecca Ragalon (1993) argues, "Environmental educators should focus on helping children to explore an already existing relationship with the earth and to examine ways to extend this into young adulthood" (p. 6). This notion relates to the concept articulated by David Suzuki in the introductory chapter. He described babies instinctively reaching for bugs and insects rather than recoiling in disgust. This inherent impulse must be

reinforced rather than suppressed in order to maintain a connection to nature as well as to preserve the innate characteristics of the child. In this way students are given the opportunity to develop emotionally by interacting with other living beings. It can also help to foster a sense of responsibility within children to treat all creatures, human beings and objects included, with a high degree of respect.

Traditional classroom structures often present hurdles that can seem insurmountable to students. They provide few opportunities to explore the natural world directly or to discuss potential solutions to environmental problems. Stewart Cohen (1992) presents three principles emerging from the growing body of research on children and ecology that reinforces the benefits of environmental education. He writes;

- Information derived from an understanding of scientific principles and processes is best acquired through active learning opportunities.
- Learning, including ecological understandings, is best fostered through direct, rather than abstract experiences with nature and natural systems.
- Scientific knowledge, including ecological understandings, is best acquired within a context of free exploration and where adult teachers instill and model respect for nature and all living things (p. 260).

Situations that facilitate the exploration of concepts in their natural context can help tremendously with their comprehension. Children who have difficulties within the confines of the classroom setting may flourish in the discussion of environmental issues. The combination of real life dilemmas and activities involving the learner in an active manner can provide opportunities for weaker students to advance both academically and intellectually.

Finally, the undeniable beauty of the natural world facilitates growth in the spiritual and emotional lives of children. Viewing the

splendour of ecosystems in operation can stimulate the development of students' appreciation for the world in which they live. In The Soul Unearthed: Celebrating Wildness and Personal Renewal Through Nature, J. Gary Knowles (1996) writes about the benefits of immersing students in nature,

> "By discovering new perspectives on knowing and experiencing successes in the out-of-doors, students may begin to perceive their own personal potential for success back in the environs of the formal classroom. And perhaps most important, through learning and exploring the natural world, the potential for developing the whole individual is awakened" (p. 151).

Nature engages children and captivates their attention with its ability to teach important lessons about habitats and the links among all species and organisms. The result is an atmosphere in which learners can advance intellectually, physically, emotionally and spiritually.

Objectives of Environmental Education

Environmental education has expanded its focus beyond typical discussions of endangered species, pollution, global warming and recycling. It has embraced a holistic perspective in which issues are discussed on both a local and global level thereby illustrating to students their ecological responsibilities. The anticipated outcomes of environmental education have been articulated by UNESCO (1978) as,

> "A process aimed at developing a world population that is aware of, and concerned about the total environment and its associated problems, and which has the knowledge, attitudes, motivations, commitments and skills to work individually and collectively toward solutions of current problems and the prevention of new ones"(p. 495).

Fundamental to the basic premise of environmental education is the connection between human beings and all other living creatures on the planet. It is imperative that children be

introduced to the relationships that exist between natural and artificial habitats, such as the impact of cities on forests and farms on prairies. Emphasizing these connections and their positive and negative effects on one another and on the planet as a whole is essential.

Authors Thomas Tanner (1980), Hungerford and Volk (1990) and John Smyth (1996) have all written extensively about objectives for environmental education programs. They maintain that central to well developed curricula are the following: awareness, knowledge, attitude construction, skills and participation. The ensuing chart illustrates the conceptual framework for each element.

Table 2
Objectives for Environmental Education Programs

Objective	Description
Awareness	To help individuals and social groups acquire an awareness of sensitivity toward the environment and its allied problems.
Knowledge	To help individuals and social groups gain a variety of experiences with the total environment. To acquire a basic understanding of the total environment, its associated problems and humanity's critical responsible presence and role in it.
Attitudes	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 working toward the solution of environmental problems and to foster a dialogue between these groups.
Participation	To help individuals and social groups develop a sense of responsibility and urgency regarding environmental problems. To ensure appropriate action is taken to help solve these problems.

From: UNESCO, 1978 p. 495.

These goals support the definition of environmental education, and strive to ensure that all participants understand and appreciate

the interdisciplinary structure of the relationships between humans and nature.

Teaching Methods

The aim of environmental education is to develop within students the ability to make informed and conscious decisions regarding the environment. This includes awareness of the impact of their actions on the ecosystem. It is not only about making learners more aware. They should also feel impassioned to act on important issues. Hungerford and Volk, in their 1990 article "Changing Learner Behaviour Through Environmental Education", expand on this aspect of environmental education. They suggest that programs need to foster sensitivity regarding the environment by facilitating experiences that encourage contact with nature. Skills to identify and solve environmental problems should be key components of programs. Students should also engage in discussions of possible solutions to ecological degradation. Debates of this nature have the potential to compel learners to co-ordinate themselves to participate in environmental projects.

As environmental education is concerned with illustrating the interconnectedness of the ecosystem, it is essential that students engage in fieldwork, whether that is in the park or a wildlife sanctuary (Shaw, 1975, p. 37). The opportunity to view natural systems first hand is of great importance in ensuring that students understand and appreciate the main concepts of the lessons. Exploring the local community introduces issues that impact their lives, thereby lending purpose and meaning to the learning process. Daniel Vidart (1978) takes this notion a step further by arguing that "pupils learn about the world from their own locality and district, instead of obtaining abstract knowledge of it from textbooks"(p. 478). Providing concrete examples of issues and concepts discussed in class illustrates to learners the

importance of studying environmental problems. Curriculum guidelines presently outline activities of this nature to ensure that participants are equipped to make environmentally sensitive choices (See Appendix G).

2.3 Relationship between Values Education and Environmental Education

In the thirty years since the inception of environmental education the health of the planet has not dramatically improved. In fact, if recent reports are accurate, its condition appears to have deteriorated (Caldicott, 1992, p. 13). It can therefore be concluded that environmental education has still not achieved its mandate to improve the state of the ecosystem. Teaching environmental knowledge alone is insufficient in evoking environmentally responsible behaviour. This has been acknowledged by numerous sources within the field including Baker, Doran and Sarnouski (1978) who assert that "educators are accepting the proposition that values are and should be an important component of environmental education" (p. 35). To ensure that students develop into ecologically concerned adults it is essential that values occupy a central role in environmental education programs.

Values need to be woven into the objectives of environmental education to ensure that action is taken on behalf of the ecosystem. It is necessary for values to become part of the curriculum because environmental issues are ethical dilemmas. According to Iozzi (1989b),

> "Unless we recognize environmental problems for what they really are – moral value problems – it is doubtful that any real progress will be made in the area of environmental quality both in the near and distant future" (p. 9).

Discussions relating to ecological problems require students to draw conclusions and form opinions based on their personal

beliefs. It is essential that they be given the tools with which to verify their own ideologies regarding these controversial topics. There are no simple solutions to ecological problems and as a result it is essential that programs address these dilemmas as value questions. In order to foster change, the issues must be approached in an appropriate manner.

Values must also be integrated into environmental education programs because they provide a vehicle with which to respond to ecological degradation. As Hungerford and Volk (1990) argue,

> "If environmental issues are to become an integral part of instruction designed to change behaviour, instruction must go beyond an "awareness" or "knowledge" of issues. Students must be given the opportunity to develop the sense of "ownership" and "empowerment" so that they are fully invested in an environmental sense and prompted to become responsible, active citizens" (p. 17).

Providing students with information is not enough. They need to be both impassioned and empowered, which can be achieved by connecting values to ecological topics and issues.

It is essential to ensure that program objectives clearly outline the values to be taught. "Environmental education is effective in teaching positive environmental attitudes and values when programs and methods designed specifically to accomplish those objectives are used" (Iozzi, 1989a, p. 9). Focusing on values can assist students in understanding and appreciating the impact of their actions on the planet. The merging of these two fields is necessary as the future of the earth is in jeopardy. It is now irresponsible to hope that children will acquire the necessary ethical positions on their own. It must be part of the criteria of programs. As Donald and William Hammerman wrote in 1968, "it is imperative that environmental education get to the heart of the matter – it must deal with values and attitudes and these values

must be based on understanding of how we hope to manage the environment" (p. 308).

2.4 Previous Research Studies

Through this brief synopsis of the literature a variety of themes arose that justify a study of this nature. A review of these concepts will help to clarify both the focus and validity of this project.

Research with regard to the impact of childhood experiences in nature indicates that research pertaining to environmental education is necessary and beneficial. As Alexander Frazier argues, "All children need to think more about the environment if they are to grow up able to deal with environmental problems intelligently" (p. 92). Not only can it foster an attachment and subsequent dedication to maintain the quality of the natural environment, it also remains an integral element of personal value systems into adulthood. Thomas Tanner (1980) conducted a study exploring the significant life encounters that led to environmental dedication. He concluded, "youthful experience of the outdoors and relatively pristine environments emerged as a dominant influence in these lives" (p. 23). It is essential to continue to explore the factors involved in environmental facilities that are shaping student perceptions and characters.

An exploration of the values involved in environmental education programs is necessary because the transfer of these ethical positions transpires both deliberately and unconsciously. Heimlich and Harako (1994) conducted a study of instructors' values involved in the teaching of recycling. They ascertained that "there will always be a transfer of values between a teacher and learners. The teachers' awareness of this [transmission] weakens the moral or ethical concerns of the transfer" (p. 29). It is essential

to explore the values ingrained in programs to alert teachers to the possibility of bias when discussing these issues.

Students cannot develop into adequate adults concerned about the environment unless environmental education programs teach values. Hungerford and Volk (1990) write that,

> "Too few programs incorporate serious attempts to develop ownership and empowerment in learners. The result of our efforts are learners who may act in an environmentally positive manner with relation to one issue but who do not have the knowledge, skills and willingness to assume environmental responsibility in their day to day lives" (p. 17).

By omitting values from environmental education programs, educators are denying their students opportunities to develop sound value systems with regard to ecological dilemmas. Incorporating values into programs of this nature will ensure that learners are introduced to concepts and techniques to assist in their daily choices regarding the environment. It is critical to integrate values and environmental education to ensure the health of the planet.

Finally, though all of these studies have indicated that there is a need to focus on values in environmental education, few have. In his article, "The Study of Values in Environmental Education" (1977), John Miles writes,

> "A review of the literature reveals an awareness among writers that values should be of central concern to environmental educators; yet there is at the same time evident reluctance to delve deeply into this controversial realm"

This research endeavour seeks to respond to some of the issues raised by previous studies by identifying the values and values education methods implicit in an environmental education facility.

Chapter 3

Methodology

3.0 Introduction

Engaging in a study of this nature, which seeks to decipher the values and values education approaches in the Fort Whyte Centre for Environmental Education requires an integrated research design. The procedures advocated by qualitative research methods are applicable. Van Maanen, as quoted in Whitt's (1991) article "Artful Science: A Primer on Qualitative Research Methods", states that the term is,

> "At best an umbrella term covering an array of interpretative techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena of the natural world" (quoted in Whitt, 1991, p. 407).

Since the focus of this investigation is not to evaluate the current program, but rather to highlight specific components of the facility, this technique is appropriate. In following the protocols of qualitative research, it is necessary to explicitly outline procedures involved in data collection and analysis, from project inception through to proposals for future research. As Maykut and Morehouse (1994) explain, "This documentation allows you to walk people through your work from, beginning to end, so that they can understand the path you took and judge the trustworthiness of your outcomes" (p. 146). All techniques and concerns pertaining to both the gathering of materials as well as data analysis will be discussed.

3.1 General Approach

3.1.1 Case Study Methodology

To gain a clear understanding of the values implicit in the facility it was essential to gain total access to all aspects of the centre. More importantly, the development of a rapport with those who both construct and deliver the programs was paramount. In this situation, the use of the case study technique was the most practical choice. According to Donna Mertens (1998),

> "A case study is a method for learning about a complex instance, based on a comprehensive understanding of that instance obtained by extensive descriptions and analysis of that instance taken as a whole and in its context" (p. 166).

Implementation of a vibrant instructional program at Fort Whyte is the culmination of efforts of various individuals ranging from curriculum development to volunteer tour guides. To identify the values and values education strategies in the facility, it was essential to become familiar with the site. The value positions and beliefs of staff and administrators, and those embedded in instructional outlines and training sessions all require careful examination. These complex relationships are typical elements of environmental education programs and have been recognized by previous researchers. Both Thomas (1990) and Singeltary (1992) advocate the case study approach in analysis of centres of this nature. They argue that this technique accounts for the complicated structure of environmental education and is the most appropriate research model to employ in studies focusing on this field.

3.1.2 Ethical Considerations

As with any qualitative inquiry, of utmost concern is the ethical acceptability of the investigation. Mertens (1998) argues for

the articulation of values that researchers hold with regard to their topic in an effort to reduce a specific perspective. She writes,

> "In a qualitative study the researcher is the instrument for collecting data. The researcher decides which questions to ask and in what order, what to observe, what to write down. Therefore, considerable interest has been focused on who the researcher is and what values, assumptions, beliefs or biases he/she brings to the study" (p. 175).

In order to ensure the validity and trustworthiness of the results it was essential for me to become aware of my own inclinations and biases. The focus of this project illustrates my personal interest in environmental education. More specifically, programs that emphasize the interconnectedness of the global ecosystem are particularly admired and supported. Therefore, a program such as Fort Whyte's, which parallels this vision of environmental education, requires rigorous scrutiny to ensure that my opinion does not interfere with the data.

It must be noted that since this study is also concerned with values, I am aware of the need to be conscious of personal beliefs and opinions and the potential for their unintentional utilization in professional endeavours. David Silverman (1993) suggests that awareness of factors that can influence fieldwork can help to reduce partiality. He argues that "it is incumbent upon fieldworkers to reflect upon the basis and status of their observations" (p. 35). This is not to suggest that by acknowledging biases they disappear. It does, however, assist in attempting to minimize prejudice and permits readers to formulate their own conclusions relative to any inconsistencies in data collection and analysis. In this manner, both the researcher and audience are aware of the potential for influence that exists.

Discussions of conclusions and personal concerns and ideas pertaining to this project occurred on a continual basis with my

thesis advisor. This process was implemented to elicit additional commentary and to prevent personal prejudices from tainting the data. The McGill Faculty of Education Ethics Committee reviewed and approved the research proposal prior to the commencement of data collection to ensure the ethical acceptability of this research design (See Appendix H).

3.2 Data Collection Process

3.2.1 Selecting the Site

An acquaintance of mine employed at Environment Canada suggested numerous environmental education programs in various regions in North America. Multiple facilities were contacted and materials relating to their instructional tours were requested. This was done in conformity with the recommendation of Mertens (1998). She emphasizes the importance of "researching a number of sites and tentatively sounding out administrators to determine if the proposed project would be welcomed and if researchers would be tolerated on site" (p. 177). Communication with the various centres resulted in numerous invitations. However, reviews of the programs revealed considerable discrepancy among them. Some clearly express objectives central to environmental education, such as instilling the value of respect for the ecosystem. In practice however they had implemented inappropriate methods. For instance, restraining animals in sterile cages void of elements of their native habitats conflicts with the goal of teaching respect for nature. I therefore chose not to consider sites that did not uphold exemplary practice. Fort Whyte was selected because it is an example of a centre currently at the forefront of Canadian environmental education. The description of their program emphasized active learning with a focus on relating to students the interconnectedness of all living creatures. This initiative was recognized by the Manitoba Round Table on Environment and

Economy, which presented Fort Whyte with an award on June 3, 1998. They won the Non-government Organization Award for *Winnipeg Wilds*, "a program that works directly with the community to address the role of nature as an essential part of the urban environment" (Manitoba Government News Release Web Site, 1998). Their excellent reputation and enthusiastic reception of the proposed investigation made it an ideal choice for this research study.

3.2.2 Achieving Consent

Communication with the Centre developed when I contacted the Education Co-ordinator who described Fort Whyte's programs and forwarded an information package outlining lessons as well as the history and mandate of the centre. In turn I described my research proposal and my intent to use the Fort Whyte Centre for Environmental Education as a case study. Subsequent written statements confirmed their willingness for me to use the site for my research. From the outset the administration was extraordinarily accommodating and suggested that I attend their education training sessions. Additionally, all individuals I interviewed and observed signed consent forms indicating their acceptance and knowledge of participation in this project (See Appendices I and J).

3.2.3 Data Collection

The case study approach to qualitative research advocates immersion in the site to be studied. It suggests a multiplicity of collection methods in an effort to gain a comprehensive understanding of the situation under analysis. This technique is advocated by Maykut and Morehouse (1994) who argue that,

> "The combination of interviews and observations from the field, along with reviews of relevant documents increases the likelihood that the phenomenon of interest is being understood from various points of view and ways of knowing" (p. 146).

During the month of April 1998 I visited the centre five to six times a week to attend interpreter-training, to interview participants, to observe tours and to gather and review documentation on the centre and its programs.

Interviews

The majority of the data was gathered by participating in discussions with numerous individuals. All six members of the paid education staff were interviewed. Seven interpreter volunteers also agreed to share their perceptions and insights regarding the program. Four administrators, the Education Co-ordinator, Director of Development, Educational Booking Co-ordinator and the Volunteer Co-ordinator, all consented to answering questions regarding the operation of the centre in general and the education programs more specifically.

The original research design anticipated four or five participants engaging in three one-hour sessions. However, an hour of dialogue proved to be sufficient to provide elaborate responses to all questions. There was a tremendous response from interested interpreters and so the approach was adjusted to accommodate thirteen one-hour interviews. This alteration allowed for a greater understanding of the facility as it introduced various personal perspectives and a wide range of professional backgrounds and experiences.

The interviews were scheduled in accordance with the schedules of the participants. The prepared questions (See Appendix K) were utilized mainly as a guide. The actual conversations expanded in various directions at the discretion of the interpreter. As Mertens suggests (1998), "Typically interviews in a qualitative study are done with an unstructured or minimally structured format. The questions emerge as the researcher is

sensitised to the meanings that the participants bring to the situation" (p. 321). The outlined questions proved to be particularly helpful with participants who were not overtly descriptive. Some individuals preferred to respond with concise answers rather than extensive elaboration regarding their opinions. Each discussion was tape recorded and promptly transcribed. This method of recording greatly aided in the development of rapport. We were able to converse freely and continuously rather than punctuate the conversation with pauses for note-taking. The consent form left the option of not employing the recorder if the participant was not comfortable with that method. However, all agreed to its usage and any who were initially uncomfortable or intimidated, quickly ignored its presence.

Observation

All staff and volunteers at Fort Whyte were more than willing to participate in the study. Consequently I was urged to also follow tours during my stay. Eight tours, all focusing on a different topic and led by various guides, were observed. As a result of practical considerations, note-taking was more efficient and less intrusive than tape-recording. Additionally, transcription would have been particularly challenging with the various background noises resulting from the outdoor location of the lessons. The observations consist of all interpreter statements during the tour as well as descriptions of their actions, such as drawing pictures and focusing attention on various items.

Training Participation

Notes were also taken during the four-day training program designed for all volunteers and education staff members. A staff member conducted the sessions, which typically lasted three hours per program. This proved to be an excellent introduction to Fort Whyte. It provided an introduction to their instructional methods

along with insight into the programs offered during the spring season. At the same time, it eased my integration into the site. Mertens (1998) articulates the importance of assimilating into the situation to be studied. "The researcher needs to make plans to enter the field in the least disruptive manner possible, taking care to establish rapport with the participants" (p. 178). At the sessions I was presented as a student researcher from McGill University. Interpreters who wanted to participate in my study were invited to contact me. As a result I did not have to solicit volunteers. Additionally, this introduction aided my adjustment into the facility and prompted both new and returning interpreters present to connect with me as a peer.

The training sessions involved reviewing the main concepts to be taught as well as characteristics regarding the learning level of the particular age group. Each session began with a synopsis of the entire program indoors before moving outside to participate in the lesson as it would be conducted with children. Information distributed to interpreters was gathered along with my own personal notes.

Documentation

Various printed materials were collected to assist in analysis of the centre. Documentation included pre- and post-visit packages distributed to teachers, volunteer brochures and application forms, teacher response forms, sources of funding as well as photographs of the facility. The interpreters have extensive resources available, which were also copied. Within the volunteer lounge are a number of binders consisting of information regarding the various animals residing at Fort Whyte. They also include suggestions for interpreting, explanations of environmental education as well as detailed descriptions of the learning attributes of each age group taught. A visit to the legislative library in

Winnipeg proved to be extremely beneficial, as newspapers chronicled the evolution of the centre. This was most helpful as it allowed for "access to information that would otherwise be unavailable" (Mertens, 1998, p. 324). Fort Whyte has a fascinating history that was preserved and accurately documented through articles that provided rich descriptions of the setting and of the people involved with its inception and progress.

3.3 Data Analysis

Data were transcribed immediately ensuing collection and were numbered and labelled. As a result, it was possible to employ blind coding in which the participants' name is removed in an effort to remain as neutral as possible during analysis (Belenky, Clinchy, Goldberger and Tarule, 1997, p. 14). A preliminary read of the data and subsequent expansion, due to comments and observations, left me bewildered. An extensive amount of material had accumulated and the prospect of delving into the examination process was overwhelming. Following the suggestion of Bogden and Bilken (1982), I stored my data and notes for a period of time while I reviewed qualitative analysis strategies to determine the appropriate procedures to be utilized.

Returning to the material, I began to note any words or phrases that were repetitive and apparent in multiple sources. These soon evolved into codes, which were defined to determine rules for inclusion or exclusion. These initial categories were not based on any existing theories. They were simply the main issues that emerged from the data. Engaging in a task of this nature eventually became an all-encompassing process. Consequently, I had some difficulty identifying patterns in the data. Again, distancing myself from the material provided a new perspective that subsequently illustrated the relationships that had previously been elusive. Simultaneously, reference to the framework outlined

in Chapter 2 led to the identification of the main elements of values education approaches implicit in the strategies employed at Fort Whyte.

3.4 Limitations

The main limitation of this project was that data collection occurred over a thirty-day period. Participating at the centre during the complete spring session may have resulted in a more accurate and in-depth description of the facility. This would have allowed for extended observations of tours as well as additional interviews. However, due to both financial and time constraints this was not an option. Nonetheless, the information was gathered at an ideal time as it was the beginning of a new season and the majority of the interpreters had been working since the Fall, if not longer in most cases.

Another limitation involved the participants themselves. Among the fourteen participants there were no visible minorities represented. Therefore, there is the possibility that the results could reflect a typical white perception of environmental education. There was also an unequal gender balance. The entire education staff consists of women. The four administrators interviewed were female and, of the seven volunteers who participated in the study, five were men and two were women. The programs that were observed involved six females and two males, resulting in an unequal gender representation which could also have an impact upon the results. Hopefully, with the multitude of data sources included and discussed, these factors will have only a minimal impact on the results.

Chapter 4
Findings

4.0 Introduction

Analysis of the data collected at the Fort Whyte Centre for Environmental Education revealed that embedded in the facility are a number of values and values education approaches. The main findings to be discussed in the chapter are as follows;

- The values of respect, appreciation and care-taking are integral elements of the education program. Emphasis will be placed on illustrating their presence in interpreter perspectives of environmental education. At the same time, this chapter will reveal that these values are integral components of the program content and objectives.

- A brief section has been included to outline the personal experiences that motivate interpreters to work at the Centre. These viewpoints indicate that interactions with nature can potentially lead to a lifelong dedication to the environment. They also emphasize the personal values guides hold which are ingrained in their teaching styles.

- Employing the theoretical framework outlined in Chapter 2 revealed that many values education approaches are apparent in the teaching strategies applied by interpreters at Fort Whyte. The methods utilized by the guides will be described and elements of values education found in these strategies will be highlighted.[1]

4.1 Values Implicit in the Program at Fort Whyte

4.1.1 Soft Skills

The data illustrated that ingrained in the facility are the three main values of respect, appreciation and care-taking. Interviews, observations and documentation also revealed that

[1] Quoted sections have been given the letters "I" for interviews, "T" for tours and "D" for documentation. "A" has been allocated to interviews with administrators. The numbers that follow are for identification purposes, for instance tour 5, page 3 to facilitate the analysis process and for referencing.

there are supporting elements that reinforce these primary values. Embarking on an in-depth discussion of these aspects of the Fort Whyte Centre will illustrate the important role they maintain in the educational programs of the facility. It is imperative to state that the concepts are interrelated and therefore difficult to compartmentalise. One interpreter had particular insight into the relationship among the values ingrained in the program. She identified the interconnected values as "soft skills",

> "[Soft skills are] the appreciation of nature and just the respect. I think once you start respecting nature then that's when you start. I mean first of all they understand, they get a better understanding of why, why they should respect, once you have that understanding then you can start respecting. Once you start respecting then I think you can start passing on that message to other people and other kids" [I4-3].

This interpretation provides an opportunity to discuss the values embedded within Fort Whyte in a holistic manner. It emphatically represents the organization of the educational programs and the teaching style employed by the facility. To facilitate the exploration of the role these values play in the Centre they will be reviewed independently. Supporting values that reinforce the concepts of respect, appreciation and care-taking will be identified to assist in differentiation. It is essential to remember that "soft skills" are interdependent and interconnected.

Respect

As has been previously outlined, the mandate established by Fort Whyte is to educate in an effort to maintain the health of the ecosystem, for the benefit all living organisms. In accordance with this objective, respect is inherent in all facets of the facility. For instance, students are constantly reminded that they are uninvited guests in the homes of the animals and wildlife at Fort Whyte. They are also encouraged to extend respect to both the interpreter

and each other. Analysis also revealed that accompanying respect are the supporting values of dedication, responsibility, learning and curiosity. Elaboration on these elements will illustrate the role and emphasis placed on respect at the centre.

As an environmental education facility, Fort Whyte focuses considerable attention on instilling in children a sense of reverence for the natural world. Participants expressed both a personal concern for the ecosystem and a sense of responsibility in passing this on to children. This dedication is apparent in the manner in which the interpreters describe nature to their students. For example, since data collection occurred in the spring many of the animals were particularly volatile due to their mating and nesting activities. Consequently, guides ensured that children were aware of the necessity to leave ample space between themselves and the wildlife.

> "There is something I need to tell you about the geese. They are nesting right now and the moms have laid their eggs and the dad goose is protecting them so we need to be careful" (T3-20).

This was in an effort to not only maintain the safety of the group but also to illustrate to youngsters that animals have instincts that must be respected. It also illustrates to students the obligations of human beings with regard to the natural world. It is our responsibility, as members of the living world, to treat other creatures with respect.

An additional example of Fort Whyte's efforts to ensure that children gain respect for all living organisms is apparent in an activity called dipnetting. Nets and buckets are distributed in which children collect and examine creatures found in the marsh. Both the training sessions and information packages emphasize treating the animals with respect. Students are advised to transfer

the organisms from the net into the pail as quickly as possible as they require water for survival. At the end of the activity the learners are requested to return the creatures to their habitat in a gentle fashion. As this interpreter told the group,

> "You are going to dump them back in the marsh nice and slow, really close to the water because they are all alive and would like to keep on living" (T5-3).

This activity emphasizes the values of both respect and responsibility. As human beings we have the ability to alter the natural environment and when we do it is essential that we minimize the impact of our actions on the ecosystem. Children are taught at Fort Whyte that they must return the animals and organisms to their habitat in a courteous and respectful manner. In this way they are experiencing the value of respect with regard to the environment.

The centre developed a rule to be reviewed with all groups who visit the facility. It encourages respect for wildlife, the interpreter and among students. Within the instruction package issued to interpreters is the following description;

> "Discuss the rule of respect:
> 1. Respect each other – listen, hands to yourself, stay with the group.
> 2. Respect nature – leave flowers and leaves for others to see as well, leave the animals in peace (we are visiting their home!)" (D4-2).

This is a clear articulation of the significance of respect in the programs at Fort Whyte. All interpreters introduce this rule to their group, for example,

> "Before we go on the trail I need you to put one hand on your heart, and one in the air and repeat after me. I promise to stay behind you on the path, to listen to you, not to be mean to my friends or the animals and to tap dance any time you ask. Seriously, I want you to stay with me and respect the animals" (T2-2).

In this way the facility is not only encouraging youngsters to respect nature, they are also prompting the transferral of this value into the students' interpersonal relationships. This illustrates to the learners that respect entails implementing a conscious effort to be dedicated to ensuring that all people, animals and wildlife are treated in a just and fair manner.

Fort Whyte also advocates respecting the ideas, questions and unique perspectives that children have to offer. An interview with an administrator revealed this notion.

> "And I think valuing the children too. We only have them for a couple of hours but really trying to respect the kids. The first thing I say to children is I will try really hard to have respect for all of you. To really listen to their questions, um, some kids have great questions" (A1-4).

This is also emphasised in the interpreter training program. They were encouraged to ask as many questions as possible and record all responses so learners view their ideas as being important (D1-2). This illustrates to children that the values of learning and curiosity are important and that their ideas are respected. The guides are conscious of the need as well as the benefits of developing a good rapport with their group. The following excerpt is a typical example of an effort to build a relationship with the students.

> "We have some rules here at Fort Whyte. That is respect, who knows what respect means. How about the first rule of respect, you need to respect me, when I'm talking you need to listen to me and then I'll respect you by listening to you" (T3-2).

The development of a connection with the learners is an excellent illustration of respect that is inherent in the program at Fort Whyte.

The interpreters do not only value the questions and interests of their students, they also attempt to build a relationship by sharing the plan for the tour with the group at the outset of the lesson. In this way the children are aware of the schedule and are consequently more attentive to the task at hand. Additionally the interpreters make every effort to ensure that the language and examples they employ coincide with the needs and intellectual level of the students. For example, when teaching pre-school children, the guides describe concepts in relation to the bodies of the youngsters themselves. The anatomy of the Canadian goose is compared with that of the students, as at that age it is a common experiential frame of reference. One interpreter held a stuffed Canada goose and asked the students, "What makes a goose different from us? Why don't you look at their feet?" (T7-1). These comparisons help children to learn by respecting their degree of understanding. These details ensure that students are treated with respect.

Fort Whyte also espouses respect for both the interpreters and the classroom teachers who visit the centre. As one education staff member stated, a goal of the facility is to guarantee that the programs are as "user friendly" as possible. Particular attention is dedicated to constructing lessons that are based on the Manitoba curriculum guides to ensure that they are aligned with the instruction occurring in schools. They are abundantly aware of the burdens and time constraints imposed on teachers and have made every effort to reduce the stress. Consequently, they also place great value on the comments and criticisms of the educators who visit. An administrator explained,

> "We hand out evaluations for every program so after a teacher has brought a class out here they fill out an evaluation. There is always room for comments and teachers are often very good about giving us suggestions and

> comments, whether positive or negative. We always gather those together at the end of the season, when we are getting ready for the next season, and we take them into account" (A3-2).

Teacher satisfaction is of utmost importance and the facility is consistent in acknowledging their meaningful supportive role. Every effort is made to design programs that are accessible and practical for the volunteer interpreters. This acknowledgement illustrates to the volunteers that their time is both respected and appreciated.

The emphasis on respect is stressed to exemplify that, as human beings, we are responsible for the equitable treatment of all living creatures. Participants perceived respect as the base through which positive ecological attitudes develop.

> "Well, to respect it and to understand it and with those, with respect and understanding is going to come preservation, I think, in the future for the environment" (I6-4).

All interpreters illustrated that respect was an integral element in the construction of a devoted and environmentally sensitive population.

- *Appreciation*

The value of appreciation is inherent in a variety of contexts in the program developed by Fort Whyte. Participants described a personal appreciation of the environment and were enthusiastic about conveying this fondness to children. Many also expressed their hope that the general public would develop a deeper appreciation for the worth of natural spaces like Fort Whyte. Integral supporting values are beauty, complexity, connectedness and reverence. These components help to further emphasize the value of respect in the program at Fort Whyte.

All participants engaged in expressive discussions of the necessity to appreciate the environment. They acknowledged the immense benefits of the ecosystem and the value of enjoying nature simply because it is beautiful. One interpreter went to great lengths to elaborate on his personal belief regarding appreciation of the environment. It is a helpful example as it echoes the main concepts articulated by all participants.

> "To make these kids aware that this is part of their world and an important part. I've taken some of them into the forest area and just grab any tree at random and ask them do you know what this can cure? Well no do you? No I don't but should I cut it down before I find out? And I've had kids actually tell me, I said is there any reason we should preserve this beautiful flower or that bird singing up there? Well no and you will find one of them will eventually say just because it is nice. Valid reason, no quarrel with that, just because it is nice, as long as they can do that" (I8-8).

Highlighting the splendour of the natural world teaches the values of both beauty and appreciation.

During the interviews participants clarified their motivation to share this gratefulness with students. They maintain that if this appreciation is instilled in childhood it has the potential to remain into adulthood. When asked what environmental values they hoped to pass on typical responses were,

> "I hope a better appreciation of what we have. A better appreciation, that will stick with them. They are at an impressionable age, at that time, so I hope something stays with them" (I9-4).

Another interpreter was more concerned with the potential impact of appreciation on the lives of the children now.

> "With that first appreciation, you know, first contact with it I think they'll take it a step further and hopefully next time they see a caterpillar they won't want to stomp on it" (I13-1).

During the tours the guides place considerable emphasis on relaying the intrinsic value of nature. They highlight the ways in which the environment is implicit in our lives as well as the various ways in which we are dependent on the ecosystem. For example,

> "Look at this here, what are all these? Yes, pussy willows. A long time ago they use to use these for medicine, like an aspirin. Another reason to be careful about what we are killing off" (T1-3).

> "Yes, the trees take in carbon dioxide and breath out oxygen. So if they died would we?" (T1-3).

Other guides focus on relating to students the need to appreciate because of the great complexity and interrelatedness of nature.

> "Certainly an appreciation that there are living things other than themselves. So they're looking outside, we tend to be pretty selfish in our survival characteristics and that's quite natural. But, because we are human beings we have the intellect to be able to understand that other organisms are surviving as well and that hopefully there can be more of a harmony" (I5-3).

The issue of interconnectedness recurred frequently throughout the interviews and in each instance was discussed with a sense of appreciation. The participants were of the opinion that it is essential to acknowledge the complex interrelatedness of life on the planet and felt that this was a critical element in their teaching. As one interpreter said,

> "Well I think it is important because I think it makes us look at the world, you know, as the global planet. That we're all interconnected and I think that it's important to bring in the environment in all subjects and all teaching methods because it does make us look in a more holistic way. I think it makes people see it as we're not on top of the pyramid but we are part of the whole web and I think that is important too, we need to get off this high pedestal we have to put ourselves on because it has created a lot of the damage. I think yeah, just to look at everything more holistically and

more um not people centred but earth centred, you know, that is important" (I12-5).

The aspiration to illustrate to children that the ecosystem is an interconnected web of life, void of hierarchies, was of prime importance to the majority of those interviewed. They are convinced that human beings' self-centred perspective accounts for the problems currently plaguing the environment. Consequently, they valued the appreciation of the multiplicity of connections among all forms of life and were dedicated to transferring this perspective to students in an effort to repair some of the damage.

Finally there was concern for continuing to foster an appreciation of sanctuaries such as Fort Whyte. Urban development has taken its toll on natural habitats in Winnipeg, as it has across the country. Consequently, those who believe in the importance of facilities devoted to preservation hope that their mission to protect the environment is transferred to those they teach. Many participants articulated their belief that places like Fort Whyte should be universally appreciated. As an administrator stated,

> "We also always make a connection back to what it would be like if we didn't have a space like Fort Whyte. How we can help to protect it and just sort of try to make them more aware of their surroundings and of spaces like this...So sort of showing children the idea that places like this have incredible value" (A1-2&3).

Not only do interpreters value the manner in which Fort Whyte can provide them with opportunities to appreciate nature, they hope that the appreciation of the centre itself will be passed on to visitors and students alike.

Care-Taking

The final "soft skill" verbalised by participants was the value of care-taking. This term will be understood as it is described by

John Smyth (1996), "We should value its [the planets'] health as an extension of our own. Since it is shared with others, and with other species, its care also enlarges our concept of community" (p. 58). We are responsible to the planet. Actions taken to fulfil our needs must not infringe upon the rights of the ecosystem. This subsequently entails lifestyle choices that are "environmentally friendly". Embedded in this notion are the values of stewardship, conservation, preservation, sharing and sustainability. Exploration of the value of care-taking will illustrate its role and importance in the educational programs at Fort Whyte.

The interviews revealed that all interpreters perceived a personal responsibility to protect the environment and to alter their lifestyles to ensure the health of the planet. This dedication was connected to their love of nature and was evident in all interviews. Many described at length the joy they feel teaching at Fort Whyte because it allows them to work in nature and do their part in preserving its future. Typical comments were;

> "You know, you can make the environment and nature more fun, you can do things without destroying the environment, its hard but it can work" (I10-3).

The volunteer pamphlet produced by Fort Whyte echoes this desire to preserve the ecosystem with its appeal for assistance; "Become a caretaker of the earth and help keep this planet habitable for all forms of life" (D8-1). This value of conservation is important to the centre and the volunteers and employees it attracts.

The value of preservation is not restricted to the personal beliefs of the facility. Suggestions are integrated into the programs to provide the students with environmentally sensitive options for their daily lives. Those interviewed felt that it was essential to share and discuss with children actions they can engage in to improve the health of the global ecosystem. One participant

described at length the manner in which the programs assisted children in developing skills to protect the earth.

> "I think the programs at the Fort Whyte Centre have been developed with that in mind. There are ways that we can get along in the environment which are less degrading and even though we keep repeating the recycle, renew, reuse. I guess those are things that certainly we never heard of as kids and the wastes and the misuse of resources, both living and non-living, are pretty extreme and have been pretty extreme. Perhaps, hopefully, we can turn that around...certainly in North America we abuse the environment and if we can reduce that, to use that term, through our using and teaching the programs at Fort Whyte, and I think they do. They do send a message, I don't think it's a preaching method" (I5-3).

This message was integrated into lessons given at the centre, as one interpreter told a group of elementary school students;

> "What can we do to help nature?
> There are some R words that help.
> Right, reduce, recycle, reuse. Like this sweater I'm wearing, it use to belong to my brother but when it got to small for him I took it rather then throwing it in the garbage. Or you guys, you could put your lunch in Tupperware rather than plastic bags that you use once and then throw away' (T3-3).

As is evident in both the values articulated by the participants and in the programs themselves, the importance of care-taking and preservation are paramount to the success of Fort Whyte Centre.

The interpreters insist that by illustrating to children ideas they can integrate into their own lives will ensure that the desire to act as stewards of the earth will remain with them throughout their lives. The participants were also gratified by the opportunity to share their personal love of nature with others. Fort Whyte provided them with a vehicle through which they can potentially affect many lives and spread the environmental message a little further.

> "I have a really strong passion to inform people about environmental issues, I mean it is just something that is deep down inside. It makes me feel happy, I mean that part of my pay-check is to see people leaving and having found something" (I12-3).
>
> "I want them to become aware of what we have and to preserve it, you know. That is what Fort Whyte's main objective is, to educate them to take care of this" (I9-2).

Teaching preservation is not only a value of the interpreters; it is also an integral aspect of the mandate of the centre. In a publication outlining the history and focus of the centre they write "Our business is teaching sustainable lifestyles, in the hope we may all become caretakers of the world for tomorrow's generations" (D7-5).

Conclusion

The identification of respect, appreciation and care taking, and their supporting elements, as values ingrained in the program at Fort Whyte illustrates that these beliefs are presented to, and may potentially be acquired by children. Articulating these concepts in the facility mandate, as well as in the individual program outlines, ensures that the lessons are structured in a manner that emphasizes these "soft skills". Fort Whyte has, by purpose and design, placed values at the forefront of their educational programs.

4.2 Motivations

In an effort to gain a clear understanding of the personal backgrounds of the interpreters I asked each one to describe the experiences that influenced their interest in the environment. This inquisition is significant to this research study as personal values translate directly into the teaching process. Of greater significance, however, was the fact that eleven of the thirteen participants described contact with nature during their childhood

as having influence on their adult dedication to the environment. Studies by both Tanner (1980) and Palmer (1993) confirmed that "childhood experience of the outdoors is the single most important factor in developing personal concern for the environment" (Palmer, 1993, p. 29). Children need opportunities to interact with nature in order to develop environmental value systems that will remain with them into adulthood. Environmental education centres, like Fort Whyte, provide spaces in which youngsters can experience the wonders of the natural world.

The memories described by interpreters were of camping with parents and extended family members, or engaging in outdoor activities such as canoeing, fishing and hunting. Those who had hunted were quick to clarify that there was a ritual involved. As one interpreter articulated,

> "My uncle took me out originally. But he taught me; you don't shoot this because there's not many of those. It was the rules of the game as much as anything, it was about respect" (I8-2).

Other examples of immersion in nature included playing in neighbourhood fields and abandoned lots that soon became abundant with wildlife. A couple of the participants grew up in the country and were saddened by the fact that retrospectively they felt that they had not appreciated the beauty that had surrounded them.

The other motive vocalized was a feeling of guilt regarding the state of the planet. Many perceived themselves as being responsible for the poor condition of the earth and felt indebted to future generations that face the unpleasant prospect of repairing the ecosystem. At the same time, they believe that their current role is to equip children with the necessary tools and skills to deal with these issues. As one interpreter expressed,

> "A love of children, a love of nature [motivates me], it brings me back to my childhood ... Unless I teach children the love of nature it's going to disappear. I think our generation has really screwed up"(I8-6).

Participating in the program at Fort Whyte creates the possibility for children to develop into adults who are environmentally sensitive and dedicated to pursuing solutions to ecological problems.

4.3 Values Education Approaches at Fort Whyte

Analysis of the data revealed that strategies employed by interpreters encompass elements of a number of values education approaches. The methods are; personal style, egalitarian environmentalism, active discovery, program content, questioning and preparation. These methods are interconnected and are often practised simultaneously to facilitate the learning process. It should be noted that the education staff is unaware of values education methods and the program objectives do not outline any such procedures. However, as Michael Caduto (1984) asserts, "Environmental values education is included, either implicitly or explicitly, in all of these [environmental education] programs" (p. 30). Therefore, it is not surprising that illustrations of values education emerged. Though the strategies employed by the interpreters may not coincide precisely with characteristics of values education models, elements of correspondence are evident.

4.3.1 Personal Style

This strategy refers to the personal style of each interpreter. Through their actions they convey certain beliefs regarding the environment. These values manifest themselves in various ways during the lessons. The programs they select to present, their enthusiasm for the subject matter, and the manner in which they interact with the environment all send messages to children. Many

display their excitement for the animals that reside at Fort Whyte. One particular guide was thrilled with the ducks that were bathing themselves in the waterfowl gardens and shared this with the group, "Woo Ah! Go canvas back. Oh you guys look at the wood duck!" (T5-4). An alternate illustration are those who opt to instruct by example. They do not shy away from interacting with the environment thereby demonstrating to students that nature is to be respected, not feared. During a tour with a group of first graders the leader turned over an old log to see if there were any worms (T6-3). This illustrates to children a positive attitude regarding the environment and displays that nature is to be appreciated.

The interviews also exposed the notion that modelling positive environmental behaviour was a potential teaching tool. Many expressed the opinion that sharing their personal love of nature and environmentally sensitive habits are essential elements of program delivery. Examples of typical comments were,

> "And they go away thinking that wow I had such a great time at the Fort Whyte Centre and wow do I want to be outside all the time...I guess that is my priority, fun fun fun with education. And we have a great time, we're out there and freaking out all over the place ... some people have a little more of an interpretative style and I find my style is incredible goofy, I just generally have a good time, I have so much fun when I go out there" (I2-2).

> "So it's kind of teach by example rather than I think you should be doing this. To just get off your duff and get out there" (I8-6).

By occupying a role of authority the interpreters have the opportunity to model environmentally sensitive behaviour and consequently convey the values education approach of inculcation. According to Michael Caduto (1983) inculcation occurs in all forms

of education as a result of moralizing and modelling. He also asserts that,

> "Demonstrating a certain value in a real situation, or even a contrived one, will be more effective than merely describing it to the learner. Their feelings, emotions and senses should be piqued so they may feel what is being taught" (p.16).

The modelling that is executed by the interpreters at Fort Whyte has the potential to influence the emerging value systems of the children they teach. One interpreter was aware of the potential for the teaching of values employing this strategy,

> "I think it depends a lot on the interpreter and they'll instil a lot of those values that they want to pass on to the children. I think each person will do that differently" (I13-2).

Fort Whyte encourages their guides to integrate their personalities and perspectives into their presentations. During the interpreter training sessions emphasis was placed on formulating a teaching style consistent with individual dispositions. The emphasis on unique interpretive styles, including modelling specific behaviour and opinions, illustrates the elements of inculcation ingrained in the program at Fort Whyte.

4.3.2 Egalitarian Environmentalism

When designing and delivering environmental education programs there is the potential to focus attention solely on the gravity of the problems facing the world. The tendency to blame humans for the horrific state of the ecosystem is, for the most part, avoided by Fort Whyte. Special attention is allocated to ensuring that students are presented with an egalitarian perspective. As an administrator expressed, "We like to focus on both the positive and negative environmental issues" (A3-3). In this way children are not indoctrinated with a certain stance on ecological issues.

Interpreters teaching elementary school classes implemented this strategy in their lessons. During a discussion of endangered spaces a guide employed the following example;

> "We are the bad guy in a lot of these cases, but we need to live also. Forest fires, for example, are caused by people and by nature. In fact, some forest fires are necessary for the health of the forest. For example, the Jack Pine tree needs forest fires to let their seeds out to replant themselves. The heat from the fire explodes the cones that the seeds are in and the ashes act as a natural fertiliser. The forest replants itself" (T1-1).

Illustrating that both human beings and natural processes have the potential to damage the ecosystem encourages students to draw their own conclusions regarding these issues. As one interpreter suggested,

> "To make students, especially at the age where they can mull over issues, starting from late elementary school into the middle years, I think they can start to debate things in their head. Just to be able to give them a variety of ways of looking at things. I think that it's important not to impart some major political skew but to give them option to ways of thinking about things" (I12-4&5).

The role of the program should be to highlight issues and assist students in considering all variables relating to environmental degradation.

Egalitarian environmentalism is similar in many respects to the approach advocated by values clarification. It proposes that presentations should be void of judgements of right and wrong while simultaneously providing insight into difficult value decisions. Miles (1977) argues that strategies suggested by values clarification are applicable to environmental education. He also proposes that these exercises are helpful in "revealing to students problems of values involved in the making of personal decisions regarding behaviour in the environment"(p. 10). The balanced

perspective of the programs at Fort Whyte provides an opportunity for students to consider the complexity of circumstances pertaining to ecological welfare. One particular activity illustrates the components of values clarification implicit in the program.

> "You have each got an animal and they are endangered. On the card it says a little bit about the animal, what it needs to live, and how it is being threatened. Your job is to come up with some solutions" (T1-4).

In this exercise the children are expected to share not only their conclusions but must also justify their proposed actions. Activities and discussions of this nature facilitate the development of environmental value systems through the values clarification approach.

Environmental egalitarianism also encompasses elements of the approach advocated by values analysis. As Stapp (1978) contends, values analysis is "of major importance in making rational environmental decisions everyday of a person's life, and must be a basic part of everyday environmental education programs" (p. 503). Values analysis proposes the investigation of ethical dilemmas by engaging in rational and scientific exploration of the issues. By presenting a balanced perspective regarding environmental problems the Centre has, without specific intent, implemented elements of values analysis and values clarification. In doing so Fort Whyte provides children with the opportunity to consider all elements regarding ecological dilemmas and to formulate their own opinions.

4.3.3 Active Discovery

Based on the integration of teachers' suggestions to include more hands-on and activity based learning into the programs, Fort Whyte has revised many of its tours to ensure that these needs are met. Consequently, much instruction occurs through processes

designed to actively engage students. Each lesson has specific materials to reinforce the concepts being taught. Pre-school children touch stuffed Canadian geese, look through bug eyes and are asked to close their eyes and listen to frogs singing and birds chirping. Elementary school students participate in an activity called dipnetting in which they catch creatures in the marsh to see first hand the complexity of life up close (D1-2). Interpreters modify activities to complement their personal style and to meet the level of their students. All lessons have numerous examples of active discovery such as,

> "Let's just be quiet and see if we can hear any noises ducks make. Do you want to talk back to him? Quack! Quack!" (T7-2).
>
> "Do you see a path down here? Is it a people path? What animal then? If you look closely you can see their footprints"(T3-2).
>
> "Close your eyes and don't make a single sound. Can you hear anything you don't hear at home in the city?" (T4-1).
>
> "Everyone come here. Do bugs have eyes like you and me? So what I have here are bug eyes. So get a partner and look and see how a bug sees" (T4-4).

Employing the active discovery approach ensures that children have opportunities to interact with nature in multiple fashions. The interpreters pay special attention to adapt their approach in order to discuss natural phenomena as they arise. For instance, a turtle on a log or a goose waddling across the trail provide inspiration and visual representations of concepts as they are being discussed. As one interpreter explained,

> "I really feel that that is how they learn, from their own experience. Balancing it with their own experience and any facts I can give them. Like if we see a muskrat that would be a good time to talk about it and make those connections for them"(I11-4).

By describing facts and relationships among concepts as they arise the interpreters have the opportunity to make integral connections for students. The knowledge is not acquired through lecturing or rote learning. It is meaningful to the children because the ideas emerge from their experiences interacting with nature.

The guides were well aware of the benefits of incorporating lessons of this nature into their tours. They described the need to encourage children to interact with both concepts and nature itself to have an impact on their perceptions of the environment.

> "Because sort of learning out of books, and on computer screens and not seeing the real thing, which is what I think makes that disconnection [from nature] so strong. That is why they come to a place like Fort Whyte and have never touched a spider and are terrified by them" (I1-6).

Their concern did not only pertain to the fear that many children harboured for creatures, it was also for the rift between humans and the environment.

> "Just knowing they were able to come and see things that they don't normally see in the city, I think it is something very important because if you are not in the environment you are not concerned about it"(I7-1).

The notion that immersion in a situation can lead to value development is a fundamental feature of the action learning method. As Caduto (1983) argues,

> "Because of the nature of environmental education, especially that which occurs outdoors, action learning is an integral, vital part of any environmental education program"(p. 18).

Action learning promotes the participation of students in a specific environment that demands continual decision making related to their personal values. By engaging students in an active way they are compelled to consider their opinions regarding the natural

world. It is hoped that these interactions will influence their beliefs regarding the environment and will encourage them to act in ecologically sensitive manners. As one insightful participant remarked,

> "Having fun and experiencing nature. You know, the environment isn't stuff you should just see, you need to experience it. Learning can be learning something little, you don't have to learn some big concept, just the little things. Just having fun, being outside, it's fun"(I10-1).

The active discovery strategy employed by the interpreters at Fort Whyte contains elements of the action learning approach to values education thereby facilitating the potential development of positive environmental values.

4.3.4 Program Content

Though all interpreters have some background in education, environmental studies or a combination of both, many felt it was most effective to adhere to the programs as designed by the education personnel at Fort Whyte. The guides are more comfortable discussing the concepts reviewed in the training sessions and specified in the lesson outline. One interpreter commented, "to stay to the script ... we have a program or subject matter and I like to stay as close to that as I can"(I3-1). It must be noted that it is essential that the guides relay the concepts articulated in the program objectives. Schools have registered for specific programs and it is therefore imperative that interpreters provide the information pertaining to those topics. During the lessons many guides employed descriptions of the main concepts, such as the following excerpt,

> "Those are cattails and they will all blow away. Those are seeds and then more cattails will grow. That goose is sitting on her eggs. All that around her is down that she picks off herself to line her nest to keep her eggs really warm"(T4-3).

This strategy was utilized in all programs as a means of instruction.

This technique is also demonstrative of the inculcation method of values education. Students are expected to passively acquire certain values as a result of influence from an authority source. Many of the programs have values embedded within their objectives such as *Endangered Spaces* which has as its goal "To help students appreciate how loss of habitat affects living species"(D6-1). This value is explicit within the lesson and is articulated frequently during delivery. For example,

> "We lose the places we lose the species. What would happen if we lost all the mosquitoes in the world, not that I would mind? Well first we would lose spiders and then frogs and then some plants. And eventually we would be directly affected because of the food chain. We need to make sure we appreciate that habitats need to be, what's the word? Right, biodiverse"(T1-2).

Consequently, students are specifically instructed regarding an appreciation of the environment. It is anticipated that in accordance with the inculcation model of values education, students will assume the position of appreciation that has been presented.

4.3.5 Questioning

Questioning is an approach implemented by all instructors at the Fort Whyte Centre as it is an effective means of engaging the attention of the group, particularly since they work together for a limited amount of time. Within this grouping are several forms of questioning; the straightforward inquisition, turning a question from a student back to the group and extracting information from the students to deepen their understanding. The interpreters observed were particularly efficient in inquiring in a manner that evoked more that just a single response. Not only

did they employ open-ended questions, they also encouraged critical thought without indoctrinating or patronising. Questions were posed in the following manner,

> "What's this? Yes, a ground squirrel like we saw this morning and a bird. Do you ever see one like that in your yard? I wonder why not?"(T4-2).

> "Let's say you took that great big bear, which would be difficult, and moved it to the desert. What would happen?"(T5-1).

Inquisitions of this nature urge students to consider various issues thereby facilitating the growth of their reasoning abilities. As Tappan and Brown (1996) contend, "*problem-posing* pedagogy, which focuses on real problems and issues drawn from the lived experience of students, encourages critical reflection on the part of both students and teachers" (p. 106). Interpreters were also encouraged to reflect individual questions back to the group. During the training sessions the following suggestion was offered,

> "If the kids ask questions throw it back to them to get their ideas. You can also leave the question hanging – they might come back to it later"(D1-1).

Queries of this type are similar to the technique espoused by the values clarification model of values education. This method maintains that children must be given opportunities to clarify their own value positions. It recommends that teachers reply to learner questions with comments that encourage students to consider their personal beliefs and opinions. It is apparent from the above illustrations that this model is woven into the Fort Whyte curriculum. Questions that stimulate critical thinking are an integral part of the program. Harshman (1978) argues that there is great potential to combine this approach with environmental education programs,

> "Values clarification processes can be important tools for the environmental educator concerned with stimulating student thought about personal life-style and its impact on other life-forms. The processes can help to direct student attention to the elements of the environment that are prized, those that are important but taken for granted and those that the student previously may not have felt important"(p. 35).

Though interpreters are unaware of values clarification techniques, it is apparent that this strategy is an element of the existing program. Further instruction regarding this approach to values education would enhance the effect of values development and overall environmental understanding and sensitivity.

4.3.6 Preparation

Preparation refers to the dedication of interpreters to ensure that their presentations contain all appropriate elements to create an optimal learning environment. They devote themselves to maintaining a clear understanding of the content and objectives of the programs by researching and spending time at Fort Whyte. The results are lessons that optimize the time children spend at the centre by illustrating concepts in an engaging manner through the presentation of factual information and demonstration on the trail. During the interviews a number of participants commented about the time they spent re-educating themselves as a result of their work at the facility. One interpreter was particularly descriptive,

> "I also make a point of doing a lot of reading whether it is text books or natural history books or National Geographic periodicals. To get as many neat things, you have to wade through a lot of material to get the basics but every once in a while you find one of those gems. For instance, turkey vultures barf to defend themselves. It is scientific fact but boy do kids love that. I will look for that kind of information to make my presentations and my colleagues presentations better and funner and more interesting"(I2-2).

Facts such as these stimulate the students and, it is hoped, foster an interest in learning more about the natural world. This strategy contains elements of the inculcation method of values education by presenting information that interpreters hope children will integrate into their environmental value system.

Preparation also entails their knowledge of age appropriate activities and language as well as group management techniques. The interpreter training sessions provide explanations of these characteristics. Consequently, the interpreters are capable, and comfortable, in ensuring that students act appropriately. This episode was observed during one tour,

> "Interpreter hears a child say to a classmate that no one likes him and the guide tells the student that she doesn't want to hear those kinds of comments" (T5-3).

This indicates elements of the behaviour modification model. Fundamental to this approach is the notion that student behaviour can be altered through positive or negative reinforcement. By condemning inappropriate comments the guide is attempting to alter the conduct of the child through the behaviour modification approach thereby attempting to shape the environmental value system of the student.

The notion that students will embrace values that a teacher or role model has identified as desirable is another element of the behaviour modification approach. Interpreters who engage the interests of the students through the presentation of outrageous facts they have researched and enjoying themselves while on the trail send a positive environmental message to children. This was revealed in numerous interviews,

> "I guess my whole goal is to try to get them interested, try to get them excited about nature, try to sort of make them see how fascinating it is"(I1-4).

Elements of modelling and the encouragement of positive ecological behaviour embedded in the preparation teaching strategy at Fort Whyte is an example of the behaviour modification approach to values education.

Behaviour modification is also apparent in the different exposure that Fort Whyte offers young people. As Michael Caduto (1983) argues "Behaviour modification has been proposed as another means of changing unsound environmental values and behaviour by providing learners with the opportunities for new experiences and by the use of positive and negative reinforcement" (p. 20). Implementing an instructional style that is fun and upbeat provides students with a new way of perceiving and understanding the environment. One interpreter commented about the potential to change attitudes by introducing students to the wonders of Fort Whyte.

> "You've got tens of thousands of hours of preparation, I mean you've got a lifetime of preparation just to show a child and just to watch that face ... when it's kind of a hard sell, so you get a kid coming off the bus that's just, I remember one girl and she kept going I don't want to be here and I said come in my group let's see what we can do. And in an hour and a half her whole attitude changes ... how wonderful that is when you get a kid to bite on something and really shape it and say I like this"(I8-5).

The centre itself is also aware of the ability to transform opinions and perceptions regarding the ecosystem. In a publication that documents their history and objectives they write,

> "Natural history subjects provide a basic understanding of local and global ecosystems, while Sustainable Living programs provide insight into personal environmental impacts of everyday life – emphasising positive actions towards a sustainable lifestyle" (D7-5).

Through their dedication to ensuring that their lessons are as innovative as possible, interpreters are implementing strategies proposed by behaviour modification in an effort to instill positive environmental values.

4.4 Conclusion

This investigation of the Fort Whyte Centre for Environmental Education has revealed that embedded in the program are the values of respect, appreciation and care-taking. These are evident in all facets of the Centre, from lesson construction and content to the personal perspectives of the interpreters and administrations. Implicit in the teaching strategies employed by the guides are elements of values education techniques. The education staff and individual interpreters are unaware of models of values education; but appear to unconsciously employ the methods. These observations have many implications for environmental education, which will be discussed in greater detail in Chapter 5.

Chapter 5

Conclusion

5.0 Introduction

Calls of wood ducks and mallards slowly fade into the angry horns of commuters. The cool sweet smelling breeze wafting off the lake and through the forest blends into a stale gust of polluted air and garbage fumes. The refuge of Fort Whyte fades into the background as the urban constructs of Winnipeg quickly dominate the horizon. It is difficult to believe that so close to the city is a natural retreat that can educate the mind while invigorating the spirit in a single afternoon. The educational programs and physical characteristics of the facility have the potential to meet intellectual requirements and, as this study has demonstrated, develop ecologically favourable value systems.

5.1 Summary of Findings

This investigation of the Fort Whyte Centre for Environmental Education revealed that embedded within the facility are specific values and values education approaches. Respect, appreciation and care-taking emerged as central characteristics of the program. Participants identified their childhood experiences in nature as directly impacting their interest in and dedication to correcting environmental problems. Furthermore, elements of values education are apparent in the teaching strategies employed by the interpreters. These findings suggest that the potential exists for the program at Fort Whyte to positively impact the value systems of the students who visit the facility. A brief review of these results will assist in the synthesis and clarification of the conclusions of this study.

5.1.1 Values

Data analysis illustrated that the values of respect, appreciation and care-taking are main components of the Fort Whyte Centre for Environmental Education. In remaining financially independent the Centre has maintained control of the content and structure of its educational programs. Funds received from external sources, such as companies, organizations and governmental agencies, must meet with the objectives specified by the facility. Diversifying their sources of income has ensured that their mandate of "Education in the art and science of keeping this planet habitable for all forms of life" (D7-1) is fulfilled.

The administration and personnel, both volunteer and paid, are united in their perceptions regarding the values taught by Fort Whyte's educational programs. All were aware of their potential to transmit personal beliefs during the instructional process. They maintained that the values they represent are in accordance with the purpose and goals of the Centre itself. As one interpreter remarked,

> "The values I share are the same as the program content and what Fort Whyte is trying to pass on. I don't have anything special" (I9-4).

They also stated that in sharing their values regarding the environment they are fulfilling their responsibility to improve the state of the ecosystem. Alerting students to the problems plaguing the planet is central to their justification for implementing values into their lessons.

The participants insisted that respect must be taught to impact the attitudes of their students regarding the environment. Interpreters and administrators asserted that in order to develop dedication to acting in environmentally responsible and sensitive manners, children must first acquire the value of respect. They

argued that by instilling a sense of respect students could then develop appreciation for the beauty and complexity of the natural world. By orientating their programs to specifically teach these values Fort Whyte has ensured that they are clearly articulated in their educational tours. Consensus also existed among the members of the staff to connect these values with actions children can integrate into their daily lives. Introducing care-taking activities, they contend, can influence children to become dedicated to living in environmentally responsible ways.

Participants maintained that teaching the values of respect, appreciation and care-taking is achieved by modelling positive environmental behaviour. Interpreters referred to their childhood interactions with nature as impacting their dedication to resolving ecological problems. They suggested that if they could provide youngsters with similar experiences then the potential existed for children to develop into environmentally aware adults. Additionally, they suggested that their initial exposure to wildlife influenced their teaching styles. As one interpreter explained,

> "My dad always camped with us ... I remember he never had things structured and that, when I use to take kids [students] out camping I would never structure anything. I mean if the geese landed you talked about geese if the Northern Lights came out you got the kids up and talked about the Northern Lights you talked about constellations as they appeared on clear nights. And I can remember in teaching they demanded that you set up objectives and all that and I can remember setting them all up and literally leaving them in the classroom. Just to say to hell with it I'm not teaching my kids that way, that wasn't the way I was taught about nature" (I8-2).

Participants felt that the lessons they present at Fort Whyte include elements of the manner in which they were introduced to nature. By sharing their personal experiences and perspectives with their students the interpreters are striving to instill the values

of respect, appreciation and care-taking in an effort to facilitate the development of environmentally aware and dedicated individuals.

5.1.2 Values Education Approaches

The teaching strategies employed by the guides at Fort Whyte include elements of values education models. Administrators, education staff members and volunteer interpreters were unaware of the field of values education. However, the data collected illustrated that components of inculcation, action learning, behaviour modification, values analysis and values clarification have been integrated into the instructional approaches utilized by interpreters. Evidence of these models indicates that the potential exists to develop environmental value systems in the students who visit Fort Whyte.

5.2 Implications for Education

This study has identified many issues that are significant for environmental education programs such as the one established by Fort Whyte. Firstly, articulating specific values in lesson objectives has ensured that these concepts are clearly stated during the instructional process. Orienting programs to teach the values of respect, appreciation and care-taking assured their articulation to students. These elements of the program were of prime importance to interpreters. During the interviews all expressed a desire to share these values with students. Observations of elementary school tours revealed that respect, appreciation and care-taking are presented to the children and are reinforced throughout the lesson. If environmental education programs seek to alter the present course of the ecosystem they must include values in their lessons. Additionally, it is essential that these concepts be specifically outlined in course program objectives to ensure that they are properly introduced to children.

Stating values in course objectives is not the only means of transmitting environmental beliefs to students. Interviews with the interpreters revealed that the personal values of the teachers are also ingrained in the instructional process. Guides indicated that they respect the environment, appreciate the beauty and wonder of the natural world and feel a personal sense of obligation to take care of the ecosystem. These are in accordance with the values upheld by Fort Whyte. Consequently it is difficult to determine the role personal values would occupy if they were in contrast to those established by the facility. Regardless, in any educational setting teachers must be aware of their own values along with the tendency that exists for the unconscious transferral of these beliefs.

The necessity and benefits of environmental education programs like Fort Whyte was illustrated by the personal recollections of interpreters. The participants argued that their childhood interactions with nature led to their lifelong dedication to ecological issues. Facilities teaching environmental education have the potential to instill concern for the health of the planet in youngsters. As Karmozyn, Scalise and Trostle assert,

> "Establishing an early foundation of experiences and discoveries about nature helps the child to later understand broader and more complicated, abstract issues. Beautification, environmental problem-solving and respect for our world are examples of [the] issues children will better understand and appreciate" (p. 228).

The memories of the participants illustrate the need for children to have opportunities to interact with nature. Programs offered by Fort Whyte, and similar facilities, have the potential to help children develop into adults dedicated to resolving environmental problems.

This study identified various teaching strategies employed by the interpreters at Fort Whyte. Within the methods of personal style, egalitarian environmentalism, active discovery, program content, questioning and preparation are elements of values education approaches. The education staff and administration involved in the development of programs along with interpreters responsible for the delivery of the lessons were unaware of models of values education. Identifying the existence of these methods within the educational programs at Fort Whyte indicates the potential to design curricula following the methods of values education. Merging these two fields provides students with opportunities to develop ecological value systems. As Michael Caduto (1984) argues,

> "If schools are to be successful in influencing learners to be socially and environmentally responsible people, they will need to conceive, develop and implement a comprehensive environmental values study program"(p. 31).

To ensure that children develop value systems based on respect and appreciation for the environment and a desire to take care of the ecosystem it is essential to integrate values education into environmental education programs.

In the thirty years since initial environmental education programs were launched much change has occurred within the field. Unfortunately ecological disasters continue to plague the planet and solutions to these problems continue to fail. As this study has established, the potential exists to improve the situation by merging the fields of environmental education and values education. The union of these domains contains the potential to facilitate the development of students dedicated to repairing and maintaining the health of the ecosystem.

5.3 Recommendations

1. Fort Whyte must continue to clearly indicate the values to be taught by their programs. It is apparent that by outlining these objectives, values occupy a central role during instruction. This inclusion facilitates the development of environmental values systems that are necessary to ensure the future of the planet.
2. The values and opinions of teachers need to be reviewed. By failing to acknowledge personal biases that interpreters hold it is impossible to ensure that these ideals are not transferred during educational process. Engaging in conversations to identify these v ''ıes will help reduce the potential for partiality and prejudice to enter into the learning process. It is conceivable that discussions of this nature could be integrated into the already existing interpreter training programs.
3. The dedication demonstrated by Fort Whyte to provide children with meaningful learning experiences in nature is both commendable and necessary. The interpreters' childhood recollections illustrate that youngsters must be given opportunities to interact with wildlife.
4. Spaces like Fort Whyte facilitate experiences that are scarce in most cities today. They are essential in maintaining an environmentally sensitive and aware population. More areas must be established and protected.
5. The training program in place at Fort Whyte is exceptional. The inclusion of values education techniques will only enhance their reputation as well as the effectiveness of their programs. Michael Caduto (1984) argues for preparation in this regard. He states that "of crucial importance in teacher education and training is proficiency in choosing and implementing appropriate valuing strategies" (p. 31). By neglecting to

educate interpreters in this regard, Fort Whyte has inadequately prepared them to deal with the value-laden issues implicit in environmental education. As was stated at the outset of this report, ecological problems are fundamentally moral-ethical dilemmas and need to be treated as such.

6. The programs themselves also need to be redesigned to include values education models. Activities and exercises advocated by the various approaches should be integrated to facilitate the development of environmental value systems.

5.4 Suggestions for Future Research

1. Limited research has been conducted regarding the effectiveness of environmental education centres. Therefore, research regarding program efficiency is necessary. This is required to identify both the knowledge and values acquired through participation in programs at environmental education facilities.
2. There is little research on the long-term impact of programs of this nature. Do the students become caretakers as a result of participation? Do these environmental lessons remain with them into adulthood as so many of the interpreters anticipated? Consequently, a longitudinal study of the educational impact of environmental education centres is recommended.
3. A comparative research study evaluating the effectiveness of a program that integrated specific values in its objectives contrasted with one that did not would be an interesting investigation.
4. Though I was unable to locate an environmental education centre explicitly employing values education approaches, research in a facility that included these methods would be of great importance to the field.

5. Finally, though unrelated to the specific focus of this study it must be noted that a number of the participants mentioned great satisfaction in teaching special needs groups. These consisted of students who were physically disabled as well as those who were enrolled in Special Education classes. The interpreters spoke with fondness and recalled the students being enthusiastic and energetic and felt that these were some of the best lessons they ever gave. This will prove to be useful information to a future researcher interested in the bridging of these two areas of study.

Teach your children
What we have taught our children
That the earth is our mother
Whatever befalls the earth
Befalls the sons of the earth
Man did not weave
The web of life
He is merely a strand in it
Whatever he does to the web
He does to himself.

Chief Seattle 1854
(D7-3)

Bibliography

Adams, C. (Ed.). (1996). The Soul Unearthed: Celebrating Wilderness and Personal Renewal Through Nature. New York, NY: G.P. Putnams Sons.

Allen, R. (1975). But the Earth Abideth Forever: Values in Environmental Education "Etc.". In J. Meyer, B. Burnham & J. Cholvat (Eds.). Values Education. (pp. 1-24). Waterloo, Ontario: Wilfrid Laurier University Press.

Baker, M., Doran, R. & Sarnowski, A. (1978). An Analysis of Environmental Values and Their Relation to General Values. Journal of Environmental Education. 10 (1), 35-40.

Belenky, M., Clinchy, B., Goldberger, N. & Tarule, J. (1997). Women's Ways of Knowing. New York, NY: Basic Books.

Benninga, J.S. (Ed.). (1991). Moral, Character and Civic Education in the Elementary School. New York, NY: Teachers College Press.

Bogden, R. & Bilken, S. (1982). Qualitative Research for Education: An Introduction to Theory and Methods. Boston, MA: Allyn & Bacon Inc.

Caduto, M. (1983). A Review of Environmental Values Education. Journal of Environmental Education. 14 (3), 13-21.

Caduto, M. (1984). A Teacher Training Model and Educational Guidelines for Environmental Values Education. Journal of Environmental Education. 16 (2), 30-34.

Caldicott, H. (1992). If You Love This Planet: A Plan to Heal the Earth. New York, NY: W.W. Morton and Company.

Carbone, P. (Ed.). (1987). Value Theory and Education. Malabar, FL: Robert E. Kreiger Publishing Company.

Cohen, S. (1992). Promoting Ecological Awareness in Children. Childhood Education. 68 (5), 258-260.

Cross, M. (1987). The Never Ending Story: Moral Valuing as an Important Approach to Moral Education. Journal of the Institute of Education. (37) pp. 5-13.

Cummings, S. (1974). A Methodology for Environmental Education. Journal of Environmental Education. 6 (2), pp. 16-20.

Dewey, J. (1938). Experience and Education. New York, NW: Macmillan Publishing Co.

Disinger, J. (1985). Current Trends in Environmental Education. Journal of Environmental Education. 17 (2), 1-3.

Frazier, A. (1980). Values, Curriculum and the Elementary School. Boston, MA: Houghton Mufflin Company.

Freire, P. (1970). Pedagogy of the Oppressed. (M. Ramos, Trans.). New York, NY: Continuum.

Freire, P. (1996). Letters to Christina: Reflections on my Life and Work. (D. Macedo, Trans.). New York, NY: Routledge.

Gow, E. (1980). Yes Virginia, There is a Right and Wrong ! Values Education Survival Kit. Toronto, Ontario: John Wiley and Sons Canada Limited.

Halstead, M. & Taylor, M. (1996). Values in Education and Education in Values. Washington, DC: Falmer Press.

Hammerman, D. & Hammerman, W. (1968). Outdoor Education: A Book of Readings. U.S.A.: Burgess Publishing.

Harshman, R. (1978). Values Education Processes for an Environmental Education Program. Journal of Environmental Education. 10 (2), 30-34.

Hart, E.P. (1981). Identification of Key characteristics of Values Education. Journal of Environmental Education. 13 (1), 12-16.

Heimlich, J. & Harako, E. (1994). Teacher Values in Teaching Recycling. Environmental Education and Information. 13 (1), 21-30.

Hersch, R. & Mutterer, M. (1975). In Meyer, J, Burnham, B and Cholvat, J. (Eds.), Values Education (pp. 65-69). Waterloo, Ontario: Wilfrid Laurier University Press.

Hersh, R., Miller, J. & Fielding, G. (1980). Models of Moral Education: An Appraisal. New York, NY: Longman, Inc.

Hungerford, H., Peyton, B. & Wilke, R. (1980). Goals for Curriculum Development in Environmental Education. Journal of Environmental Education. 11 (3), 42-47.

Hungerford, H. & Volk, T. (1990). Changing Learner Behavior Through Environmental Education. Journal of Environmental Education. 20 (3), 8-21

Hunt, M. (1993).The Story of Psychology. New York, NY: Doubleday.

Iozzi, L. (1989a, Spring). Part One: Environmental Education and the Affective Domain. Journal of Environmental Education. 20 (3), 3-9.

Iozzi, L. (1989b, Summer). Part Two: Environmental Education and the Affective Domain. Journal of Environmental Education. 20 (4), 6-14.

Karmozyn, P., Scalise, B. & Trostle, S. (1993). A Better Earth: Let it Begin With Me. Childhood Education. 69 (4), 225-230.

Kirschenbaum, H. (1992). A Comprehensive Model for Values Education and Moral Education. Phi Delta Kappan. 73 (10), 771-776.

Kohlberg, L. (1975). The Cognitive-Developmental Approach to Moral Education. In P. Carbone (Ed.), Value Theory and Education. (pp. 226-243). Malabar, FL: Robert E. Kreiger Publishing Company.

Knapp, C. (1972). Teaching Environmental Education with a Focus on Values. In Kirschenbaum, H. & Simon, S. (Eds.). (1973). Readings in Values Clarification. (pp. 161-174). Minneapolis, MN: Winston Press.

Knapp, C. (1983). A Curriculum Model for Environmental Values Education. Journal of Environmental Education. 14 (3), 22-26.

Knowles, J.G. (1996). Reflections on an Outdoor Education Experience. In C. Adams (Ed.), The Soul Unearthed: Celebrating Wilderness and Personal Renewal Through Nature. New York, NY: G.P. Putnams Sons.

Lamb, W. (1975). Classroom Environmental Value Clarification. Journal of Environmental Education. 6 (4), 14-17.

Lickona, T. (1991). In J.S. Benninga (Ed.), Moral, Character and Civic Education in the Elementary School (pp. 67-83). New York, NY: Teachers College Press.

Lickona, T. (1993). The Return of Character Education. Educational Leadership. (51), 6-11.

Martin, G. & Wheeler, K. (Eds.). (1975). Insights into Environmental Education. United Kingdom: Willmer Brothers.

Maykut, P. & Morehouse, R. (1994). Beginning Qualitative Research. Washington, DC: Falmer Press.

Mertens, D. (1998). Research Methods in Education and Psychology. Thousand Oaks, CA: SAGE.

Meyer, J., Burnham, B. & Cholvat, J. (Eds.). (1975). Values Education. Waterloo, Ontario: Wilfrid Laurier University Press.

Milbrath, L. (1996). Learning to Think Environmentally. Albany, NY: State University of New York Press.

Miles, J. (1977). The Study of Values in Environmental Education. Journal of Environmental Education. 9 (2), 5-17.

Mowat, F. (1990). Rescue the Earth! Conversations with the Green Crusaders. Toronto, ON: McClelland and Stewart.

Oser, F.K. (1996). Learning from Negative Morality. Journal of Moral Education. 25 (1), 67-73.

Palmer, J. (1993). Development of Concern for the Environment and Formative Experiences of Educators. Journal of Environmental Education. 24 (3), 26-30.

Ragalon, R. (1993). Reading the World: Overt and Covert Learning in Environmental Writing for Children. Journal for Environmental Education. 24 (4), 4-7.

Raths, L., Harmin, M. and Simon, S. (1976). Values and Teaching. In P. Carbone (Ed.), Value Theory and Education (pp. 198-214). Malabar, FL: Robert E. Krieger Publishing Company.

Robertson, B. (1992). Open to Interpretation. The Winnipeg Free Press. 19 July 1992.

Rokeach, M. (1973). The Nature of Human Values. New York, NY: Macmillan Publishing.

Rokeach, M. (1975). Toward a Philosophy of Value Education. In J. Meyer, B. Burnham & J. Cholvat. Values Education. (pp. 117-126). Waterloo, Ontario: Wilfrid Laurier University Press.

Shaw, J. (1975). In G. Martin & K. Wheeler (Eds.). Insights into Environmental Education. (pp. 33-38). United Kingdom: Willmer Brothers.

Silver, M. (1976). Values Education. Washington, DC: National Education Association.

Silverman, D. (1993). Interpreting Qualitative Data: Methods for Analyzing Talk, Text and Interaction. London, England: SAGE.

Singletary, T. (1992). Case Studies of Selected High School Environmental Education Classes. Journal of Environmental Education. 23 (4), 35-40.

Smyth, J. (1996). Environmental Values and Education. In J.M. Halstead & M.J. Taylor (Eds.). Values in Education and Education in Values. (pp. 54-67). Washington, DC: Falmer Press.

Stapp, W. (1978). In UNESCO. Prospects: Educating for a Better Environment.

Stern, P. & Dietz, T. (1994). The Value Basis for Environmental Concern. Journal of Social Values. 50 (3), 65-84.

Stiles, J. & Hudson, K. (1997). Getting Back in Touch: Re-connect with the Environment and Yourself. Science and Children. 34 (8), 25-27.

Superka, D., Ahrens, C., Hedstrom, J. & Ford, L., (Eds.). (1976). Values Education Sourcebook: Conceptual Approaches, Materials Analyses and an Annotated Bibliography. Boulder, Colorado: Social Science Education Consortium.

Suzuki, D. (1996). In L. Milbrath. Learning to Think Environmentally. (Forward). Albany, NY: State University of New York Press.

Tanner, T. (1980). Significant Life Experiences: A New Research Area in Environmental Education. Journal of Environmental Education. 11 (4), 20-24.

Tappan, M.B., & Brown, L.M. (1996). Envisioning a Postmodern Moral Pedagogy. Journal of Moral Education. 25 (1), 101-109.

Taylor, M.J. (1995). An Umbrella and a Strong Support. The Times Educational Supplement. 9 June 1995.

Thomas, I. (1990). Evaluating Environmental Education Programs Using Case Studies. Journal of Environmental Education. 21 (2), 3-8.

Vidart, D. (1978). In UNESCO. Prospects: Educating for a Better Environment. (pp. 466-479).

Wheeler, K. (1975). In G. Martin & K. Wheeler (Eds.) Insights into Environmental Education. (pp. 2-19). United Kingdom: Willmer Brothers.

Whitt, E. (1991). Artful Science: A Primer on Qualitative Research Methods. Journal of College Student Development. 32 (5), 406-415.

Wren, G. (1998). What is Winnipeg Wild? Branta. 16 (1), 2.

UNESCO. (1977). Trends in Environmental Education. Paris: UNESCO.

UNESCO. (1978). Prospects: Educating for a Better Environment. 13(4).

Electronic References

Manitoba Government News Release. (1998). *Sustainable Development Award Winners*, [Online]. Available: http://www.gov.mb.ca/cgi-bin/print_hit_b...ess/top/1998-06/june0301.html [1998, June 30].

National Consortium for Environmental Education and Training. (1998). *Key Principles of Environmental Education*, [Online]. Available: http://nceet.snre.umich.edu/keyprinc.html [1998, June 26].

Appendices

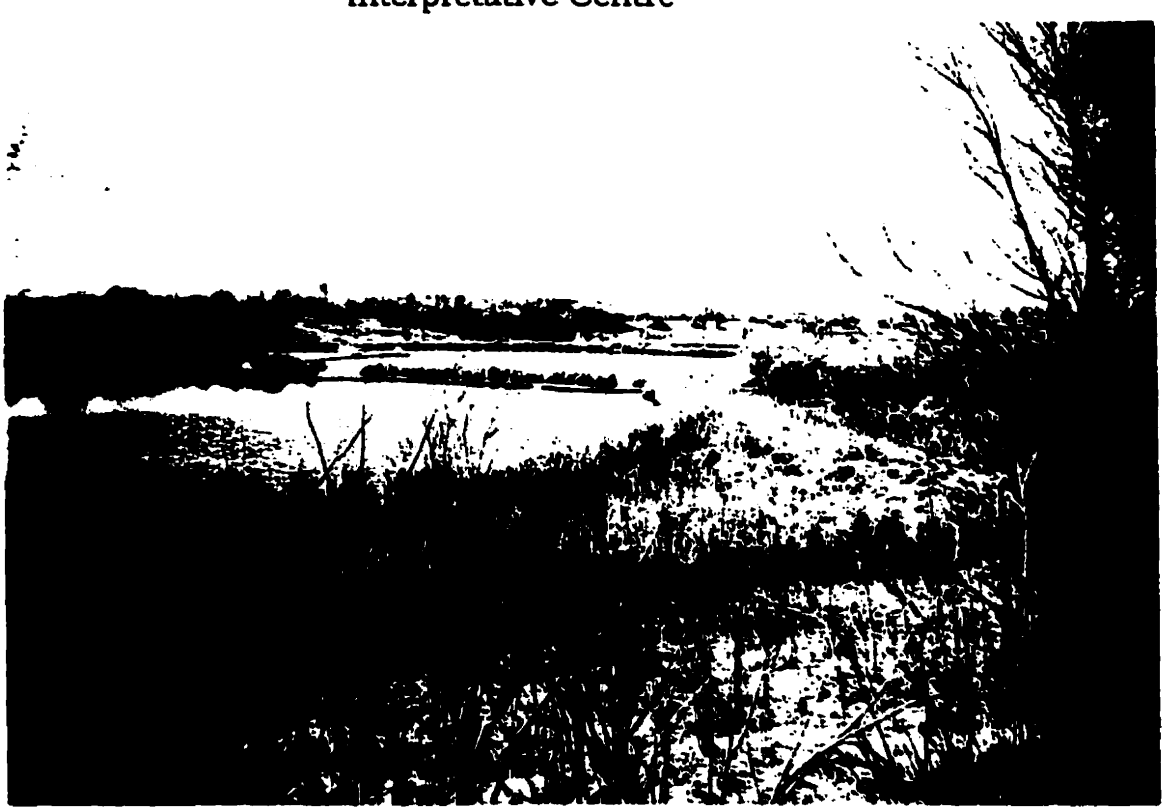
Appendix A

History of the Fort Whyte Centre for Environmental Education	
Date	**Event**
1911	-Canada Cement Company began production -As pits were abandoned after excavation they filled with rainwater and melting snow and evolved into four large lakes, which became home to a variety of wildlife.
1950	-Flood introduced several species of fish and other aquatic life into the lakes, swamps and marshes. -Many animals flocked to the area such as deer, rabbits, muskrats, mink and a variety of waterfowl.
1957	-Employees of Canada Cement (now Canadian Cement LaFarge Ltd.) released three pairs of Canadian Geese as part of their conservation project.
1966	-Wildlife Foundation of Manitoba incorporated a special act of legislation and created the Fort Whyte Foundation Inc. It was established as a privately operated, non-profit organisation to promote environmental awareness.
1974	-Fort Whyte Nature Centre established.
1983	-New energy efficient and environmentally friendly interpretative centre opens.
1984	-Parkland Lakes self-guiding trail opens.
1989	-Aquarium of the Prairies opens.

Information taken from; Bud Robertson, "Open to Interpretation", Winnipeg Free Press, July 19, 1992.

Appendix B
Photographs of the Fort Whyte Centre

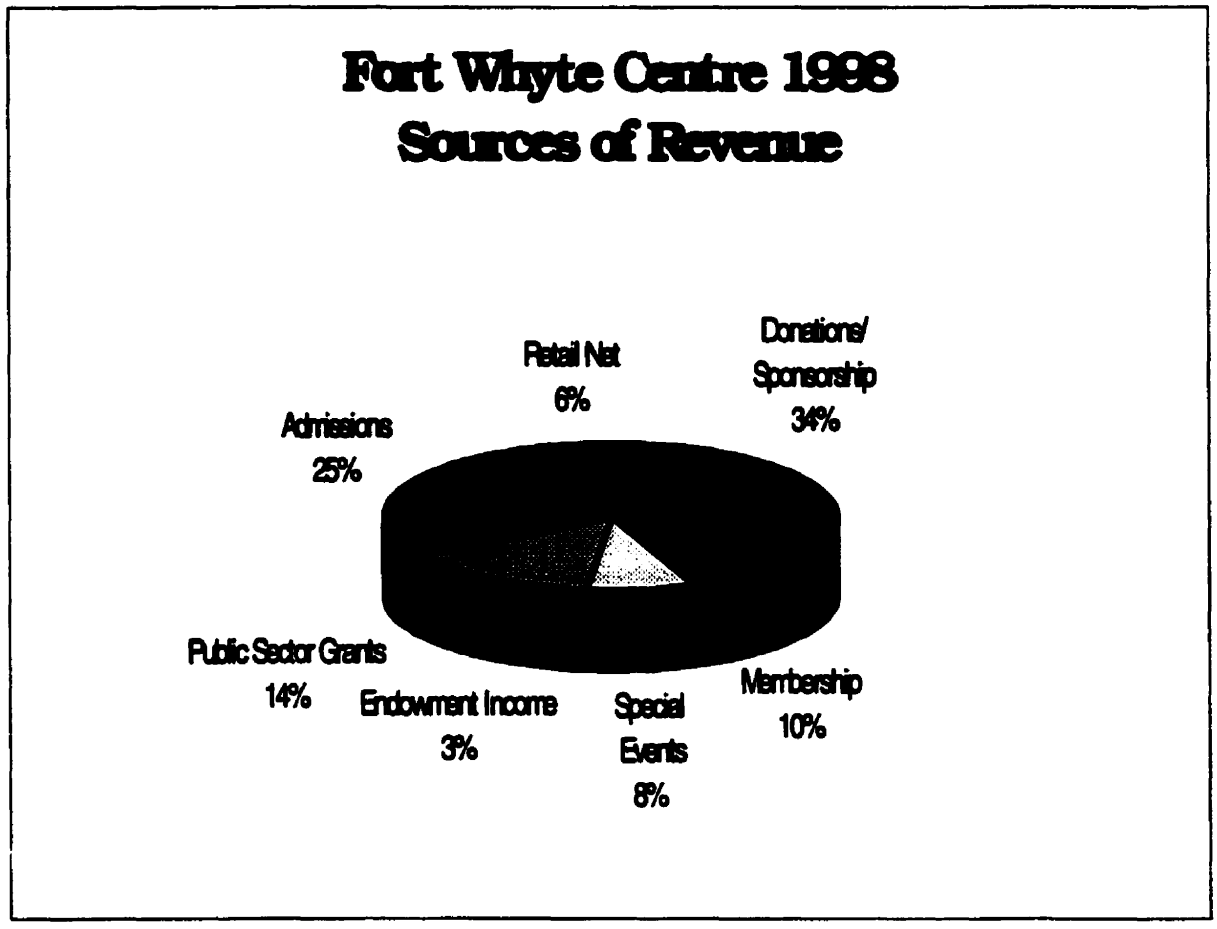
Interpretative Centre



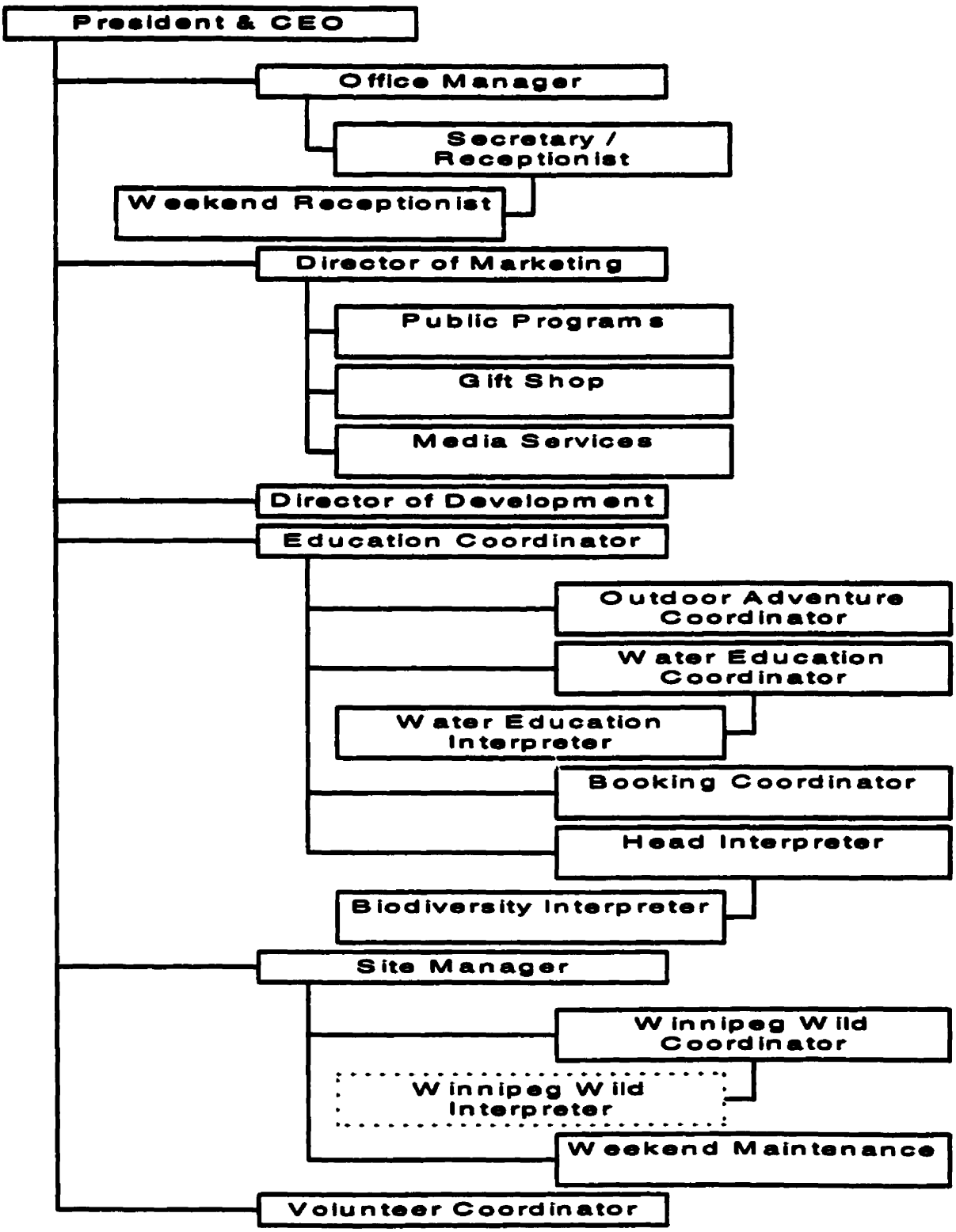
Marsh

Floating Boardwalk

Waterfowl Gardens


Fort Whyte Centre 1998
Sources of Revenue
Retail Net
6%
Donations/
Sponsorship
34%
Admissions
25%
Public Sector Grants
14%
Endowment Income
3%
Special
Events
8%
Membership
10%

Appendix D
Fort Whyte 1998 Organizational Chart



Appendix E

Fort Whyte Elementary School Programs Spring 1998		
Title	**Grades**	**Goals/Objectives**
Animal Tales	Pre-school 3-5 years old	To encourage pre-school children to explore nature using all of their senses; to deepen their understandings of the concept of the Canada Goose and to deepen their appreciation of the natural world and one of its creatures.
Nature Alive	Kindergarten and Gr. 1	The student should be able to: 1. List three differences between spring and winter. 2. Describe two changes occurring in plants during spring. 3. Describe two changes in animal activity during spring.
Cattails and Coots	Grades 2-3	To introduce students to a variety of wetland life cycles and interactions between plants and animals. The student should be able to: 1. Describe the life cycles of various wetland plants and animals. 2. Describe how some wetland plants and animals interact.
Adapt or Die	Grades 4-6	The student should be able to: 1. Define adaptation and distinguish between physical and behavioural adaptations. 2. Define habitat and list the five essential components habitat provides which living organisms need for survival. 3. Explain adaptations and how they help an animal acquire the five major habitat components.
Endangered Spaces	Grades 4-6	The student should be able to: 1. Define endangered spaces. 2. Name at least three factors that contribute to endangered spaces. 3. Define biodiversity. 4. Name at least two reasons why biodiversity is important.

Appendix F
Fort Whyte School Program Evaluation Form

Your feedback helps us to improve our programs, so that we can better meet the needs of your students in the future. Please take a few minutes of your time to complete this assessment and mail it in the attached envelope to:

Fort Whyte Centre, 1961 McCreary Road Winnipeg, MB R3P 2K9

School: Grade:
Program: Date of Program:
Name of FWC Interpreter:

For each question, please circle the statement which best describes your feeling:

Program Content:

1. The program material reinforces what I am, or will be teaching in the classroom.

strongly disagree disagree neutral agree strongly agree

Comments:

2. The content was appropriate for the grade level of my class.

strongly disagree disagree neutral agree strongly agree

Comments:

3. The length of the program was just right.

strongly disagree disagree neutral agree strongly agree

Comments:

4. There were enough opportunities for active participation for my students.

strongly disagree disagree neutral agree strongly agree

Comments:

5. The program activities were:

- Well explained

strongly disagree disagree neutral agree strongly agree

- Well varied

strongly disagree disagree neutral agree strongly agree

- Of appropriate duration

strongly disagree disagree neutral agree strongly agree

Comments:

6. The ration of indoor/outdoor activities was just right.

strongly disagree disagree neutral agree strongly agree

Comments:

Program Delivery:

1. The theme of the program was well developed during instruction.

strongly disagree disagree neutral agree strongly agree

2. The theme of the program was carried throughout the program

strongly disagree disagree neutral agree strongly agree

3. The theme of the program was well summarized at the end.

strongly disagree disagree neutral agree strongly agree

4. The interpreter introduced him/herself.

strongly disagree disagree neutral agree strongly agree

5. The interpreter spoke clearly with appropriate vocabulary.

strongly disagree disagree neutral agree strongly agree

6. The interpreter actively engaged my students.

strongly disagree disagree neutral agree strongly agree

7. The interpreter asked questions that encouraged students to think.

strongly disagree disagree neutral agree strongly agree

8. The interpreter focused the group before talking.

strongly disagree disagree neutral agree strongly agree

9. The interpreter gave accurate information.

strongly disagree disagree neutral agree strongly agree

10.The interpreter was friendly.

strongly disagree disagree neutral agree strongly agree

11.The interpreter was enthusiastic.

strongly disagree disagree neutral agree strongly agree

Comments:

General Information:

1. In your opinion, what was the strongest part of the program?
2. In your opinion, what was the weakest part of the program?
3. Which part(s) of the program did the students enjoy the most?
4. Which part(s) of the program did the students enjoy the least?
5. Please comment on the value of pre- and post-visit kits.
6. Would you bring another class for this program nest year?
7. Additional comments/suggestions for improvement.

Thank you for your help.

Appendix G

Guiding Principles in Implementing Environmental Education	
Principle	**Description**
Environmental education should consider the environment in its totality.	Natural and built, ecological, political, economic, technological, social, legislative, cultural and aesthetic.
Environmental education should be a continuous lifelong process.	It should begin at the pre-school level and continue through all formal and non-formal stages.
Environmental education should be interdisciplinary in its approach.	Drawing on the specific content of each discipline in making possible a holistic and balanced perspective.
Environmental education should emphasize active participation.	This should be encouraged to prevent environmental problems and to work toward feasible solutions.
Environmental education should enable learners to play a role in planning their learning experiences.	Students should have the opportunity to make decisions regarding their learning and should have to accept their consequences.
Environmental education should focus on current and potential environmental situations.	Learners need to be able to see the relevance in terms of the concepts they are learning, as a result, topics should be recent so that students can see the impact of environmental problems. At the same time, they must feel empowered in terms of the possibility of proposing and working towards possible solutions.
Environmental education should explicitly consider environmental aspects in plans for development and growth.	
Environmental education should promote interrelationships of peoples and environment.	There is interplay between human beings and the natural environment in that we are all inhabitants of the same earth and need to respect all the other citizens of the planet. This is an essential element of environmental education and must be highlighted.
Environmental education should examine environmental issues from local, national and international points of view.	Learners need to receive insight into environmental conditions in other geographical areas.
Environmental education should focus on the learner's own community.	Topics should relate to issues being discussed at State, regional, national and international levels to emphasize ways in which the student's lives could be altered because of environmental problems in their community and part of the world.
Environmental education should relation environmental sensitivity, knowledge, problem solving and values at every grade level.	Special emphasis should also be placed on environmental sensitivity in the early years. When children are young they feel an almost innate connection with nature and animals and this needs to be fostered and encouraged
Environmental education should emphasize the complexity of environmental problems and the need to develop critical thinking and problem-solving skills.	
Environmental education should utilize the diverse learning environments and a broad array of educational approaches.	Some suggestions include teaching and learning both about and from the environment with due stress on practical activities and first-hand experience.

Adapted from: "Prospects: Educating for a Better Environment" (1978) Vol. 8, No. 4, UNESCO, Paris, (pp. 497).

Appendix H

MCGILL UNIVERSITY
FACULTY OF EDUCATION

CERTIFICATE OF ETHICAL ACCEPTABILITY FOR RESEARCH INVOLVING HUMAN SUBJECTS

A review committee consisting of three of the following members:

1. Prof. E. Lusthaus	1. Prof. M. Maguire
2. Prof. R. Ghosh	2. Prof. G. Isherwood
3. Prof. M. Downey	3. Prof. C. Mitchell

has examined the application for certification of the ethical acceptability of the project entitled:

"Values Orientation of An Environmental Education Centre : A Case Study"

as proposed by:

Applicant's Name Monica Lynch Supervisor's Name David Smith

Applicant's Signature Monica Lynch Supervisor's Signature David C. Smith

Degree Program M.A. Granting Agency _____

The review committee considers the research procedures as explained by the applicant in this application, to be acceptable on ethical grounds.

(Signatures)

a) M J Downey Date 98/02/10

b) Mary Maguire Date 98/02/18

c) E Lusthaus Date 98/02/17

Associate Dean (Academic) Date 98/02/17

Appendix I
Interview Consent Form

April 6, 1998

I am presently conducting research for my Masters of Arts in Culture and Values in Education at McGill University in Montreal and am focusing my research on environmental education. More specifically, I am investigating the underlying values in environmental education programs.

Consequently, I am requesting your participation in my study. I would like to interview you on one or two occasions for an hour each time. I am interested in learning about the values you identify in your own teaching of environmental education and in your perceptions of the values underpinning the environmental program in which you are a participant. I am not interested in evaluating your performance as a teacher, I am more concerned in hearing your personal views and opinions relating to environmental education and values.

If for any reason you wish to discontinue your participation, you may withdraw from the study at any time.

I will be tape-recording the interviews so as not to disrupt our conversations by taking notes. However, if you would prefer that I not tape I would be happy not to use that means of recording our discussions. In my final report, all parties involved will have their names changed to maintain anonymity. I will, however, identify the Fort Whyte Centre as the site of my research as I feel it will be beneficial for those reading my report.

Though I realize this may be slightly time consuming, it may prove to be personally rewarding. We will have the opportunity to share personal opinions about teaching environmental education and may have the opportunity to gain insight from our common experiences.

If you are interested in participating could you please fill out the portion below. If you have any questions please do not hesitate to contact me personally at _____ or my thesis advisor Dr. David Smith at _____.

Thanking you in advance,

Monica Lynch

[ ] I am willing to be interviewed.
[ ] I am willing to be tape-recorded.

_____

Participants Signature

Appendix J
Observation Consent Form

April 6, 1998

I am presently conducting research for my Masters of Arts in Culture and Values in Education at McGill University in Montreal and am focusing my research on environmental education. More specifically, I am investigating the underlying values in environmental education programs.

Consequently, I am requesting your participation in my study. I would like to follow along with you while you give a tour to an elementary school class. I am interested in hearing what you tell the children during your presentation. I am not interested in evaluating your performance as a teacher, I am more concerned about the environmental education program in general at the Fort Whyte Centre for Environmental Education.

If for any reason you wish to discontinue your participation, you may withdraw from the study at any time.

I will be writing down what you say and do while teaching your class. In my final report, all parties involved will have their names changed to maintain anonymity. I will, however, identify the Fort Whyte Centre as the site of my research as I feel it will be beneficial for those reading my report.

If you are interested in participating could you please fill out the portion below. If you have any questions please do not hesitate to contact me personally at _____ or my thesis advisor Dr. David Smith at _____.

Thanking you in advance,

Monica Lynch

[ ] I am willing to be observed while conducting a tour of the Fort Whyte Centre.

_____

Participants Signature

Appendix K
Interview Questions

1. How long have you worked here at Fort Whyte?

2. Why did you initially become involved in the field?
   (Do you have any training or experience in education or as a teacher?)

3. Were there any people or experiences that influenced you?

4. What would you identify as your goals when interpreting for elementary school children?

5. How do you achieve these goals?

6. Are these in any way different from the goals established by the centre itself?

7. What motivates you to do this work?

8. Could you describe for me in detail the worst tour you ever gave?

9. Could you describe for me in detail the best tour you ever gave?

10. What are the environmental messages you hope to pass on?

11. What personal values regarding the environment do you hope to pass on?

12. How do you achieve this goal?