

INTERGENERATIONAL ECO-EDUCATION: AN EXPLORATION OF CHILD INFLUENCE
ON PARENTAL ENVIRONMENTAL BEHAVIOUR

By

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B.A., University of Guelph, 2004

A thesis submitted in partial fulfillment
of the requirements for the degree of

MASTER OF ARTS
in
ENVIRONMENTAL EDUCATION AND COMMUNICATION

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April 2009

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Abstract

This research investigates the nature of the influences children have on their parents' environmental behaviour following involvement in a week long environmental education experience. Using the grounded theory method, children and their mothers were interviewed about their ideas about the ways they felt the children influenced their parents. Four of the five children interviewed reported that they influenced their parents, citing examples of environmental action in the home as an area of influence. Similarly, the majority of parents felt their environmental knowledge and behavior was influenced by their children. What appear to be barriers to effective child-to-parent influence communication are explored, including aspects of program enjoyment and relationships between family members. The theme of child confidence and its relationship to child-to-adult influence is also considered. Areas for future research are identified, including a recommendation for research into the child-to-father influence relationship.

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I am sincerely thankful to my supervisor, Dr. Bonnie Shapiro, whose guidance, encouragement and support contributed to my entire thesis journey in immeasurable ways. I am deeply indebted to the expertise and wisdom of Dr. Richard Kool, who I am honoured to have as a mentor and friend. My association with you and the MEEC program at Royal Roads University has truly changed my life. To my intrepid editors; Katherine Istead, Marg Milliken and Traci Tanner, I am grateful for the many hours that you invested looking over countless drafts. It was your advice that motivated me forward. A special thank you to my participants who welcomed me into their homes and willingly shared their experiences.

I would also like to acknowledge my friends, who taught me the importance of balance in this journey. I feel so lucky to have such a terrific network of truly inspirational people in my corner. To my extended family, your continued encouragement has been greatly appreciated. Lastly, I would like to thank my parents whose love and patience have been unwavering during my entire educational career. This one's for you. Go confidently in the direction of your dreams. Live the life you imagine. - Thoreau

Chapter 1: Introduction

There is a growing movement that has identified the importance of teaching and connecting children with their natural environment (Louv, 2008). The participation of school children in environmental education programs has become an increasingly popular method of achieving this goal, and in some instances, it is a required aspect of school board or Education Ministry curriculum (Alberta Education, 1996).

Significant human and financial resources, spread across numerous organizations, are dedicated each year to the development and delivery of programs that teach about the environmental challenges society faces today (Liu & Kaplan, 2006, p. 9). Within the City of Calgary, Alberta, the Calgary Zoo, the Inglewood Bird Sanctuary, and the Cross Conservation Area (through the Chevron Open Minds School Program) are just a few of the many providers that deliver environmental education programs for school-aged children. Program providers look to continuously improve on their mandates, deepening and widening the impact of their messages, despite the limited growth of their budgets. Most educators hope that the children participating in these programs will emerge with a deeper environmental consciousness, and there is optimism that these children will be influential in developing future policy and environmental practice. However, the students are as yet too young to have voter power and direct influence in these affairs (Duvall & Zint, 2007; Sutherland & Ham, 1992). Many environmental challenges will require decisions to be made long before these children are in a position to act on a policy or economic level. As Uzzell asserts, “It is adults who need to institute and engage in changed behaviours, adults who are parents but also consumers, industrialists, community leaders, educators and policy and decision makers in all walks of life” (1999, p. 397). The need for programs that target adults has been identified within the environmental

education community (Duvall & Zint, 2007, p. 15). However, many barriers to adult education exist, such as the limited amount of time that adults have available, the need to expand appropriate adult communication methods in environmental education and limited funding for resource development and delivery (Ballantyne, Connell, & Fien, 1998a, p. 293). Adults generally learn about environmental issues through the media which, while successful at increasing knowledge, does very little to move individuals from awareness to action (Ballantyne, et al., 1998a, p. 286) Thus, in an age of imminent environmental crisis, how can environmental educators reach today's adult population who have the power to change attitudes and behaviours, when children are regarded as the main audience for environmental messaging?

Rethinking Relationships

Ballantyne, Connell and Fien (1998a) have conducted research into the notion that children can act as catalysts for environmental change by educating their parents using the knowledge and skills gained in environmental programming experiences. This type of education is referred to as an *intergenerational influence* (p. 286). The root word, *generation* as defined by Hagestad (1981), refers to 'a person's position in family lineage' (as cited in Gadsden & Hall, 1996, p. 5). I have used the term *intergenerational* throughout this thesis to mean *between two generations of a family*. *Influence* is defined as 'to have an effect on the condition or development of something' (Merriam-Webster, 2008).

In my experience as a childcare worker, and having had the opportunity to observe many interactions between child and parent, I have found that children do seem to exert significant influence on their parents. Research in this area does indicate that children can actively sway their parents' choices, attitudes and values (Ballantyne, Fien, & Packer, 2000, p. 9). Researchers in the field of marketing have studied the ability of children to influence the knowledge and

behaviour of their parents for decades, indicating that children play a significant role in influencing the consumer choices of their parents (Duvall & Zint, 2007, p. 15). Kruger (1992), Sutherland & Ham (1992) and Uzzell (1994) (as cited in Ballantyne et al., 2000, p. 9) have provided evidence that young people can influence their elders' environmental awareness. However, the processes of how a child influences his or her family members are not yet fully understood. A review of the literature for this thesis reveals that the majority of research is concerned with the influence adults have on children, with any reciprocal influence being incidental rather than deliberate (Ballantyne et al., 1998a; Cowan & Avants, 1988; Uzzell, 1999). Despite the emphasis on research that focuses on adults, child-to-parent influence research is a growing discourse, with researchers like Roy Ballantyne and David Uzzell taking the lead. Their work holds tremendous potential for addressing current environmental problems using environmental education programming for students that considers the impact students have on their parents. They argue that "the importance of intergenerational influence processes cannot be underestimated as a means of 'multiplying' the impact of school environmental education programmes beyond the boundaries of the classroom" (Ballantyne et al., 1998a, p. 286).

Significance of Intergenerational Research

Child-to-adult influence is a relatively new way of considering the dynamics in the family relationship. More analysis must be conducted surrounding the communication processes children use to influence or inspire their parents to change behaviours (Ballantyne et al., 1998a, p. 293). Ballantyne et al. have identified areas where further research is required including describing the nature of the interactions between young people and their parents, the factors affecting the process of intergenerational influence and the development of a method for measuring the flow of communication between child and parent (1998a, p. 293). I feel that my

research, which is designed to investigate the processes involved in child-to-adult intergenerational influence and communication has the potential to contribute to a better understanding of these communication processes. A description of the nature of these influences and an increased understanding of how each of the individuals in the relationship perceive this influence are positive outcomes of this research. The thesis research is somewhat unique in the field of child-to-adult intergenerational influence research because it was conducted qualitatively, using grounded theory methods, whereas the majority other studies in this field have taken a mixed method approach.

Studies of Intergenerational Learning

Sutherland & Ham (1992) conducted a study that looked to identify the transfer of environmental information and ideology through a series of pre- and post-test interviews with parents. Another study of children's environmental knowledge and attitudes was conducted with a pre- and post-test format, while their parents responded to a closed-answer questionnaire (Leeming, Porter, Dwyer, Cobern & Oliver, 1997). Vaughn, Gack, Solorazano & Ray (2003) conducted an intergenerational influence study, that surveyed parents to determine whether their children had educated them about environmental lessons learned in a Scarlet Macaw conservation program in Costa Rica. Their study used three sets of quantitative tests to track the spread of influence from child to adults in the community but failed to ask qualitative questions about the processes of communication between the family members. Several other studies have been conducted using mixed methods procedures (Ballantyne et al., 1998; Uzzell, 1994). As an addition to the research previously conducted, the results from my thesis may help to develop a more complete picture of the existence and nature of child-to-adult influence.

The research presented in this thesis will contribute to the discipline of intergenerational research but also to the larger disciplines of both education and environmental education. A greater understanding of this relationship should be important to teachers who wish to deepen the impact of their work in all disciplines (Ballantyne, et al., 1998a, p. 292). The recognition and inclusion of intergenerational influence in environmental education offers numerous potential benefits to stakeholders. Including and planning for intergenerational influence in education programs can present contextual learning experiences for students and will challenge them with new opportunities to develop environmental citizenship competencies (Tilbury, 1995, as cited in Ballantyne et al., 1998a, p. 287). Strengthening and supporting student, parent and community relations by encouraging action is another possible result of intergenerational interaction (Ballantyne, et al., 1998a, p. 287). Increasing adult awareness, concern and action are some of the most significant outcomes (Duvall & Zint, 2007, p. 15).

With an increased knowledge of the ‘multiplying effect’ of intergenerational influence, researchers may be better able to support educators and ensure they have the resources they need to conduct quality programs that teach all members of our society. Intergenerational influence is significant as our planet continues to face environmental challenges both locally and globally for which quick and educated decisions need to be made (Ballantyne et al., 1998a, p. 286). The not-for-profit organizations that deliver environmental education programs look to researchers to help them develop maximum-impact messages with minimal budgets. I believe that intergenerational learning research has a place in environmental education discourse and an important role to play in the future of environmental communication. It is my hope that this research will encourage educators to include learning activities that consider intergenerational interaction in their environmental programs, both in the formal and non-formal sectors.

Research Questions

The purpose of my research is to develop a greater understanding of child-to-adult communication in an environmental context. Specifically, I seek to understand how children and their parents perceive the influence relationship between them. First, I wished to discover if child participants believe they have an influence on their parents' environmental behaviour and if the parents believe their own knowledge and actions are influenced their children. Once beliefs about this influence were or were not confirmed by the participants, several questions were asked in an attempt to comprehend how both parties understand the ways that influence relationships function. The children were asked what methods they used to influence the adults in their families and the adults were asked which techniques influenced them the most. Finally, it was important to understand the effect an education program, specifically an environmental education program, has on child-to-parent influence communication. I believe that a greater knowledge of the effect of environmental education programs on family communication will allow program creators to include activities that promote strong family communication. The parents were asked if they believe an environmental education program influenced their family's relationship with nature and if their relationship with nature has changed, then to describe how it has changed.

The main research questions which address the above mentioned purposes:

- 1) Do children report that they can influence their parents' knowledge of environmental issues and good environmental practices?
- 2) Do parents report that their understandings of environmental issues and actions towards good environmental practices have been influenced by their children?
- 3) If children report that they influence their parents, in what ways do they report they have influenced their parents' understandings and actions?

- 4) If parents report that they have been influenced by their children, in what ways how do they report their understandings and actions have been influenced by their child?
- 5) If influence is occurring, what sorts of methods or strategies do the children report using to influence their parents and what methods do they report working best?
- 6) If the parents report that their understandings and actions are influenced by their children, what sorts of methods or strategies do the adults report the children use and what techniques work best to influence them?
- 7) If the children do not report having influenced their parents, what are the potential barriers to this influence?
- 8) If the parents do not report having been influenced by their children, what are the potential barriers to this influence?
- 9) Do the children report that their participation in an environmental education program influenced their environmental knowledge and behaviour? If so, how do they feel it has influenced their knowledge and behaviour?
- 10) Do the parents believe the family's relationship to nature has changed as a result of something their child learned at school? If so, how do they feel it has changed?

Study Delimitations

This study was purposely delimited to ensure the scope of the research was manageable. Participants were chosen from a large school jurisdiction in the Calgary, Alberta area. The children interviewed were between the ages of 10 and 12. This group was selected because I felt that students in this age range would be old enough to reflect upon their experience and understand their influence on their relationship with their parents, while being young enough to still be interested in communicating with their parents. Ballantyne, Fien & Packer (2001b) found

that older elementary-aged students reported a higher frequency of discussion with their parents than the adolescents they surveyed. This reflects the general pattern of social development in the teenage years (2001b, p. 6). Children who had participated in any number of environmental education programs in the City of Calgary could have been chosen for this study. The Chevron Open Minds School Program, also called the *Open Minds Program*, settings were selected because of its reputation for quality programming. I also thought that their week-long learning experience would demonstrate a more significant, noticeable intergenerational influence relationship than those that occur in traditional one or half day learning settings. A global environmentally focused program known as *Calgary Zoo School* and a program with a local conservation focus titled *Cross Conservation Area School* were chosen because of their clear environmental connections.

The research methodology limited the number of participants interviewed to 10 (5 adults and 5 children) to ensure the interviews and analysis could be extensive in the time available for the research. I recognize that the possible influence children have on their families can include other family members. However, this research and the reported findings are based on the relationship between a child and a family member in a parental role who currently holds the power and authority within the family and society to make political, economic (consumer choices) and environmental decisions. As a result, the interviews were limited to one child and one individual in a parental role from each family.

Study Limitations

The participants were selected from a list provided by an *Open Minds Program* contact. Teachers who would be willing to share their students' information and discuss their experiences with me were identified. The selection decisions may have impacted my results as these teachers

would have been identified because of their positive relationship with the program coordinator, their willingness to be involved in the programs and their various experiences. Thus, they would be more likely to participate in a study that discussed the *Open Minds Program*. Similarly, these identified teachers could have students who, while no longer in their classes, would be more willing to give an interview about their experience than other students in their classes. As a result, the selected individuals, both child and parent, were probably more likely to have a communicative relationship with the teacher and the program. However, I view this as a strength of the study, as these individuals may be more likely to be open about their experiences and share insights about their influences in greater detail because of the presumably positive experience with the teacher and program.

Several of the adult participants interviewed had also participated in the experiences with their children. This was an initial challenge that I overcame by carefully framing my questions. I encouraged the participants to provide examples from other topics or programs where they believed they were influenced by their children, for example, consumer issues, politics or different school programs. This perspective gave the study a more complete picture of their experience and allowed for more in-depth questioning. I believe it also gave me a deeper insight into their relationships with one another.

The families interviewed all lived in what could be described as middle class neighbourhoods and appeared to live a typical western lifestyle, however, the participants represented an ethnic diversity that is typical of the Calgary community. Each family consisted of two parents and two children living in the household. Responses provided may vary for families with a different socio-economic status or a different cultural background. The status of a child within their family can change depending on both socio-economic status and culture (Uzzell,

1994, p. 161). The child's relationship with their parents and the potential influence on their parents' decisions may be significant, as these families live in a democratic society and can have collective voter power to potentially change environmental policy and regulation. The families interviewed appeared to enjoy economic security, which can be assumed to allow them the affluence to afford the changes necessary to live a sustainable life. The participants will be profiled more thoroughly in Chapter Three.

A grounded theory research approach was used in this study. Details of this approach will be discussed in more detail in Chapter Three. One particular benefit of using grounded theory methods for qualitative analysis is that they allow the researcher to move back and forth between data and analysis, which aids in keeping the ideas relevant and helps to focus the researcher's attentions on the analysis (Charmaz, 2006, p. 14). A benefit to using this methodology is that several researchers could collaborate on the development of themes emerging from the data, as many individuals would analyze the research differently and challenge each other to think critically (Malterud, 2001). While I did not have the benefit of a co-researcher in the traditional sense, I have been consulting my supervisor, program head and cohort members for their opinions and advice on the data collected and codes that were developed.

Researcher's Perspective

As a geographer, I am interested in the interactions and relationships of humans with one another, as well as individually and collectively with their environment. My past experience of working with children in a variety of settings has given me a strong background in understanding child behaviour and helped me to develop a rapport with many children. Based on this history and my current observations, I have assumed that the child and adult participants have relationships with one another that allow for some level of communication to flow between the

pairs. As an individual with no children of my own, I am interested in learning through the experiences of other adults who do. My personal experience observes influence from the child role, having influenced the elders in my family to change their behaviours and take numerous new pro-environmental actions. My worldview is based on a society where children generally have a fairly high status within their society and family structure. As a result I am unable to speculate how an intergenerational learning relationship would apply to people of cultures and backgrounds different from my own and this concept of cultural influence is beyond the scope of this research.

My familiarity with the *Open Minds Program* is greater than with any other program offered in the City of Calgary because I work as an education volunteer at one of the sites that offer the programs. Although I have never worked directly with the *Open Minds Program* during my years as a volunteer at the site, I did complete an informal evaluation for a course in my Master's program, after attending the program for a week. The children that I interviewed for this research project are not connected in any way that I am aware of, with the class of children I visited for my previous class assignment. When I designed the research project, I also made the assumption that the *Open Minds Program*, because it was a week long experience, might have some demonstrable influence on family behavior. The results of this will be considered in the discussion in Chapter Four.

This introduction established the concept of intergenerational influence and the importance of research in this field to the discipline of environmental education. It also described the purpose of my research, my research questions as well as the delimitations and limitations of this research Chapter Two, presents a literature review which has been organized to introduce the reader to previous intergenerational influence research and establish a history in which my

research is grounded. Following the literature review, Chapter Three outlines the research methodology used in this study. Sections will focus on an explanation of the tenets of the grounded theory methodology used, a description of the participants, in addition to discussing data collection and analysis methods. Chapter Four presents a summary and discussion of the findings, where some of the interview transcripts will be presented. Chapter Five concludes the thesis with a summary of the main themes and findings of the research and makes recommendations for future exploration in the field of intergenerational learning.

Chapter 2: Literature Review

Studies on intergenerational learning focus on the knowledge, practices and behaviours that are passed between the generations. While much of the literature on the topic of intergenerational learning is found in the discipline of sociology, many other disciplines, from psychology to medicine, to public policy and education, deal with this discourse (Fitzgerald, Lester & Zuckerman, 1995, as cited in Gadsden & Hall, 1996, p. 5). This chapter will discuss the research relating to the two main forms of intergenerational influence; adult-to-child influence and child-to-adult influence. The latter will be discussed with an emphasis on environmental behaviour.

Adult-to-Child Influence Research

Traditionally, children have been regarded as passive beings whose attitudes and knowledge have been directly formed through interaction with adults (Uzzell, 1999, p. 398). Research investigating the interaction between adults and children, of both biological relation and non-relation, assumes that adults transmit knowledge, beliefs and practices to children through either direct teaching or informal activities (Gadsden & Hall, 1996, p. 6). The field of educational research has, in the past, generally focused on the influence that adults have on children and is concerned primarily with how adults can contribute to positive child learning, attitudes and awareness.

There is a strong emphasis in the literature on mother-to-child influence relationships. In a study discussing a mothers' influence over her children, Bus & van IJzendoorn (1988) describe how mothers influence their children's literacy level, attachment security and written competencies. They found that children with mothers who influenced their reading with instruction, for example, by naming letters, aiding in sound recognition and making comparisons

with more well known words, scored higher on literacy tests than those whose mothers were less involved (Bus & van IJzendoorn, 1988, p. 1269). This demonstrates the intergenerational influence of mothers and the important role they play in their children's education. Aquilino (1991, as cited in Gadsden & Hall, 1996, p. 4), describes how a child's definition of gender roles in society is influenced by their mother. The researcher in this study showed that a mother's influence over her children can extend beyond education and can effect how they define themselves and the world around them.

Despite the evolving interest in intergenerational learning, very little of the research discusses the effects of fathers on their children and even fewer consider the relationship between fathers and their daughters (Gadsden & Hall, 1996, p. 3). Most of the studies describe how fathers socialize their male offspring, relate to them and prepare them for their 'provider' role in society (Canfield, 1996; Nydegger & Mitteness, 1991; Wideman, 1994, as cited in Gadsden & Hall, 1996)

Another theme in adult-to-child intergenerational influence research has been the connection between children and their grandparents' generation. Elders throughout the ages have been seen as models of stability, decision makers, advisors and surrogate parents (Newman, 1980, p. 1). Grandparent figures can influence the development of self-esteem and feelings of competency in children, helping them to establish a sense of place in the world and to generate links between the past and the future (Newman, 1980, p. 3). Studies looking at the influence of grandparents on children have focused on, a) the benefits that children gain from developing relationships with seniors (Strom & Strom, 1995); b) the advantages of seniors and children working together on projects or activities of common interest (Kaplan, 1994; & Kaplan, 2006; Mayer-Smith, Bartosh & Peterat, 2007; Newman, 1980; Whitehouse, Bendezu, FallCreek &

Whitehouse, 2000); and c) how strong intergenerational relationships contribute to family harmony (Strom & Strom, 2000).

Child-to-Adult Influence Research in Environmental Education: In the Beginning

While the research on adult-to-child influence is an important contribution to the study of intergenerational learning, we now recognize that society and human communication is not unidirectional or asymmetrical from adult to child (Uzzell, 1998, p. 398). Cowan & Avantis have criticized the 'one sided view' that parents are the only 'influencers' with children having no reciprocal effect on their parents (1988, p. 1303). The trend in more recent research on intergenerational influence, specifically relating to environmental education, has been to also consider the important role of children in the family structure and relationship.

One of the first studies to look at the influence children have on their parents' environmental attitudes and behaviour was conducted by Sutherland and Ham (1992). Sutherland & Ham (1992) examined the communication of environmental information and ideology between children and parents. A series of pre- and post-test interviews were conducted with parents, both before and after their children were given an environmentally focused homework handout. The purpose was to measure the change in environmental awareness in the parents following the homework assignment, which focused on watershed education.

Duvall & Zint, in their review of intergenerational research in environmental education, recall that Sutherland and Ham (1992) discovered that the majority of the adults showed an increased knowledge of the watershed, with the parents citing the educational handout as the source of their information (2007, p.16). The researchers reported that the majority of the information that the parents gained was acquired through indirect sources such as the education booklets that were handed out and not necessarily as a result of interaction with the child. As

noted by Duvall and Zint, “Overall they [Sutherland & Ham] concluded that although children may pass on environmental information and ideologies to parents, transfer is often unreliable, and the information exchanged is generally vague” (2007, p. 16). Many researchers cite the work of Sutherland and Ham (1992) as one of the inaugural works in the discourse of child-to-parent environmental influence. The study has been criticized for its small number of participants and researchers have suggested that a stronger child-to-parent relationship might have been found, if the sample size had been larger (Legault & Pelletier, 2000, p. 244). However, despite these shortcomings, the study is generally regarded as the foundation for the child-to-parent influence research in environmental education that followed.

An International Report

Following Sutherland and Ham’s research in 1992, Uzzell (1994) published a lengthy report based on the theory that children can act as catalysts to increase not only the knowledge of environmental issues for the adults in their lives but also influence the environmental behaviour of these adults. This report describes case studies from four European nations (Denmark, France, Portugal and the United Kingdom). The effect of environmental education on improving action competence and strengthening child-to-adult intergenerational influence was evaluated in each case.

In the Danish case study, community schools, teachers and students worked with local experts and technicians to solve local environmental problems which required changes on a personal, technological and societal level. The projects proposed and designed by the student-teacher-community groups initiated changes such as the reorganization of local traffic, an extension of a playground as well as the facilitation of community clean-ups. Through the children’s involvement in organizing and leading these projects, researchers concluded that

students do have the ability to act as catalysts for environmental change in the community (Uzzell, 1994, p. 119).

In the French case study, students who visited an exhibit on climate change and used it as the basis for extensive projects aimed at solving an environmental problem, were observed. The projects were then displayed for the community and a campaign was launched based on the theme of climate change. The researchers attempted to answer the question of whether or not this educational campaign changed parent's attitudes and whether the campaign also inspired them to act in an environmentally responsible way. The qualitative results of this study showed that participants' views of the results were mixed, with some parents believing they were highly influenced while others felt they had only been influenced slightly or not at all (Uzzell, 1994, p. 137). However, Uzzell found that changes in knowledge and behaviour were greater in children and parents when learning was contextual and linked to place. For example, when children identified with something in their local community, such as the creation of a town recycling bin, they were more likely to pass on recycling and waste information to their parents, which could result in an increase in adult recycling behaviour. In order for intergenerational influence to be effective, parents also need to show support for the role of their children and the school in these projects (Uzzell, 1994, p.137).

In the Portuguese case study, teachers were provided with training in the principles of intergenerational influence, the concept of action competence and the types of environmental education that might facilitate the presence of these concepts. The researchers used a mix of qualitative and quantitative surveys and ethnographic data. Teachers were asked to devise a written plan and submit diaries on the class projects. These projects, which focused on waste and water issues, were then evaluated by the researchers for their ability to meet action competence

criteria. The purpose of this study was to evaluate the effect teachers had on environmental education lessons being brought home by children and shared with parents. The teachers were later interviewed and many felt that their responsibility was to work with the children, not to influence parents (Uzzell, 1994, p.160). This attitude could be part of the reason, along with societal issues, that the child-to-parent influence was not as strong in this case as compared to the other case studies. More research needs to be conducted to better understand the three-part influence relationship of teacher-student-parent. Based on feedback from parents, the Portuguese case study concluded that child-to-adult influence was occurring, although perhaps minimally (Uzzell, 1994, p.163). Uzzell concludes that perhaps, in the Portuguese instance, the justification for children not influencing their parents to the extent expected is a result of other societal forces (1994, p. 161). Adults in a community must see the necessity for change and feel that they are able to change without compromising existing needs, such as shelter, food and the family economy (Uzzell, 1994, p. 162). The societal component is an important consideration when conducting research in the field of intergenerational influence.

In the example from the United Kingdom, two studies were undertaken. The first was a preliminary study that examined whether or not child-to-parent influence would occur without any environmental education intervention by the school. The second study considered what environmental education conditions would best support children to become catalysts for environmental change. The initial study found that children rarely talk to their parents about environmental issues and that children will not influence their parents' environmental behaviour without some form of prompting and support (Uzzell, 1994, p. 168). In the second study, the children were engaged in an environmental program that was an experiential fieldwork-based opportunity. The children received all of the same data collection materials, which included a

diary and disposable camera. The parents received a questionnaire about water pollution and instructions on how to support their child in the water testing project. Following the fieldwork program, both the children and their parents were asked how they felt the child's involvement in water testing activities had influenced parental behavior. Some children believed they influenced their parents, while others did not (Uzzell, 1994, p. 190). The researcher felt that this was likely due to the perceived status of the child in the family, by both the child themselves and the parent (Uzzell, 1994, p. 191)

In summary, the case studies in this multinational report demonstrate that it is possible for children to serve as catalysts for environmental change. However, certain conditions have to be in place if children are to be effective in influencing behaviour modification. "In order for catalytic effects to occur, it is necessary to work simultaneously with the child and the parent and to support both the children and adults in the catalytic process" (Uzzell, 1994, p.192). Additionally, the child must feel that the subject of the environment is a valid topic for discussion with their family (Uzzell, 1994, p. 203). The researcher further describes the importance of status within the family relationship. Children have to view themselves as a respected member of their family and society and require the self-confidence and support to share knowledge and behaviours with their elders (Uzzell, 1994, p. 203). Uzzell also recommended that environmental education programs take more of a lead in mainstream school education and that environmental education should do more to involve the family in its programming (1994, p. 203). This research study is a tremendously rich resource for identifying the presence of intergenerational influence and supporting the continuance of its investigation within the field of environmental education.

Knowledge, Attitude and Barriers

Leeming & Porter (1997) contributed more to the dialogue surrounding intergenerational influence with their research on the effects of participation in environmental education programs on children's environmental knowledge and attitudes. The researchers also assessed the influence that children may have on their parents' environmental attitudes and knowledge. Unlike most of the research performed prior or since, Leeming & Porter (1997) conducted pre- and post-tests on a wide age-range of children. In this study, participants were selected from grades 1 through 6. They used the Children's Environmental Attitude and Knowledge Scale to measure the results of their study (Leeming & Porter, 1997, ¶ 9). The sample size for this project was considerable, with over 980 children tested and 486 parents returning questionnaires. This is a methodological asset as it demonstrates that the results are not limited to small groups but a phenomenon that exists in many families. Leeming & Porter (1997) evaluated the environmental program, called the Caretaker Classroom Program, which encouraged elementary school classes to engage in pro-environmental activities. The researchers found it had a significant positive effect on the attitude of the children towards the environment but did not influence their knowledge of environmental issues (Leeming & Porter, 1997, ¶ 45). One of the major contributions of this study is the finding that differences in environmental attitude exist between parents of children who received the Caretaker Program and the parents of the control children's group. Leeming & Porter interpreted this difference as evidence that children who received the Caretaker program influenced their parents' environmental attitude (1997, ¶ 45). The researchers' recommendations for future research included identifying the specific activities or assignments that had the greatest impact on parents. They also acknowledged that more longitudinal studies are necessary to understand how long the pro-environmental attitudes and behaviours of the families last (Leeming & Porter, 1997, ¶ 46).

Ballantyne, Connell & Fien (1998a) summarized the research on the subject of intergenerational influence in the social sciences and education. Based on this review, they identified several areas of study that necessitate further investigation in order to aid environmental educators in conveying their messages from child to parent. These include: a) increasing the knowledge about the child-parent interaction process as well as community-child relationships; b) a comprehensive description of the nature of the influences between parents and children, particularly with reference to environmental education; c) widening the understanding of how each of the parties in the relationship perceive the mechanisms behind the influence; d) identifying the factors that either strengthen or weaken the influence; e) evaluating environmental education programs in their promotion of opportunities for intergenerational influence; f) developing a definition of the “pedagogical considerations in environmental education design and teaching approach related to intergenerational influence”; and g) developing methods by which to measure intergenerational influence within environmental education (Ballantyne, et al., 1998a, p. 293). With additional research addressing these areas, environmental educators will be able to design programs that provide the support children and adults need for optimal child-to-adult influence and therefore be an effective tool for spreading positive environmental messages.

Focusing on one of the areas identified in their earlier research, Ballantyne, Connell & Fien (1998b) analyzed the factors that contribute to successful intergenerational child-to-parent influence. Using two environmental education programs, they considered the students’ general environmental attitudes and knowledge, the parents’ specific and general environmental knowledge, the role of student enjoyment of the programs, and the family communication relationship as variables in whether the students brought home information and shared it with

their parents. The first environmental education program the researchers considered was a one-time program that featured a variety of interactive teaching methods including music, drama and dance. The second program was linked to the school social studies curriculum and was intended to be delivered over a period of two months. Unlike the first program, the second experience included a homework project. Data was collected using pre- and post-program questionnaires and interviews with both the children and their parents. Additionally, an interview with the teachers was conducted to determine their perceptions of the effectiveness of the programs as well as any challenges that may have arisen. There were several interesting contributions to intergenerational learning research made in this investigation. The researchers, first, looked at the children's enjoyment of the programs. Children who indicated a higher level of enjoyment were more likely to converse with adults at home about the activities in which they had participated (Ballantyne et al., 1998b, p. 8). However, though the children reported enjoying the first program more, it appeared that the conversations that they had with their parents were less in depth and did not elicit teaching by the children when compared to the second program (Ballantyne et al., 1998b, p. 8). The researchers concluded that this finding was likely a result of the homework assignment in the second program that encouraged children and parents to complete the assignment together. Ballantyne et al. also state that the students' general environmental attitude, their intention to act and their reported behaviour all played a role in the sharing of information at home (1998b, p. 9). The children's interest in the program, and environmental subject matter in general, appeared to aid them in initiating relevant conversations with their elders. Family communication factors such as the extent of general communication and communication concerning environmental issues was considered key in whether or not intergenerational influence occurs (Ballantyne et al., 1998b, p. 9). Not unexpectedly, Ballantyne

et al. found that children who talked to their parents in general and discussed environmental issues with them were more likely to initiate communication about environmental programs than those who reported often little or no talking with their parents about any subject (1998b, p. 9). Also, children who conversed about the program at home also believed their communicative relationship with their parents to be of a high quality when compared with those students who did not talk about the program (Ballantyne, et al., 1998b, p.9). In summary, children were more likely to discuss a program at home if the following three elements were in place: a) they enjoyed the program; b) they had a desire to act on behalf of the environment; and c) they reported a positive relationship with their parents in regards to the frequency of communication and the quality of the discussions with their parents (Ballantyne, et al., 1998b, p. 9).

Uzzell built upon the existing research in 1999, by discussing the possibility of educating children to educate communities and inspiring community environmental action. Uzzell (1999) recognized the phenomenon of child-to-parent influence, though based on his previous research, noted that support in a number of areas was required for the communication between child and parent to meet its fullest potential. This researcher assessed the field of environmental education, as it was practiced, to establish its ability to support children and adults to engage in environmental action. The shortcomings that were identified in existing environmental programming include: a) environmental education is currently based on a top-down teaching model which is against our knowledge of social influences; b) environmental education does not necessarily equate to environmental action; c) environmental education is not always contextual and it is the real-life examples and local experiences that are going to empower people to action; d) the ability of environmental education to change the attitudes and behaviours of children is uncertain, though this may have to do with the scale at which they are being taught at; and e) for

effective change to be sustained, political, social and cultural contexts must support and facilitate that change (Uzzell, 1999, p. 398).

Uzzell continues by suggesting a model of desired community-school interaction, with the school encouraging a permeable barrier for community members to be present in the school and students to be active in the community (1999, p. 411). This model supports and nurtures learning experiences that are at a local scale, thus increasing the chances for successful child-to-parent knowledge sharing (Uzzell, 1999, p. 512).

Summary of the Early Research

In summary, there were several key features of intergenerational research in environmental education in the 1990's. The first being that child-to-parent influence does occur but there can be many constraints on the process (Uzzell, 1994, p. 192). Secondly, environmental education as a discipline needs to recognize the occurrence of this phenomenon and change the paradigm of how it currently operates to help foster and nurture this communication (Uzzell, 1999, p. 397). The third key is that more research must be conducted on the processes of communication between children and adults and the identification of barriers to these processes, if environmental educators aim to use intergenerational learning as a means to multiply the impact of its messages (Ballantyne et al., 1998a, p. 293).

Intergenerational Research into the New Millennium

Addressing what they considered to be some of the limitations of the work done by Sutherland & Ham (1992) and Leeming et al. (1993), Legault & Pelletier (2000) conducted pre- and post- questionnaires to measure the change in the knowledge, attitudes, motivation and behaviours of students and their parents following the students' participation in a year-long environmental education program. In order to understand the motivations of teachers for

teaching the material, qualitative data was taken from the teachers of the programs. The researchers speculated that the teachers' enthusiasm for the subject matter or lack thereof might influence the attitudes of the children towards the program. This demonstrates the importance of the teacher in the child-to-parent influence relationship as originally discussed by Uzzell (1994). Legault & Pelletier found that at the end of the school year, children who were a part of the program had more intrinsic motives for engaging in pro-environmental behaviours than those children who did not participate in the program (2000, p. 243). Parents of the children in the program also reported feeling more dissatisfied with environmental conditions in their community than those parents whose children did not participate in the program (Legault & Pelletier, 2000, p. 248). This evidence demonstrates that environmental education programs can cause change in individuals and confirms that children can influence their parents' attitudes towards environmental topics. Legault & Pelletier made recommendations for further studies of this type, including restrictions to ensure that the control group is not exposed to an unpredicted program that may change the childrens' values or knowledge in ways that might influence the results (2000, p. 248). The author also identified the importance of recognizing that parental self-selection can result in participation by parents who have a prior knowledge or interest in the environment and this might alter the outcome of the study (Legault & Pelletier, 2000, p. 248). Finally, ensuring that the program in which the children are studying is of appropriate length to show an effect is important for measuring effective outcomes. Repeated exposure to an environmental education program may be critical to sustaining ecological attitudes in children (Hungerford & Volk, 1990, as cited in Legault & Pelletier, 2000, p. 248).

A limitation of this particular research is that Legault & Pelletier (2000) gathered qualitative data only from the teachers and not the parents or children. This additional

information would have allowed them to confirm their theory about the self-selection of eco-literate parent participants and offer an understanding of the effects of an unforeseen environmentally-related lesson on the control group. I acknowledge that it would have been difficult to collect qualitative data from such a large sample, however it would have contributed significantly to their results had they conducted qualitative interviews with at least a portion of their participants.

Ballantyne, Fien & Packer (2000) addressed several of Ballantyne et al. (1998a) and Uzzell's (1999) earlier recommendations for research in their article evaluating the program effectiveness in facilitating intergenerational influence. In assessing environmental education programs for their ability to support intergenerational learning, Ballantyne et al. (2000) make a positive example of programs that are encourage changes in environmental education, by providing the contextual and more 'bottom-up' learning experiences advocated by Uzzell (1999).

A greater understanding of which types of activities encourage the most sharing from child-to-adult was a need identified by Leeming & Porter (1997) that is addressed by Ballantyne et al. (2000). Ballantyne, et al. (2000) investigated the activities used by six environmental education programs to note which activities influenced child learning the most. Those aspects of the programs children discussed most with their parents was also considered. The incorporation of fun, hands-on and locally-based projects that are combined with a variety of teaching methods such as discussions, outdoor experiences and demonstrations were seen as most successful (Ballantyne et al., 2000, p. 14). The research of Ballantyne et al. (2000) is particularly valuable as it captures qualitative interview data from both parents and students, allowing families to speak in their own words about how the students felt the activities influenced their own learning and how the parents felt influenced by their children. As a result of the surveys and interviews

conducted with both child and parent participants, this study further supports the theory that children can and do share information learned in environmental programming with the adults in their lives (Ballantyne et al., 2000).

Ballantyne, Fien and Packer (2001a) continued to look at successful environmental education programs by conducting an indepth case study analysis of two of the programs from their 2000 research. The first program, '*Story Walk*', saw the children follow a narrative that began in their classroom and included trips to a local environmental education centre to gather research to complete the story of an environmental problem. The second program '*Six Thinking Hats*', had the children use DeBono's six hat method to analyze a local environmental problem (DeBono, 1992, as cited in Ballantyne et al., 2001a, p. 25). The researchers used questionnaires for the students, personal interviews to collect information from the teachers and conducted telephone interviews with the parents.

The results of Ballantyne et al.'s study showed that a large percentage of children reported that participation in one of these two environmental education programs changed their behaviour with respect to the environment (2001a, p. 31). The teachers involved felt that both programs had achieved the aim of improving students' knowledge about environmental problems in their local area. However, when the parents were interviewed it was found that very few children from the '*Story Walk*' program discussed the program at home with their parents (Ballantyne et al., 2001a, p. 33). In contrast, the majority (28 of 29) parents of children who participated in the '*Six Thinking Hats*' program recalled having heard about the program (Ballantyne, et al., 2001a, p. 33). The parents and students in this group appeared to engage in further conversation surrounding the environmental issues in their community. The researchers suggest that this is because of the project and presentation requirement of the '*Six Thinking Hats*'

program as many parents in this study were cited as having helped their child research and present their projects.

Based on Ballantyne's work, we can say that environmental education programs are more likely to have an effect on child learning and in turn, adult knowledge, if the following program features are present: a) mixing activities with research, classroom discussion and outdoor experiences; b) focusing the issues on a local scale so the participant could relate more to the situation; c) providing experiences that demonstrate to children they can have a positive impact on their environment; d) involving the students' parents in environmental education activities and projects; and e) increasing the involvement of community members by working with the community to complete research and action projects (Ballantyne et al., 2001a, p. 36). Ballantyne et al. recognize that what continues to remain unclear is the extent to which children sharing with their parents leads to an increased appreciation for nature and a willingness to act on that appreciation for the benefit of the environment (2001a, p. 24).

A constraint of this particular research project, in my opinion, is that the researchers interviewed only the parents and did not give the children an opportunity to speak about the influence the programs had on them or their sharing of information with their parents. This would have given the researchers a deeper understanding of how the children perceived the influences on themselves and their views on the way they influence others. It may have also yielded an evaluation of both programs from a user perspective. This would be a valuable consideration when creating future programs that aim to multiply influences on the surrounding community.

Ballantyne, Fien and Packer (2001b) continue to contribute to the field by addressing one of the areas identified for further research by Ballantyne, et al. (1998a). Ballantyne et al. (2001b)

conducted a quantitative analysis of the factors that influence the frequency and nature of intergenerational discussions. They used six environmental education programs to collect data on eight variables; student environmental orientation, student enjoyment of the program, student learning in the program, program features, parent environmental orientation, family communication, frequency of intergenerational discussion and the nature of intergenerational discussion. Data was collected using questionnaires, classroom observation, analysis of program materials and interviews with parents. The results demonstrated that “student enjoyment, student learning, the quality of family communication and the inclusion of environmental testing/monitoring activities as a program feature were all positively related to the frequency of intergenerational discussion” (Ballantyne, et al., 2001b, p. 4). The activities used in the program also appear to have an effect on the nature of the intergenerational discussion. Projects, presentations, environmental testing and monitoring activities were the most effective activities for developing influential discussions between child and parent (Ballantyne, et al., 2001b, p. 5). This is an important piece of research as it serves as a foundation to help environmental educators design programs that include activities that encourage intergenerational influence to its fullest potential.

Research into the effect of environmental education beyond children and their parents to impacts on the wider community was conducted by Vaughn, Gack, Solorazano and Ray in 2003. The results of this investigation support the idea of the need for enhanced community involvement as suggested by Ballantyne et al. (2001). This study used quantitative surveys to track the spread of intergenerational learning from children to their parents and other community members. Approximately 60 third and fourth grade students received a classroom program on Scarlet Macaw conservation which was accompanied by informational colouring books. The

children were to take home the colouring books as well as a worksheet, which required the use of the colouring book to find the answers to the worksheet questions. The parents were required to sign the homework as completed. These children, as well as fifty parents and fifty community members completed one pre-test and two post-course tests. “The results indicate that both children and their parents learned a significant amount about Macaw conservation during the 1-month EE [environmental education] course” (Vaughn et al., 2003, p. 15). Although the results were slower to materialize, the community members, whose children had not received the course, did show an increase in knowledge about Macaw conservation (Vaughn et al., 2003, p. 15). Vaughn et al. hypothesized that the knowledge of Macaw conservation obtained by community members was communicated from either the children who had taken the program or their parents, though the influence for community members’ increased knowledge was not determined by the researchers (2003, p. 17). A weakness of this research is that it is based entirely on the collection of quantitative data. Questionnaires or interviews regarding how the participants communicated the Macaw conservation information and who they received their information from would have provided useful information for understanding the flow of communication between the participants, a need identified by Ballantyne et al. (1998). The following pertinent questions could have been asked: a) How did you hear about the conservation program?; and b) Who did you hear it from?, in order to effectively track the spread of knowledge through the community.

Summary of Latest Research

There are several key features of research in this decade which builds upon prior knowledge and which inform the research presented in this thesis.

- First, all of the studies continue to confirm the existence of child-to-parent influence as a phenomenon.
- Second, the type of activity selected for the children as part of an environmental education program is an important factor to later sharing between child and adult. Hands-on, locally-focused activities such as monitoring or testing the environment combined with other methods such as discussions and presentations are conducive to intergenerational learning (Ballantyne, et al., 2000; Ballantyne et al., 2001a).
- Third, the frequency of intergenerational influence is supported by the student's enjoyment in the program, the knowledge the student has gained as a result of attending the program and the quality of overall communication between child and parent (Ballantyne, et al., 2001b).
- Fourth, despite some questions that still remain, children appear to influence not only their parents but also community members over a period of time (Vaughn et al., 2003, p. 17).

Methodologically speaking, most of the recent research in the field is conducted predominately using mixed methods approaches or quantitative methods. There appears to be a need for more qualitative research within the field. Each of the research papers described in this literature review suggests that there is tremendous potential for intergenerational influence to become an important part of the future of environmental education. The only limiting factor is the need for further research into the discipline to ensure its success. Through this thesis research, I hope to contribute to this impressive body of knowledge on intergenerational influence within environmental education.

Chapter 3: Research Methodology

Grounded Theory and Intergenerational Research

As noted in the literature review, the majority of the research done to date on intergenerational influence has used either quantitative (Leeming & Porter, 1997; Vaughn et al., 2003) or mixed method approaches (Ballantyne, et al., 1998b; Ballantyne, et al., 2000; Ballantyne et al., 2001a; Ballantyne et al., 2001b; Legault & Pelletier, 2000). The use of a qualitative methodology can provide valuable new insights, as it will allow participants to share their personal stories about their experiences with intergenerational relationships. This method will also allow for a more detailed description of the processes of influence involved in intergenerational relationships and a greater understanding of specific environmental education programs.

I have chosen grounded theory as the qualitative method for data collection and analysis in this study. Based on the ideas of sociologists Barney G. Glaser and Anselm L. Strauss, grounded theory offers strategies for conducting qualitative analysis. The underlying tenet of their grounded theory in practice is the simultaneous involvement of data collection and analysis. Construction of codes and memos from the data while not having a predetermined hypothesis is also a unique feature of grounded theory method (Charmaz, 2006, p. 5). Glaser and Anselm use a ‘constant comparative method’ to compare data at each stage of analysis, while continually constructing a theory during each step in the research process (Charmaz, 2006, p. 5). Sampling is aimed at developing a theory and is not concerned about a representative population, as in quantitative research practices. In order to not bias theory development, Glaser and Anselm recommend conducting the literature review once the data analysis is complete (Charmaz, 2006, p. 6).

There are several reasons why I feel that a grounded theory approach is the most suitable qualitative method for obtaining the information necessary to answer my thesis questions. First, grounded theory is the study of social constructs (Malterud, 2001; Bowen, 2006; Creswell, Hanson, Plano Clark, & Morales, 2007). It focuses on examining the processes and actions of participants, rather than a description of setting, while creating a conceptual interpretation of the data (Charmaz, 2006, p.9). An assumption of the present study is that influence is inherently a social process, and does not occur in isolation.

Second, the grounded theory method is well suited to the study of intergenerational influence because little is known about this social process. Creswell et al. (2007) believe that grounded theory is a strong method to use when no theory exists for a topic or where the current theories are inadequate. As demonstrated in the literature review, there is still more research needed on intergenerational influence, as we understand only a small fraction of the child-to-parent influence relationship. My research questions seek to understand how the participants perceive the process of influence in their relationship, should they feel there is one. Ballantyne et al. identified the need for this type of research inquiry, the results of which will aid environmental educators' use this social process to advance environmental education beyond the classroom (1998a, p. 293). These researchers comment on the need for better comprehension of how both the child and the parent perceive the influence processes (Ballantyne et al., 1998a, p. 293).

The third reason that the grounded theory method is a good methodological match for the research is that grounded theory is a flexible, descriptive approach that keeps the research focused on analysis and theory development (Charmaz, 2006, p. 14). This is extremely valuable when working with children, especially when there are participants who find reflecting upon or

sharing information with an unfamiliar person a challenge. Grounded theory allows the researcher the flexibility to move beyond the prepared set of questions in an attempt to establish trust with the participant (Charmaz, 2006, p.15). As I only conducted one interview with each participant in the time allowed, the flexibility of grounded theory permitted me the freedom to learn from the interviews with earlier participants and adapt the question set for interviews conducted with subsequent participants. This allows for an evolving understanding of the process of child-to-adult influence that may not have existed during the development of the interview questions. Each family and their experiences are different, so the combination of flexibility and focus is a tremendous methodological asset in this research.

Procedures that recognize the researcher's role in making decisions about the data, while bringing personal values, experience and priorities is the fourth reason that I feel grounded theory methods are appropriate for intergenerational research (Creswell et al, 2007). As my participants took part in their environmental education experience over a year ago, I as a researcher will have a potential influence on their reflections. Likely, they have not previously contemplated the processes of influence within their families or the role the children play in these processes. The participants will also influence the way I contemplate and perceive influence in my own life. My personal experiences with child-to-adult influence gives me a number of preconceived ideas about how the communication of influence might be occurring within families. Grounded theory accounts for the impact the researcher and the participants may have upon one another by having the researcher initially state his or her biases, perspectives and beliefs so that these also become part of the rich fabric of data collected through the study (Charmaz, 2006, p. 54). Charmaz also advocates completing data collection and analysis prior to

conducting a literature review so that the researcher can avoid imposing the work of others onto the data (2006, p. 29).

The fifth reason for using the qualitative interviews in a grounded theory format is that studies of child-parent interaction typically have low quantitative survey response rates since both parent and child need to respond in order for the test to be considered statistically significant (Uzzell, 1994). By using a small number of interviews, I was able to collect rich data and reduce the concern about low response rate. The qualitative grounded theory method is not concerned with statistical significance or validity in the quantitative sense but is interested in the fit and relevance of the data (Charmaz, 2006, p. 54).

Research Partner

The Chevron Open Minds School Program operates out of four main sites in Calgary, Alberta, with additional Campus Calgary sites at eight other educationally focused locations. Many of the sites are local recreational facilities or tourist attractions that are committed to providing exceptional learning experiences for children, such as the University of Calgary, the Calgary Stampede, Calgary City Hall, Cross Conservation Area and the Calgary Zoo. These venues allow teachers to facilitate a one-week out-of-classroom experience that acts as a catalyst for an interdisciplinary, curriculum-connected yearlong study in the classroom (Cochrane, 2000, p. 2). At each site, the children become actively involved in hands-on experiences and have the time to observe, reflect and journal about their learning (Cochrane, 2000, p. 2). The educational experiences vary widely, with the children participating in art, drama, music, research and physical recreation activities as well as taking tours of city landmarks and having the opportunity to meet with, and learn from, local celebrities and experts. The Chevron Open Minds School Program (2006) philosophy is that powerful learning occurs when students are immersed in real

world environments for an extended period, usually one week in duration. This time allows the children to become comfortable in their new atmosphere and focus on deep learning (Falk & Dierking, 1992, as cited in Chevron Open Minds School Program, 2006). It is recommended by Legault & Pelletier that when studying intergenerational learning, participants should be engaged in an experience of a longer time period (2000, p. 248). Environmental education experiences of extended length rather than a one-time offering may be important in maintaining children's interest and knowledge and thus increasing the potential for them to influence the adults in their lives (Hungerford & Volk, 1990, as cited in Legault & Pelletier 2000, p. 248). This feature makes the *Open Minds Program* particularly well suited for intergenerational influence research.

Another notable attribute of the *Open Minds Program* is that the regular classroom teachers participate extensively in the teaching and learning process and prepare the children prior to the experience by teaching them the skills and concepts they require to be successful in the site visit (Chevron Open Minds School Program, 2006). The teachers are chosen to participate in this program because of their demonstrated commitment to inquiry-based education and the application of their preferred site program in a year-long curriculum plan. Uzzell (1994) believes that engagement of the teachers in the subject matter plays an important role in the rate at which children take messages home to their parents.

A feature unique to the *Open Minds Program's* in Calgary is that the children get to work with community experts, both at the site and in the classroom, who help put the teachings of the children's year into a real world context (Cochrane, 2000, p. 2). It has been proposed that the interaction of students and the wider community is necessary to support the learning of children and enhances the opportunity for intergenerational child-to-adult influence to occur (Uzzell, 1999, p. 398).

The *Open Minds Program* services two large school board districts as well as private schools in Calgary and the surrounding area. I have chosen to focus on two sites for the purposes of this research, as they are the locations that have the strongest environmental focus. At one site, the students have the opportunity to practice the art of observation and learn about the global natural environment and the environmental issues we face on a global scale (Chevron Open Minds School Program, 2006). At Calgary Zoo School students have the opportunity to learn from site experts, like docents and zoo keepers. The children often participate in small inquiry projects throughout their week, consulting these experts along the way. Unique, hands-on experiences are standard with this program, with small animal encounters and taking a behind-the-scenes tour with one of the zoo's larger animals (Calgary Zoological Society, 2008). Behind-the-scenes tours with the giraffes are common. Students spend time reflecting upon their learning and use journals to sketch their observations and record their questions and new knowledge.

Students at the second site, the Ann and Sandy Cross Conservation Area, a 4800 acre natural area southwest of Calgary, spend the week learning about conservation and connecting with our local natural environment while exploring the landscape at this outdoor experience (Chevron Open Minds School Program, 2006). Cross Conservation School, like Zoo School, has the students working with experts, naturalists and local historians. They also conduct inquiry projects, such as pond studies, recording their observations and reflections in their journals.

These week long programs are particularly suited for researching intergenerational influence because in order to measure effective outcomes the children have to remember the learning experience. It is this reinforcement of environmental lessons that may be critical to sustaining ecological attitudes in children (Hungerford & Volk, 1990, as cited in Legault & Pelletier, 2000, p. 248). Also, the activities that take place at these programs are very hands-on,

locally focused experiences with community experts. These types of programs have been shown to be conducive to intergenerational learning between child and adult (Ballantyne, et al., 2000; Ballantyne et al., 2001a).

Participants

My contact within these programs is the Education Coordinator for all of the *Open Minds Program* sites. She connected me with two classroom teachers who participated in the program in the 2006-2007 school year with their grade 3, 4 or 5 classes. I feel that this particular age range allows the students to be old enough to reflect on their experience while still being interested in communicating with their parents. Ballantyne, et al. found that younger students reported a higher frequency of discussion with their parents than the older students they surveyed, which reflects the general pattern of social development in the teenage years (2001b, p. 6). The teachers identified six students and their parents who they thought would be willing to participate in research interview. These individuals were approached to participate by letter (Appendix A). Eighty percent of those who received letters agreed to be interviewed and were required to sign a Royal Roads University research consent form. Interviews were conducted with five children and five parents. The participants came from families consisting of two adults and two children living in each household. There was some ethnic diversity among the participant families, as is typical of the school population in this area.

Three girls and two boys, all in the 10-12 age range, were interviewed. All the children attend school in a large school board district in Calgary, Alberta. Three of the children, from the same school, attended the *Open Minds Program* at the Cross Conservation Area. The other two, from a second school, went to a program that focused on observation and global environmental lessons at the Calgary Zoo. All of the children had participated in other *Open Minds Programs*

either prior or subsequent to the environmentally-focused experiences that were the focus of the research.

In each pair, the parent that was interviewed was the mother. Three out of the five mothers attended the program with their children, with one going to the Cross Conservation program and two going to the program at the Calgary Zoo. My original intent was to only interview adult participants who did not experience the programs, however this unintended factor resulted in being beneficial to both the data collection and results. All of the participants were given aliases to protect their anonymity. These aliases were randomly assigned, however for the purposes of clarity and comparisons between children and parent, each child-parent pair's alias begins with the same letter, such as Sarah and her mother Susan and Dawson and his mother Denise. These results will be detailed further in Chapter Four and also in the discussion in Chapter Five.

Ethical Considerations

Ethical approval for this research was obtained through the Calgary Board of Education (Appendix B), the board that oversees the delivery and programming of the Open Minds Programs, as well as the Royal Roads University Research Ethics Board. Informed consent was obtained from all participants. The children were asked for their consent to participate as well as their parents legal consent. It was important to the quality of the research that the children were part of the consent process and were interested in participating in the research. I hope that because the invitation to participate was extended to the children in the same way as the adults, that the children felt more comfortable participating in the interview and were more willing to share information about their experience.

There was a low risk to the participants in this research as the risks would not be greater than those risks encountered in daily life. There was no power relationship between the researcher and the participants as participation in the study had no bearing on student marks or evaluation. All efforts have been made to ensure the anonymity of the participants. Identifying information about the participants was removed from the transcriptions. The interview questions were about the participants experiences with the *Open Minds Program* and child-to-adult influence and were not intended to cause grief, humiliation or embarrassment. The participants were told they could withdraw from the research at any time without consequence. However, no participants withdrew from this study. Participants were not compensated for their time.

Data Collection

Inquiry Questions

Charmaz states that intensive interviewing techniques allow the interviewer to delve deeper into the subject, while allowing time to stop and explore a statement or topic more fully (2006, p. 25). As this was my first opportunity to conduct research interviews, I used an open-ended interview format, allowing natural conversation to occur at the beginning and at the end of the interview question period. This allowed me to keep the questions consistent from interview to interview to ensure continuity and keep myself focused, while permitting myself the freedom to pursue additional topics of interest that arose from each individual (Patton, 2002). The questions asked of the children were different from those asked of their parents, with fewer and more age-appropriate questions for the children to answer. I rephrased or revisited the questions for the participants, if requested. The reasoning for this was to not overwhelm or frustrate the children, in particular, with a long, difficult interview, which may have resulted in participant fatigue and limited the stories and details provided to me.

Child Questions

Demographic questions such as age and which program they participated in were asked of the children at the commencement of the interview. The program journals the children used to document their *Open Minds Program* experience were referred to during the interview process and aided the interviewees in their reflections about the program. I asked a variety of different questions relating directly to these journals, which included having the children describe pieces of artwork and writing. Additionally, I asked questions about the daily program activities they participated in and what they felt were the highlights of the program. In this way, I could learn what the children remembered from the experience to be able to compare that to their parents' memories of the program gained through their children. More formalized questioning began after the participants had reflected on their experiences using the journals. The child participants answered questions based on three different categories (Appendix C). The first category consisted of general questions using the journal to learn about the experience itself, designed to put the participants more at ease and allow me to learn more about their particular experience with the *Open Minds Program*. Next, I inquired how the child perceived their influence in the home and how they related to their parents with respect to regular school activities. These questions were asked generally, to see what examples of influence they would provide without prompting. The final category of research activity consisted of questions that specifically invited the children to talk about how they felt the *Open Minds Program* influenced or affected their family.

Adult Questions

The parents' interviews were longer and demanded more detail as I wanted to understand how the parents viewed being influenced by their children. In order to be able to question the

parents with more focus and detail, I interviewed the children first. This allowed me to probe further into details that the children had discussed and ask the parents for their interpretation of a particular event. As a number of my parent participants did attend the experience with their children, the ability to reconstruct the experience using both interpretations of events resulted in powerful and more thorough data.

The parent participants answered questions from four categories (Appendix D). First, the parents were asked to look at their child's journal and reflect upon the messages their child brought home from the program. Next, I invited the parents to talk about how they believed the program influenced their child. Scaling outwards, the next section inquired about how the parents perceive the influence that their child has on the family, in a wide range of topics. The fourth and final section inquired about how specifically the Chevron *Open Minds Programs* had an impact on the child-to-adult influence relationship.

Data Collection Methods

Each individual was audio recorded during the interview and field notes were also taken during and after the conversation. The taped interviews were uploaded onto the computer, after which I manually transcribed them. I felt it was important to transcribe them personally as I could capture the spirit of the conversations as I heard them during the interview. Listening and re-listening to the interviews as I transcribed them brought forth further questions that were asked in interviews with subsequent participants. These questions helped to clarify the processes behind child-to-parent influence as the participants see them. The audio recordings and transcripts were reviewed numerous times to ensure correctness prior to coding.

Data Credibility, Auditability and Fittingness

Credibility, auditability, and fittingness are three main standards of rigour common to qualitative studies (Chiovitti & Piran, 2003, p. 428). The trustworthiness of the data is paramount to the credibility of the study. In order to establish credibility, the questions, although preconceived to help guide an inexperienced interviewer, were modified between interviews to allow the participants to guide the interview process. Having the participants lead the conversations allows them to make discoveries and connections about their experiences and relationships with limited influence from the researcher. The possible influence of the researcher on the participants' perception of influence is a concern to the credibility of the information presented in this study and will be addressed further in the Chapter Five discussion.

The questions asked in these interviews inquired about how the participants perceived child-to-adult influence from their experience, both in general and specifically about the environment. The benefit of comparing the child interviews to that of their parents is that cross-referencing and validation of experiences and incidences can occur. There was an advantage to having a few of the adult participants attend the experiences as it gave strength to both their descriptions of the program and their examples of child influence on adult behaviour in the family. Further evidence of credibility is that the audio recordings of the interviews were transcribed verbatim and the coding reflected the tone and wording of the participants so that the any resulting theory is based upon the insights of the participants in their own experience.

The ability of other researchers to follow the methods and conclusions of the original researcher refers to the auditability of the study (Chiovitti & Piran, 2003, p. 430). The audio recordings, transcriptions, memos, codes and analysis notebooks provide an audit trail of the decisions made at various stages of data analysis.

Chiovitti & Piran describe fittingness as the likelihood that the research findings have meaning to others in similar situations (2003, p. 433). Finding fittingness when completing a grounded theory analysis helps the researcher to crystallize the participants' experience and develop a framework to interpret the relationship between obvious actions and covert processes (Charmaz, 2006, p.54). Demographic information about the participants is given and allows the reader to assess the transferability of the research findings described in the results section in Chapter Four.

Data Analysis

Initial Coding

For data analysis, I followed the grounded research guidelines of Charmaz (2006) closely, while allowing the data to determine which approaches would be most appropriate for examining the interviews. Charmaz recommends that the initial coding, or labeling, of the data be quick and spontaneous as it can spark new ideas and give the researcher a fresh look at the data (2006, p. 48). The first set of interviews, one child and one parent, were coded quickly and I carefully noted the length of the statements and the answers I received from the participants. Coding full interview transcriptions can prompt new ideas and understandings that might otherwise be missed and allows the researcher to return to the data continually (Charmaz, 2006, p.70). The subsequent interviews with other children and parent participants were conducted in increasing detail, which was reflected in transcriptions with longer, detailed statements and an increasing number of codes. Much of the initial coding focused on identifying processes that the participants described. I also focused on codes that stayed close to the data and tried to ensure the codes fit the data rather than forcing the data to match my codes, a practice emphasized by Charmaz (2006, p. 49).

Line-by-line Coding

In her book, *Constructing Grounded Theory: A practical guide through qualitative analysis*, Charmaz (2006) describes several ways of coding transcriptions. Given some of the brevity of responses collected from a few of the participants, I felt that word-by-word coding would not be as effective as line-by-line coding. Line-by-line coding permits the researcher to name each line of the transcribed data and assign it an appropriate code (Glaser, 1978, as cited in Charmaz, 2006, p. 50). Using the line-by-line coding technique, I was able to identify themes and categories that had escaped my attention during the initial quick coding session. During the analysis of the portion of the transcriptions where the children and adults were describing their experiences, I focused on actions and compared the codes within and between the interviews. For example, while the children were describing their experiences with the *Open Minds Programs*, the themes of ‘working with experts’ and ‘hands-on activities’ were two of the common action codes I labeled. Charmaz (2006) states that a benefit of the grounded theory method is that it contains “correctives that reduce the likelihood that researchers merely superimpose their preconceived notions on the data. Line-by-line coding provides an early corrective of this type” (p.51). I carefully coded the transcriptions on three separate occasions to encourage new ideas and see what dominant themes emerged. I felt it important to review and organize the codes to ensure that they more clearly represented the data.

Comparative and Reconstructive Coding

The third round of coding was more selective and focused on codes that were found most frequently within the transcriptions. Comparisons were made between statements from the same participant. Comparisons were also made between interviews of participants in the same group, for example, the children with one another and the adults with one another as well as compare

the child's interview to that of their parent. Writing in a research journal was an effective method for me to display the processes that the transcriptions were trying to convey while allowing me to reconstruct the data I had broken into component parts. This reconstruction of data disassembled in the initial rounds of coding is called axial coding (Strauss & Corbin, 1998, as cited in Charmaz, 2006, p. 60). Charmaz describes axial coding as relating "categories to subcategories, specifies the properties and dimensions of a category, and reassembles the data" that was fractured during the initial rounds of coding (2006, p. 60). As I began to reconstruct the data, with constant comparison to my original coding, certain themes and relationships started to emerge. Inquiring how certain categories are related, axial coding links categories with subcategories. Notes covered the margins of the journal as fresh ideas and new interpretations presented themselves. From these notations came the data analysis memos that formed the basis of my grounded theory on intergenerational influence in these families.

Chapter Four: Research Results

The results that follow provide insight into the child-adult influence relationship as reported by the child participants and their mothers, including areas, methods and feelings of influence, as well as choice of teaching strategy, participant observation and a summary of influence experience between the participants. The interviews were conducted in the same order for each pair, child first and adult second, and this section has been organized to present the results in that order. The influence of the *Open Minds Program* as reported by the children and their mothers is presented at the conclusion of this chapter.

Children's Perception of Influence

The first of the main research questions in this study considered whether the children reported they feel they can influence their parents' knowledge of environmental issues and good environmental practices. The children were pointedly asked if they felt they had influenced their parents in any way. By asking this question in this general manner, the intent was to receive more open responses by the children regarding ways in which they feel they could be influential in a variety of areas pertaining to their family life. This ensured the credibility of the examples the children provided since they were not prompted to specifically name instances of environmental influence within their families.

Their responses to the question of influence varied. Four out of the five children interviewed showed a strong to moderate influence efficacy. I defined influence efficacy as the degree to which one believes that he or she can effectively influence another. In my definition, this efficacy ranges from strong - denoting a confident response confirmed by examples, to weak - which denotes an uncertain or negative response to the question and lacks notable examples of influence. The definition of a moderate influence efficacy is that it is found in between the strong

and weak influence efficacy definitions. The children in this group demonstrated a confidence in a few responses but lacked the overall confidence of the strong influence efficacy participants. Two of the children, Kim and Sarah, felt they only occasionally influenced their parents. These responses from Kim and Sarah were therefore labeled as having a 'moderate influence efficacy'. Two of the other children, Rebecca and Matt, stated that they felt strongly that they influence their parents' knowledge and are changing their parents' behaviours. Matt responded to this question with an enthusiastic and proud "YES!" Conversely, Dawson was designated as having an 'low influence efficacy', initially stating that he did not feel he had any influence or impact his parents. When the question was reworded slightly, and although the child changed answers to "... oh yeah ..." the response was still uncertain and therefore did not rank as either a strong or moderate influence efficacy. It is noteworthy that Dawson responded to the majority of the interview questions with some uncertainty and this aspect of the study will be considered in more depth in the discussion in Chapter 5.

Areas of Influence

Four out of the five children interviewed stated that they felt they influenced their parents and further questioning identified some examples of this influence. The second research question asks: If the children believe they influence their parents, in what ways do they believe they have influenced their parents' understandings and actions? All of the children provided examples of influence on their parents. The examples provided by Kim and Sarah, those with a moderate influence efficacy, also focused on environmental behaviours in the household. Kim described "... in Grade four we learned about recycling and stuff and we hadn't really recycled [at home] earlier so then I convinced my parents to get a recycling bin and a compost." Kim also shared a story about teaching their parents about social studies topics. "... we were learning about China

this year and so I taught my parents about the Emperors and stuff and about the communist party... they didn't really know about that."

Sarah had a more difficult time describing examples and requested to revisit this question at the conclusion of the interview. When asked the question a second time, she replied, "Well ... about the environment maybe. I told them to recycle ... we are trying to work on that. We recycle cans and stuff." When pressed further about what kinds of environmental things she talked to their parents about, Sarah replied, "Ummm... [pause] ... that we need to recycle more and try not to buy packaging stuff as much as we can." Environmental action examples were most popular. Rebecca and Matt, the children recording a high influence efficacy, described numerous examples of ways they influenced their parents to change their behaviour. Rebecca shared this:

Well, in grade four we did a big recycling program and that influenced my parents because we started recycling more and we started reusing stuff." [What did you recycle before you started the program?] Just cans and bottles and milk jugs and like...we recycled our newspapers but it was mostly the scraps of paper that we were throwing out that now we are recycling.

Rebecca also described how knowledge she has learned at school changed family behaviour in other environmentally friendly ways.

... I learned this fact from cars that if you have your car running for more than ten seconds that it takes up the amount of energy to restart the car. So sometimes instead of idling in front of a house or something, we turn the car off and we turn off more lights than we did cause some lights were just completely left on all the time and the T.V. has been left on several times.

Matt gave this similar example:

I make them [the family] recycle and throw things in the recycling bin instead of the garbage and instead of using too much paper towels, or something, to use less ... I tell them to use less. And I am trying to convince them to buy a composter ... [Are there any other examples?]. We've taken shorter times in the shower ... We also recycle our pop cans, not throw them in the garbage.

Matt also described influencing his siblings by educating and encouraging them to turn off the lights when not in the room. Similar to Rebecca, Matt also cited Grade four as the time when recycling became a big issue in their household. When asked what environmental action his family took prior to this new knowledge, Matt stated that recycling their pop cans was “pretty much it.”

Dawson, the participant who was assigned a low influence efficacy, was uncertain about how to respond when asked to provide an example of how he influences his parents. Preceded by a long pause, the child replied, “um ... shop for more food?” I attempted to draw additional examples from Dawson, by asking if there was anything he tried to teach or share with his parents, perhaps using an example of something that was learned at school. The response was “not really”.

Methods and Strategies of Influence

Four of five of the children interviewed report that they do influence their parents and were able to provide examples of knowledge and behaviours that they are influencing. In order to delve further into the child-to-parent influence relationship, environmental educators may benefit from understanding the kinds of methods that the students feel they are using to teach and influence their parents. The third research question asked, if influence is occurring, what sorts of methods or strategies do the children use to influence their parents and what methods do they think works best?

The children’s examples of how they best share something they have learned at school with their parents varied with each participant. Kim identified a number of strategies she has used to teach her parents, including auditory, visual and kinesthetic examples:

Sometimes I draw it out like a lever for flight and we learned about flight, my mom wasn’t sure and so I drew out an airplane and I kind of drew labels for each of the parts

and stuff and we were learning about yaw, pitch and roll. So I had my mom pretend she was an airplane and like for yaw, I made her lean to the side and stuff just so she would get it better.

Another great example involved the subject of science:

...for aerodynamics we did lots of different experiments like with balloons and stuff. And so I blew up balloons and showed them different experiments, like if you tape it on a piece of string it will fly forward, it follows with the string and stuff. (Kim)

Of particular interest was that Kim recognized the mother's learning style and knew that by using this knowledge, she could increase her mother's understanding, explaining, "cause she learns visually, like if somebody just tells her something she doesn't usually remember it sometimes, she learns better if she actually sees something."

Sarah shared that discussions worked best for her family: "we talk about it. I kind of explain it ... I don't really show them ... but explain it." This child also appeared to feel most comfortable communicating with adults when she could just verbalize about lessons learned at school rather than using any particular visual or kinesthetic method.

When asked the question of how one could best teach parents, Rebecca was concerned with first obtaining the parents focus. "Well I want them to be directly paying attention so they aren't like half listening or something." Rebecca also reported that being a positive example and role modeling proper behaviours was an effective way to teach others. The example she provided is evidence of both kinesthetic and auditory teaching methods.

I would say, if I caught one of my family members throwing out a piece of paper that was full or blank or had a picture on it or something, I would say 'How about you recycle that because you are wasting paper' and I would guide them to recycling more paper.

Further, Rebecca provided another example: "well sometimes I just sit at the table here and read it from my book while my mom is making dinner. Or I just tell her random facts at

different times.” This demonstrates that the conversations between child and parent are not always formalized and that knowledge sharing can occur at variable moments and intervals. One of the parents also commented that her child shares the most when it has to do with an activity he or she is taking part in rather than a more formalized one-on-one teaching opportunity.

Matt, who enthusiastically believed in his ability to influence parents, takes a more visual and auditory approach to educating adults, using more formal teaching methods than the others. “[I would] probably show them on the internet or on the computer. Show them one of my school projects on Powerpoint.” The following statement is an example of an auditory approach to teaching taken by Matt:

I tell them like what would happen if you didn't [recycle]. Just like do it that way. That's another sheet you could use, you would be saving more trees... the less you recycle, a lot more trees would be dying; a lot more trees would be cut down. We now just recycle regularly. It's not such a big deal for us anymore.

Based on Matt's interview and confirmed by his mother, this child seemed well-versed in the use of technology, so it is not surprising that this child uses technology to educate others. Matt also presented his family with information about why one should participate in these pro-environmental behaviours and appears to be an individual who understands the importance of a well constructed argument when presenting information to his elders.

Dawson did not feel that he taught his parents anything that he learned from school and thus was challenged to answer the question of how he teaches, even when presented with a hypothetical situation. The responses from this child continued to be short providing answers such as: “Maybe sit down and have them... [long pause]...can we skip that one?” When we returned to the question, Dawson believed that he had, once, taught his parents using a kinesthetic method when explaining the nine-times tables by using one's knuckles. However

when he was asked whether he showed his parents anything else about science or any other subject, the child responded: “Not really.”

Following an analysis of the responses from all the children, it is evident that these children used a variety of methods to teach their parents lessons learned from school. Often combinations of auditory, visual and kinesthetic methods were used and occasionally a child recognized the learning style of the parent and applied that to the teaching situation. Sometimes the children understood the need for information to accompany the lesson and the role of this information to the success of their argument. To understand the child-to-adult communication relationship further, I felt the need to understand more about the reasons why the children use the strategies they use. The strategies or methods a child uses may be determined by a number of factors and is an important part of understanding child-to-adult communication.

Choice of Teaching Strategy

As I was interested in learning more about how the children chose the strategies they used to teach their parents, I asked several questions about student and parent subject preference. I felt that knowledge of these preferences could have a bearing on whether or not the child reported feeling that the parent was interested in the subject matter the child was trying to present. An interest in the subject matter, I believed, could make the child feel more comfortable with sharing the information learned about that subject. Conversely, if the child does not feel that the parent has an interest in a topic or does not appear to take an interest in what the child has to teach, this breaks down the potential child-to-adult influence relationship.

Kim cited that she was most likely to teach her parents about science and math subjects and provided an example of how her father was interested in these topics as well: “... my dad really liked to learn about air and aerodynamics and flight, which was one of my units we did

this year in science. And so he was asking me a few questions about that and we kind of go through it.” When asked if there was any subject her mother seemed particularly interested in the child thought it was probably math but was uncertain.

Sarah suggested that there is a link between what children like to discuss with their parents and what the children are interested in. This child shared that learning was increased when she enjoyed the subject and therefore found that Social Studies was the subject she was most comfortable teaching. When asked why Social Studies, Sarah replied: “Cause I like it a lot ... and I am more interested in that ... so I learn more ... so I talk about it more.” When asked for an example, she mentioned learning about pioneers and then discussing what she had learned at home explaining: “... they [the pioneers] had to learn ... it was hard adjusting ... they didn’t really eat the same food so they had to adjust. It was hard to find a place to live ... so it was hard.” Sarah reported that her mother particularly enjoyed hearing about Social Studies. “Social Studies ... yeah, love Social Studies ... my mom likes them too ... so we talk about it a lot.” Sarah also shared that both her parents were interested in spelling and math with a particular interest in how she had done on tests in these subjects.

They like to hear my ... spelling ... they like to hear about how good and well I practiced, to see if it paid off. Probably that ... math they like to see that ... we practice a lot of multiplication stuff ... so they like to see how well I do on tests and stuff ... so mostly that.

Sarah also gave a personal example that described which topic the family discusses least. “I don’t really talk about science much ... cause I don’t really ... well I used to like it ... but now we’re doing ... [what] we did ... it’s really kind of boring.” This provides some evidence that the child’s interest and enthusiasm for the subject seems to play a role in what she shared with her parents at home. This is substantiated by Ballantyne et al (1998b), who found that when children

enjoyed their program or subject, they were more likely to share information about that subject at home.

Rebecca talked about the learning relationship between herself and her parents. This child also gave examples of where she thought her parents' strengths and weaknesses in her school subject lie: "Sometimes he [father] helps me with math and stuff and he is definitely better at math than me. And so sometimes with like L.A. [Language Arts- English] and spelling he definitely isn't as good ..." When asked about the child's thoughts on the strengths of her mother, the response was, "I think I am better at math than my mom and sometimes I have to re-teach stuff that she hasn't used in quite a long time." Rebecca felt that her parents get most excited when she does well on tests and feels she "usually scores really high on tests." Similar to Sarah, Rebecca felt that the subjects that she was most interested in were the ones that were also easiest to teach. She also shared that her parents seemed most interested in those their child was interested in:

There are some subjects that I definitely like and don't like. Like I think I prefer Social Studies more than Science because I find it easier to learn Social Studies and it's very relevant to today. I think ... yeah ... Social Studies is something I am definitely stronger in.

As with Rebecca, Matt agreed that Social Studies was probably something that he talked about most with his parents:

Probably Social Studies more than any other one. [Why is that?] Because Math is pretty straight forward for some things. Well, usually I don't tell them much about Math and Science, well, I don't know as much about Science ... Science I usually don't talk much about with them.

When asked if he thought the reason he talks more about Social Studies is because that's what he was most interested in, Matt agreed. When questioned about his parents' subjects of interest,

Matt felt that his parents liked Language Arts and Math more than Social Studies and Science.

When asked why he felt this way, the child offered this explanation:

Cause those are the two main ones that would be the best to help you in your life, Math and Language Arts. You need to have good grammar and it is a thing you need to know and you use Math every day.

This response is an important insight into how the child may perceive the parents' educational priorities. Matt had a high influence efficacy and this efficacy is perhaps how this child is able to feel confident in his ability to teach about the subjects of interest to them despite being different than those he feels are of priority to his parents.

When asked about personal favourite subjects and those of his parents, Dawson's responses continued to be short, one or two word answers. Dawson cited Physical Education as his favourite school subject. "... I'm thinking Math maybe. [How come? Why Math?]... Because there is a lot of things in Math..." This child was then asked if he thought his parents got excited about particular subjects more than others. Dawson responded "... Sort of..." In an effort to obtain more detail from the child, I asked Dawson if he thought his parents had a favourite school subject also. "...Yeah. Sort of..." was the reply. I rephrased the question and asked Dawson if there were any subjects that his mother wanted to know if he was doing better in than others and if she had any favourites. The reply was "no". When asked about his father, the child was not certain but felt that dad might like Social Studies better than any other subject. This exchange between Dawson and myself is indicative of much of the whole interview and gives us a glimpse into the communication style of this particular participant.

Dawson's communication style is interesting because it varied so much from the others in terms of length of responses and the development of examples. It was clear to me that even when taking into consideration any nervousness experienced by the child due to the unfamiliar

interview situation; this may be the way this particular child regularly communicates with others. Some evidence into the communication barriers for this child are observed in the behaviours of the child during the interview, like body language cues, as well as in the parent interview which is discussed in the paragraphs to follow.

Feelings about Influence

I regarded the importance of the child's feelings on information sharing, teaching or being able to influence their parents' behaviour as an interesting question in the research. I was interested to know how information sharing and influencing their parents' behaviour made the children feel and if these feelings play a role in whether or not they felt they could influence others.

Four out of the five children reported feeling special or proud when they were able to teach their parents something they had learned at school. Somewhat unexpectedly, and despite answers that were largely vague and indicated low influence efficacy, Dawson shared that he felt 'pretty good' and even 'proud' when prompted further. Surprisingly, it was Kim who was not able to indicate with certainty how she felt when teaching something new to someone in her family. Matt said that it made him feel smarter when he could teach the family something they did not already know. Rebecca agreed with Matt and described the feeling further: "It makes me feel happy and proud to know that my parents are listening to me and that I am learning stuff at school and it's not just going to school and coming back without an education." Sarah concurred, saying "It's good that I can finally teach them something because they really usually teach me... so kind of special... proud."

Child Participant Observation

While participant response tells a part of the story, qualitative research looks to researcher observations and detailed field notes to enhance the participants' verbal responses (Charmaz, 2006). I feel that while a significant part of the interviews were limited to what the participants said, the actions and body language in response to the questions told me something about the personality of the children answering those questions. The study participants reported three different levels of influence efficacy, defined by their response to the question of whether or not they felt they influence their parents. Interestingly, as the transcript analysis proceeded, similar patterns began to be seen among the children who were members of the moderate and strong influence groups.

The first group consisted of Rebecca and Matt, who responded with a clear 'yes' and therefore were categorized as having a high influence efficacy. These children appeared confident and articulate in their responses to the questions and both provided numerous examples when required. They were very expressive in their answers and were eager to provide information about their experiences, both with the *Open Minds Program* and in general. Their physical indicators demonstrated an open body posture and they both leaned forward when they answered a question. From the moment I arrived at their houses, they made eye contact and sat up straight during the interview. From all appearances, both of them enjoyed themselves during the interview. From looking at their journals at the outset of the interview, it was clear that they took great care in their school work and put lots of detail into their assignments. For these children, later confirmed by the interviews with their mothers, this is typical conduct.

The second group, Kim and Sarah, who were given a moderate influence efficacy, also had some similar characteristics in their body language and in the way they answered the questions. Both children appeared a little unsure of their responses to some questions. It may

have been that they felt unsure about the interview situation or had a fear of answering the questions incorrectly. This could be the case despite being told that there were no wrong answers to my questions and that I merely wanted to learn about them and their experiences. However, I structured my interviews intentionally to allow the children to become comfortable with the format and the types of questions I was inquiring about. Both children demonstrated body language that was occasionally closed and standoffish. They fidgeted when answering the questions and had minimal eye contact with the interviewer. Their answers were less detailed, they used fewer examples, had long pauses and frequently used filler words such as ‘like’, ‘um’ and ‘well’. The mothers also confirmed, during their own interviews, that many of the physical indicators I observed during their children’s interview, as being normal behaviour for each child.

As the only child to report a low influence efficacy, Dawson was the only child in the third group. This child was quite uncertain when responding to the questions, evidenced by short answers and long pauses. Dawson appeared to be very introverted and lacked self-confidence in the ability to answer the questions. Looking at his hands, having limited eye contact and a closed body posture with rounded shoulders was characteristic of this participant throughout the interview. While I initially thought it may have been the uniqueness of the situation that may have caused the child to react to my interview with shyness and lack of self-confidence, the interview with his mother provided some helpful insight into Dawson’s past and present school experiences. Denise felt that her son’s communication style had changed significantly over the past school year as a result of a strained relationship with a teacher. The mother reported that he went from a child who, during his experience with his teacher who took him to the *Open Minds Program*, was out-going and shared information learned at school, to a child who was afraid to share information or projects for fear of giving incorrect answers. More evidence to support this

analysis was provided by his mother and will be discussed further when I consider the responses from the parents. The only point at which Dawson elaborated on his answers to the questions was when discussing the *Open Minds Program*. The child then appeared to sit straighter and responded to the questions with more self-confidence. The importance of this will be considered in a later section that deals expressly with the *Open Minds Program* and again in the discussion.

Summary of Children's Reports of Influence

To summarize, four out of the five children interviewed reported that they influenced their parents in some way. Those that shared they were influential cited examples of environmental action around the home as a way they are changing family behaviour. When asked what strategies they used to influence their parents, the children provided a number of examples that use a variety of teaching methods including auditory, kinesthetic and verbal strategies. It appears that the reasons behind which strategies they pick and what information they share with their parents may have something to do with a number of factors including personal favourite school subject and their parents' subject interest. Participant self-confidence emerged as an important theme and made a notable difference between those children who identified influence and those that did not. The results of the parent interviews will contribute to a greater understanding of the responses of the children presented above.

Parents' understanding of influence

One of the main goals of this research study was to determine if parents felt they were influenced by their children, specifically with regards to environmental knowledge and behaviour. Educators have the opportunity to expand the reach of their messages by recognizing and utilizing more about the child-to-adult influence relationship.

Questions about child influence were asked of the parents in a fashion similar to the method in which the child participants were asked, but with more general open-ended questions followed by more specific questions. This was to allow the parents to provide examples of influence without a prompt that might sway their answer. All of the parents initially confirmed that they felt they were influenced by their kids in some way.

Karen, mother of Kim, established with a simple ‘yes’ that she felt influenced by her children. Susan felt that she was influenced by her children daily, from the beginning: ... For sure, they definitely influence me... do you mean make me more aware of things? ... [yes] ...Oh well, children totally change your behaviour. Everything about you is totally changed when you have children.”

Rita, Rebecca’s mother, response was “yes” to whether she was influenced by her child. Rita described the influence that both her children have on her, as well as, the reason she feels this influence exists:

Absolutely. All the time. They have the most current information about everything whether it’s computers or what’s going on in the environmental science discoveries. Every time they come home and say ‘this is what we learned at school today’, it influences us [her and her husband] in some way or another. They are bringing home the most current information.

Matt’s mother Martha agreed that her children have influence on the family and states that it is because they are accessing new information that the parents are not: “Oh yes! They bring your attention to them [new issues] and explain why you should have to do those things.” Both of these parent’s statements are in alignment with their children, Rebecca and Matt respectively, who thought strongly of their ability to influence their parents. Interestingly, Denise, Dawson’s mother, said “Oh absolutely!” to being influenced by her child despite her child not perceiving this influential relationship.

Areas of Influence

The adults interviewed for this research study did indicate that they are influenced by their children in some way. My fourth research question asked if parents believe they have been influenced by their children, in what ways do they believe their understandings and actions have been influenced by their child? I asked the parents to each provide examples of ways they felt their children influenced their behaviour. When citing examples of this influence, four out of the five parents cited environmental examples first. All of the girls' mothers felt that Grade four was the time when children begin to influence the family more strongly, particularly the environmental behaviours of the family. Martha and Denise, the mothers of Matt and Dawson, did not specifically identify a time when their sons started bringing home environmental messages.

Karen agreed that one of the areas her child was influential was in regards to the family's environmental behaviour:

Ummm... a really specific example is that we started doing curb side recycling when she [Kim] started doing *Waste in Our World* in Grade four. They went to the recycling plant so we started recycling and composting when she was in Grade four... it was a direct influence from her for sure.

Further, Karen described more about the influence at home and the reason she feels her children are able to influence the family:

It's [recycling] such a big deal. We [the family] are just so much more conscious of recycling and reusing and those kinds of things because we have kids and because we have an impact on the environment ... I think it's because ... you know ... it's so relevant for them.

Next she shared one insightful statement that supports the child-to-adult influence relationship:

I think if we didn't have kids, I don't think we would be as good, I really don't. I think because we do have kids and they remind us. And we know that we want to leave this place better than when we came ... so I think we are much more careful of how we treat

the environment ... I think having kids ... we definitely recycle more ... they definitely have an impact on us and they come home with lots of things.

Examples of politics, economics, environment, consumer issues and education, were given to the parents as suggestions for possible topic areas where their children might have influence. Karen stated that, while the children are not influencing the family politically or economically, besides the environment, consumer issues are another big area where her children influence the family:

They certainly do influence what we buy ... especially for groceries I find ... now they are that the age where she [Kim] is looking at the nutritional value of everything and so she definitely helps influence ... you know ... makes us think about what we buy ... they are definitely more health conscious than we ever were as kids so that definitely influences us.

Rita talked about the tremendous influence she feels her daughter has on the family's environmental knowledge and behaviour:

Well the light usage for sure and turning off the lights and how we should be using alternate forms of energy and you need to use more efficient light bulbs and saying what we do ... like she [Rebecca] gets dad in trouble for washing his car in the lane. We got to go paint fishes by the water drains so she is all up on what goes down the drain and all that. She is very aware how much water we use to water the grass ... 'you have to put a Frisbee down and mom and dad only fill the Frisbee.' And putting only perennials that can grow without much water ... she is certainly aware of all that.

When asked about examples in the other topic areas, Rebecca's mother talked about the relationship of influence on family consumer habits and how that is also an area of environmental influence. Rita shared that her children were also influencing them economically as the children influence the amount of money being spent by the parents. She also reported that her children influenced the people she and her husband socialize with. This parent's responses were strongly aligned with those of her child, who reported the ability to strongly influence her parents.

Like Rita, Martha provided a long list of example areas where she thought her child was influencing the family's knowledge and behaviour. The environment continued to be a strong theme throughout the examples:

With their persistence, with them constantly telling you ... 'You know we learned this at school, we were told you shouldn't do things this way, we were told you have to recycle, these are the advantages you get from ... composting. You are not throwing all your food down the drain, things like that ... you know like the peelings and all that ... you could save costs and all that ... and do your composting when it's the planting season and you could use that manure ... to fertilize your plants' ... he really tried hard, very hard campaigning for that compost ... I think now we'll go get one.

Martha also described instances when her son taught her lessons learned at school such as discussions about grassland ecosystems and outdoor education experiences. Further she talks about her attitude prior to her son's lessons on recycling and how passionate her child is about this knowledge "I didn't care that much but he is always on my neck about it, about the garbage. Sometimes he will go through the garbage and take things out and put it in [the] recycling." An interesting anecdote shared by this parent was that her son influenced the young children of relatives who live in another country to recycle, demonstrating recognition that the knowledge and influence of the child goes beyond the immediate family.

Denise continued the theme of environmental influence by children. She talked about the influence of both her children rather than just the participant child specifically. It appeared that the child who had not attended the *Open Minds Program* was a greater influence on the family than the child interviewed:

'Mom you shouldn't throw that out, you should recycle it.' ... And you are like okay ... well you know ... and you have to decide whether or not you are going to go with her or not ... This is like the WWF [World Wildlife Fund] thing they are doing ... 'we need to send them money for the tigers.' So different things like that, when they come across something ... they think is valuable ... oh yeah ... they are on us all the time for stuff like that.

When asked if they do more recycling now because of her children, this mother provided a great response in support of child-to-adult influence “I attempt to, yes... as before I never would have bothered.” When asked if they have adopted any new behaviours as a result of knowledge the child has gained from school, Denise replied, “I would say recycling. That’s the big one. We would never ... I at least have a box now I put stuff in and I at least try composting.” Other examples of influence by the children on the family cited by this parent include politics, which increases with the age of her children, particularly when they have school related projects. Consumer habits, which she feels are greatly influenced by the children’s interaction with advertising on television and in print media, is another example Denise gave of ways she feels her children are an influence on her.

Susan’s interpretation of the question was a little different. While she stated her children influence her daily life and schedule, when given the specific topics of influence, her responses were varied and seemed at times contradictory. Initially she talked about how her children have an influence on her with their interests, particularly those that differ from her own. “... they introduce new things to your life that you never thought probably you would be exposed to ... every aspect of your life is impacted, influenced.” An area where the child is most influential in this family is in social causes or participating in events for charity. Susan shared that for her daughter Sarah, when a cause becomes something she “really believes in and really supported and it became a personal thing her to be involved with.” When asked to consider how Sarah might influence education in the family, Susan felt that “because that’s my job kind of thing I am not as easily influenced on that ... I’m the hammer there ... I think probably in some ways I am mostly the hammer so I don’t know if they [both her children] influence me that much.” The last part of this statement is contradictory to her earlier comment about how every aspect of her life

is influenced by her children. Further along in the conversation she again restates her position that she is “not easily influenced” by her children. However upon reflection Susan suggested that she may be influenced by them to make purchases they want:

Well consumer habits ... they influence me ... like well our son [Sarah’s brother] is a great consumer ... he would buy anything and everything ... But we [she and her husband] are pretty rigid ... I think we hear what they have to say and we negotiate a lot but I don’t know if they influence us that way ... [pause] ... well I guess they do ... I went out and spent [money on an expensive birthday present the one child wanted even though the parents had initially said no to the purchase] ... So I guess they do influence us because the negotiation sometimes works in their favour.

When asked if she felt the family had ever changed their behaviour in response to something the child had learned at school, Susan shared that she feels strongly that this did not happen in her family: “No. I can easily say no to that ... I am sure in other families it might ...”

All of the parents were then asked if they felt their family’s environmental behaviour had ever changed as a result of something the child had learned at school. Three of the parents stated that their family’s behaviour had changed as a result of their children’s environmental knowledge. Rita expressed, “Absolutely. For sure... it has us more aware and more cognizant of how we are influencing it [the environment] and how we are using it [the environment].” Martha agreed and illustrated how they now take the time to have experiences in nature that they would not have done previously. Denise described some family practices that had changed such as installing energy efficient light bulbs, recycling and composting.

Karen sensed that her family’s environmental attitude as a whole was gradually changing, not necessarily as a result of something her children had learned at school: “I don’t know if it’s one specific thing that changed it. I think it’s just cumulative. Different things that they learn, and as they get more knowledge and we get more knowledge, then we start changing.” Karen reported that the institution of a recycling program at their home was a singular example of how

her daughter's knowledge from school had influenced the family's behaviour and attitude in an instant: "Honestly the recycling was a big thing for us because she was just so adamant about it. But other than that, I think it's just sort of a gradual ... we are all learning together. It's great."

Susan claimed that the biggest reason they participate in pro-environmental activities could be attributed to the parents' prior knowledge from the place they lived before moving to Calgary and not what the children brought home from school. "I don't think our children's views of the environment have changed [us], they are just sort of catching up to where we personally believe."

Parent's Ideas about the Methods of Influence

The fifth research question asked the parents what sorts of techniques they felt the children were using to create influence and which of these strategies were most effective. The methods identified by the parent group were then compared to the children's responses to see if the children were using the methods the parents considered to be most effective.

Kim described examples that used a number of kinaesthetic, auditory and visual methods to teach her parents. She also identified her mother's learning style. When asked, Karen shared that her children used auditory methods by questioning choices, decisions and comparing new information with the family status quo:

I think they mostly just sort of bring an issue to our attention ... like 'did you know? ... or what about? ... why don't we?' ... that sort of thing. It's the things they [both her children] learn about at school then bring it to us and say 'we learned about this at school' ... and the recycling was a great example ... 'why don't we recycle? ... do we recycle? ... why don't we? ... what are we going to do about that?' And sort of bring an issue up that we can discuss ... that would be their number one, asking questions and bringing information forward ... if they really believe in something they will bombard us with information about something.

When asked how her child most commonly shares the things learned in school, Karen laughed and answered that Kim is very talkative and:

... it's a running dialogue about what happened, so we pretty much hear. I think we are pretty well informed of what goes on every day. So they [both her children] definitely come through with ... relaying the information every day and what they learned.

She observed that her profession may play a role in the amount of information her children share “I think because I am in the profession [of teaching] too, I can sort of ask more guiding questions and I sort of have an idea of what's going on.”

Although she was unsure of her children's ability to influence, Susan described negotiation as one of the strategies her children use to sway their parents consumer choices. She used her youngest child, who did not participate in the *Open Minds Program*, wanting a particularly expensive birthday present as an example. Her son wanted the gift but the parents said that the child would have to help out with the cost of it. Faced with this choice, he decided to forgo the gift to keep the money to spend on his own. The parents were affected by this decision and bought the child the gift anyway. When she spoke about Sarah, who had participated in the *Open Minds Program*, she provided an insight into her daughter's personality and a possible explanation as to why her influence efficacy may have only measured moderate on the scale used in this study:

She [Sarah] is not a good sharer, she isn't. Usually it's in the night ... at bedtime ... that's when she'll have things she might talk about unless it's something she is really interested in ... like usually about Social Studies, but mostly what I find out about school ... I always try to keep a close relationship with her teacher because I know she doesn't share much. So she really doesn't ... good or bad ... except for this new Social Studies thing recently ... that's the only thing she would share.

In this quote, the parent reinforces Sarah's interest in Social Studies and comments on how her child must be really interested in something before discussion at home happens. When asked what Sarah thought it was about the subject of Social Studies that made her child share more than normal, another revealing quote was provided. “Just history ... mostly history ... interestingly ... so I'm not sure if it was Canadian history or Alberta. Obviously I wasn't paying

attention close. But yeah ... when it's something she's really interested in." Paying attention to the information children are trying to bring home may be an important part of the child-to-adult influence relationship, which will be considered in the discussion.

Rebecca's mother Rita felt that her child had two very different methods for influencing her, one which is effective and one that is not. This mother was candid about the strategies her children use in this family to get what they want or influence parent behaviour in both of the influence topics she named, consumer and environmental issues:

Well there's the whining and the begging and all of that. For purchasing stuff absolutely, she can be a little nagging ... 'you shouldn't buy this because it's not a green product, and you shouldn't be using that because it's bad for the environment'. Probably if she can come to me with a well constructed reason for it, than I am more likely to listen but if it's the whining and the begging and the nagging then that usually doesn't work. But if she can come to me and say 'we learned this has this effect or this is what happens when you do this to the lawn or you only need a Frisbee worth on the lawn', I am much more likely to listen to that, if there is a good reason behind it.

Martha, Matt's mother, agreed that a well reasoned argument with examples was an effective influence strategy that her child uses. She authenticates her child's account that the use of technology is an effective teaching method and that discussion plays a huge role in the family's transfer of information to one another:

He brings the facts. He tries to show you the facts. Through books, on the internet and he will go 'oh I can show you that on the website' ... can show us through books and some other things they've brought from school ...we just discuss it ... we just have a conversation, 'oh how did that go?' or 'what did you learn?' or 'what did you like about that?' and 'what didn't you like about it?'

Dawson's mother Denise described her children's influence tactics to be similar to a sales pitch. They repeat "like almost verbatim, word for word, what it had on the TV commercial." This parent reported that this tactic worked with mixed success, depending on the information presented and the 'product' they were trying to sell. This is similar to the facts and background information technique described by several other parents. It would appear that these children

realize the importance of selling the ‘product’ which they want their parents to ‘buy’, whether it is an actual object or behaviour. Here again, the emphasis was on both of the children as an influence unit rather than the influence of the child participating in this study.

Persistence also appears to be a common thread throughout the strategies listed by the parents. Martha described the phenomenon best as, “he is more persistent [than the sibling] with those things, you know, like making sure you get the information. Like repeating and repeating... reminding you.”

Summary of Parent Interviews

The interviews with the parents were candid and revealed a lot about their relationships with their children and their feelings of their child’s influence in their lives. Many of the parents feel they are influenced by their children and name several strategies, such as discussion and persistence that their children use to exact this influence on them. One parent appeared unsure of her children’s influence on herself and the family. The interviews with Karen, Rita and Martha aligned closely with the majority of their children’s responses while those of Susan and Denise did not match closely with those of their children.

Children, Adults and Program Participation

The child and adult participants provided significant information about their respective experiences with child-to-adult influence. The *Open Minds Programs*, Calgary Zoo School and Cross Conservation Area School, were used as a vehicle to encourage the participants to reflect upon these experiences. In previous research, it was found that attendance in programs similar to the activities and experiences provided by the *Open Minds Program* increased the likelihood of child-to-adult influence communication (Ballantyne et al., 1998b). I was interested to find out

more about this connection between child-to-adult influence and the program the children had participated in. My final two research questions asked the children how they felt they were influenced by their participation in this program and the parents were asked if they believed that their family's behaviour had changed as a result of the child's participation in the program.

The Influence of the Open Minds Program

“Well it [Open Minds Program] definitely influenced this generation I think because now that we have learned about all this we can take it and use the information and make our world better.” – Rebecca.

I was interested in the influence relationship more generally, but also more specifically how a week-long environmental education experience might impact this relationship. Both the child and parent participants spoke about the *Open Minds Program* in their interviews and how they felt this program influenced both themselves and their families.

The Children's Ideas on Open Minds Program

I wanted to use the *Open Minds Program* as a vehicle for this research as I felt that this experience would have a significant impact on the children and thus be an experience they would share at home. Therefore, the next research question asked how do the children feel the Open Minds Program influenced them?

Time was spent with each child discussing their program journal. This allowed them to become comfortable with me and reacquaint themselves with the *Open Minds Program* experience that we would discuss during the interview. The level of detail in the children's journals was significant and the richness of their stories indicated a high level of learning. They described assignments that were multidisciplinary, from Math and Science to Writing and Art. In

the interviews, the children spoke in the interviews about being outside in new environments and exploring new buildings that fascinated them so greatly that they expressed a desire to work there in the future. They showed me stories and poems they had written and drawings of animals, insects and plants. They talked about sketching and observing the eating habits of animals.

After spending some time reviewing the journals, I asked the children to describe what they remembered most about the program. All of the children remembered when they participated in a research activity and were in direct contact with the object they were researching: “The funnest thing I did was feed the giraffe” said one child. Others talked about how a pond study at Sandy Cross Conservation Area was a fond memory. From analysis of the topics the children talked about both in exploring their journals with me and further conversation about the program, several key themes emerged. The children seemed particularly interested in the scientific research activity they participated in at the sites, authenticated by the fact that these were their most memorable program activities. As a secondary interest to scientific research, the children believed that the most influential occasions took place when they worked alongside community experts to complete these research projects “The one person who usually did all that was Zoe, she was kind of like our guide... She showed us gorilla bones and skulls and she showed us this one chart that had gorillas and their names.” “There was this tipi and a man came in the tipi and he played an instrument.” One child who attended City Hall School illustrated an example of how meeting Calgary’s Mayor was an influential experience they wanted to share with their parents. The outdoor component of all the *Open Minds Programs* was also very popular.

The children were then asked what they felt was the most important thing they learned at the *Open Minds Program*. All of the children believed that it was the environmental message that

was most significant. Kim shared the most important thing she learned was “how to protect the animals and the environment”, and Matt concurred “... how to respect nature, like the little things you can do to conserve everything, like recycling and composting” Sarah and Dawson felt it was a more species-directed message “That sort of every animal needs its own habitat and its own space” said Dawson.

Sharing the Experience with Elders

I wondered what the significance of this experience was to the participants, whether the children recalled sharing information with their parents and if they did share, what information was discussed?

Kim expressed what she remembered sharing with her parents:

When we went to City Hall School they were really interested in like about the Mayor and stuff so I really liked telling them about him and we all had questions for him [the Mayor] written down in our books and so he answered all of our questions and it was really interesting.

Matt recalled bringing home artwork to share and discussing what he had learned at the program with the family. Rebecca and Sarah also remembered sharing with their parents, even though their parents had attended the experience with the children. Rebecca shared her thoughts as follows:

Well my mom went to both field trips and my dad went to Cross Conservation... and I told my parents about what we did and things we learned about the environment and things that I learned about the City Hall and things we learned throughout the day.

Dawson responded in the same manner in which he responded to all questions, expressing the feeling that he did not share lessons learned with his parents.

When asked what types of activities at *Open Minds Program* made them most want to share with their parents, the children thought it was a combination of interactive games,

interesting demonstrations and the opportunity to interact with nature and their community that encouraged them to share with their parents.

The Parent's Views

To comprehend what types of messages the parent's received from their child's participation in the Open Minds Program, the parents were asked if there was any particular part of their child's journal or experience that they recall the child talking about most. Four of the parents cited the opportunity to participate in research, with both animals and natural environments, as a major theme of discussion. A couple of the parents believed the children to be most excited about sharing the games they had participated in. Rebecca's mother Rita also felt that the opportunity for her child to participate in a 'grown-up' experience was influential in the messages the child brought home. "She was just amazed to be down in the middle of downtown [for City Hall School], walking around there, having people see them, to be part of it."

The parents were asked what they felt was most interesting about what their child shared. All of the parents expressed the connection that their children had to the sites and their relationship with the people, place and the natural elements of the site. Many of the parents observed a sense of ownership of the experience from their children. For Susan, Sarah's mother, "it was really her connection to [the animals] and they really felt like they were seeing things that made them scientists... you could tell they felt that ... they felt very grown up and a part of things." The three parents who attended the experience also described what they felt were the impacts of the program on their child, despite having seen it firsthand. Denise, Dawson's mother, talked about how having the opportunity to observe her child's learning in action was a very influential experience for her:

Now the interesting part was just the relationship of being able to see them [the students] do the physical book learning and to see it acted out in front of you ... I found

it interesting when they could actually see it ... And it's almost like lights going on. They were like ... 'oh yeah, that's cool ... look at that!' ... And it's all the learning in action because they could actually see what they had actually been taught."

When invited to comment on whether or not the parents felt that the *Open Minds Program* had influenced or caused a change in their child, four out of the five parents felt that their children's awareness of and appreciation for nature had grown from the program. Martha felt that her son, "tends to appreciate nature more..." and Karen, Kim's mother, sensed that the program had made her child "more curious and interested in what's around her ... I just think it's really helped to open up her whole scope and her background knowledge and learning about the environment in all sorts of different ways." Denise felt that Dawson did not really change as a result of his participation in the program, as he has always been interested in animals and the environment; however the experience strengthened the interest towards these subjects for the child.

Further, the parents responded to a question about whether they felt there were any changes to the way their child shared school-related information as a result of their participation in the program. The reaction was mixed with two of the parents feeling that yes, the way their child shared information changed and two said no, it did not. Karen and Susan believe that there had been no changes to the way their children share school related information since their participation in the program. Susan commented:

I don't think it has changed how they share information ... in her case it kind of gives her an opportunity to hold onto things and process it more in her way ... Which is probably what a journal does ... to kids who don't talk ... then that would be the only way of doing that.

Rita and Martha both felt their children, Rebecca and Matt, changed the way they shared school related information after the *Open Minds Program* experience. Rita explained:

I think she is able to come back with a clearer explanation of things. Like she learned things in detail ... it is sometimes hard to get the details but what Open Minds gave them was a chance to work in smaller groups ... It made a big difference. It was a really focused week in both cases.

One parent was uncertain about whether any change in information sharing had occurred as a result of the *Open Minds Program* and provided some telling information about the child's recent experience. Denise described how Dawson had recently had a challenging school year, with a teacher the parent found difficult to communicate with. She felt this influenced the way her child shared information with others:

We had a difficult year with a teacher and [the teacher] was very controlling and very cold, so the exact opposite of what our other teacher [Open Minds teacher]. He just keeps everything close and he just doesn't talk about it. So if there is something exciting, he would bring it up. But I guess he didn't feel the freedom to express himself and just be relaxed with stuff ... whereas before, even after they came back from [the Open Minds experience], he was always bringing stuff ... always showing ... was talking ... I could just tell he didn't like school this year and that totally influenced how he reacted and his home environment. We did our best to keep the whole respect thing for the teacher, but it was just a difficult year.

Chapter 5: Discussion and Implications

This chapter begins with a discussion of the child participants' reports of child-to-adult intergenerational influence. One child reported not having influenced his parents. The case of him and his mother will be reviewed to identify possible reasons for the responses received. The parent participants' experiences with influence and an analysis of the adult reasons to reporting a lack of influence will follow. The case of this mother and her daughter will be used to address these potential constraints to effective influence. The impact of the *Open Minds Program* experience overall will be discussed along with a specific assessment of the program's impact on the child-to-adult influence relationships of the participants. The implications of this research on intergenerational influence discourse will be considered and recommendations for future research are then provided.

Influence and Children

My research findings suggest that children are capable of influencing their parents' behaviour and attitudes. This echoes that of many others in the intergenerational influence research community, such as Uzzell's (1994, p. 192) early research in this discipline which found that child-to-parent influence is a phenomenon that can be documented. More recently, Legault & Pelletier (2000), Ballantyne, Fien and Packer (2001a) and Vaughan, Gack, Solorazano & Ray (2003) found that children have the specific ability to influence their parents' environmental behaviour and attitudes. Four out of the five child participants in my study believed that they were able to influence their parents. Closely following the grounded theory methodology outlined by Charmaz (2006), I pursued categories and theories based on the data instead of trying to impose my preconceived notions about what I initially expected to discuss. Though the majority of my participants reported a child-to-adult influence relationship in their

families, one child, Dawson, did not believe he had influence on his parent's knowledge or behaviour. Throughout the analysis of the data, this particular case kept emerging as significant in my rounds of coding. I reflected upon questions such as, why did Dawson respond so differently from the others? What was different about this child's interview compared with the others who reported that they were influencing their parents? What might be some of the reasons why Dawson reported that he felt he did not influence his parents? I believe that much can be understood by considering the participant whose responses varied so greatly from those of the others interviewed.

True to grounded theory methodology, the data was analyzed thoroughly as I tried to decipher which social processes may be influencing the participants before conducting a literature review directly related to the findings. I began comparing Dawson's interview to those of the rest of the children. I also compared his interview with that of his mother to see if this parent could provide additional information about the child and his experiences. After considering potential reasons or barriers based on the research data directly, existing literature was reviewed to reveal what other researchers had identified as possible barriers to effective child-to-adult intergenerational influence. Program enjoyment and the types of activities the children are engaged in are two commonly described barriers (Ballantyne, et al., 2001b). Ballantyne et al. (2001b) also suggested that there are various factors in a family's communication relationship that can act as barriers to an effective influence relationship as well.

Program Enjoyment and Activities

Ballantyne et al. found that a lack of enjoyment of the program that children are participating in is a barrier to intergenerational influence (2001b, p. 9). In other words, children who enjoyed their participation in an environmental education program were more likely to share

the information learned at the program with those at home compared to children who did not find enjoyment in the experience. All of the children appeared to have enjoyed the *Open Minds Program* experience, including Dawson, whose responses were longest when asked directly about the program. Additionally, the journals for all five children demonstrated that they were engaged and interested in the program. When they proudly shared their colourful and descriptive work with me, they recalled memories of the many fun experiences the program had afforded them. This was the case not only for the Zoo School and Cross Conservation School experiences but for all the other *Open Minds Program* opportunities they had been involved in. The *Open Minds Program* philosophy states that if children have the time to learn and participate in fun and unique lessons, then children will succeed in their learning (Chevron *Open Minds Program*, 2006). For example, when asked if she would like to go back to the program, Sarah, daughter of Susan, answered with a resounding, “YES!” The remaining children reported that they too would like to participate in future *Open Minds Programs*. It is noteworthy, however, that the conversation around the *Open Minds Program* experience with Dawson was the most expressive, detailed portion of his interview. He described specific details of the program, what he found most interesting about the research projects as well as specific activities that his class participated in prior and subsequent to the program. Therefore, it was obvious to me that lack of enjoyment in the program was not one of Dawson’s barriers to reporting the influence of his family members.

A significant factor in the enjoyment had by the children interviewed was the specific activities in which they had participated. Ballantyne et al. (2000) analyzed six environmental education programs to determine what activities result in the greatest amount of sharing by children at home. They found that fun, hands-on, locally-focused projects that used a variety of

teaching methods such as discussions, outdoor experiences and demonstrations were most successful for intergenerational communication (Ballantyne et al., 2000, p. 14). Further, Ballantyne et al. (2000, p. 14) believe that working with community experts on these projects also results in an increase in the amount and frequency of information that is shared at home. The child participants in my research study talked at length about the activities they participated in at their *Open Minds programs*. The opportunity to participate in scientific research, working with local experts and the outdoor game activities were the most frequently cited activities by the child participants. The same activities that the child participants remembered the most and reported as the most interesting and exciting, were also the same activities that they remembered sharing with their parents at home, Rebecca shared:

Well it was definitely the games [that I shared most] and some of the activities were just fun games and some of them were things that we learned about. I shared some of the different ways to reduce green house emissions and just things we learned about...

Matt shared “I showed them the artwork that I did there, the sketching... I told them [the parents] what I learned there ... by memory.”

Dawson described the scientific research, working closely with the program coordinator and having a unique encounter with a zoo animal of particular interest:

The one person who usually did all that [worked with the children on natural history] was [the program coordinator], she was kind of like our guide ... She showed us gorilla bones and skulls and she showed us this one chart that had like gorillas and their names ... I sort of found it fascinating that they can tell each animal apart. [What do you remember most about the *Open Minds Program*?] Probably studying the animals ... seeing what they do and stuff .”

Three out of the five child participants had parents who attended the *Open Minds Program* with them. While their attendance in the program was not intended as a specific aspect of my original research proposal, it quickly became an asset as I was able to validate some of the children’s claims with the adults’ recollections and vice versa. The parents who attended

reported noticing their children's engagement and deep connection with the experience. There are two characteristics I feel demonstrate a level of enjoyment for the children in the program. I believe that if the children had not enjoyed the experience, the parents would not have made these observations. Rita observed:

With City Hall, they loved just being down there. She [Rebecca] was just amazed to be down in the middle of downtown, walking around there, having people see them [the class] ... to be a part of it ... she talked about [meeting the Mayor] ... with Sandy Cross ... she liked doing the pond thing [study] but she liked being out and playing all the games and kind of getting to pretend they were animals ... they [the class] liked being in the tipi and she talked a lot about that.

Susan, who also attended the Open Minds experience, observed her child's connection with the natural world and spoke about how she believed that connection this experience made her daughter feel:

They [the class] really felt like they were seeing things that made them scientists I think ... there was a real specialness about it, about that process [of observation]. I think they felt more of a connection than other people just walking through.

Denise, who also attended the program alongside her son Dawson, observed his engagement with the program:

Now the interesting part was just the relationship of being able to see them do the physical book learning and to see it acted out in front of you ... it's almost like lights going on ... it's all learning in action cause they could see what they had actually been taught.

It was apparent from the interviews that the reason why Dawson did not report engaging in intergenerational influence was not for lack of enjoyment of the program or a lack of interest in the program activities. Dawson's mother Denise's interview supports my observation that Dawson did enjoy the program and was engaged in the specific learning activities that have been shown to be conducive to intergenerational influence.

Family Communication Factors

Relationships between family members can be very complex. A necessary component to intergenerational influence is verbal communication between members of a family unit (Ballantyne et al., 1998b). Ballantyne et al. found that students who often talk to their parents about general topics were more likely to initiate discussions about environmental topics than those who do not communicate well with their parents (1998b, p. 8). A child may be more likely to share information learned at school if they believe their ideas are going to be heard and acknowledged. Similarly, if a child does not believe that his or her parents will listen to them, they will likely not report that they are able to influence their elders. Strong communication between family members is clearly necessary for effective intergenerational influence to occur. Evidence of strong communication between children and parents in the study can be found in a discussion on strategies children use to influence their parents. The four children, Kim, Rebecca, Matt and Sarah, who were given a moderate to high influence efficacy, described auditory and kinesthetic examples of how they influence their parents. They all indicated that discussions with parents and showing their parents examples of what they wished for them to learn were the best methods of teaching and sharing with their parents. Mothers Karen, Rita, Martha and Denise, mothers of Kim, Rebecca, Matt and Dawson respectively, reported that these same methods were effective ways for their children to influence them. Dawson was not able to name any methods that he used to share with his parents, though Denise, Dawson's mother, did report that both her children used some strategies which included discussions using facts, and presenting information in the form of a 'sales pitch'. It can be understood from the data that Dawson did not report the ability to influence his parents and this difference in view of family communication between mother and son is a start to understanding further social factors that might be affecting Dawson's report of non-influence.

Uzzell (1994) suggests that parents also need to openly demonstrate support for the child's learning and the educational experiences they participate in for effective influence to occur: "Parents have to be interested in their child's education" (Uzzell, 1994, p. 203). Three of the five parents in the study who attended the *Open Minds Program* experiences with their children also spent time aiding their children in their homework and extracurricular activities. At least three of the parents talked directly about trying to engage their children in conversation about school by asking guiding questions. I went through both Dawson and his mother Denise's transcriptions to find evidence for a lack of support on the part of the parent. Denise attended the *Open Minds Program* experience with her child. Denise also reported participated in the journaling exercises in the program and admitted to being influenced by her son Dawson in environmental and consumer topics. She talked openly about trying to participate and engage in Dawson's learning experience but that the child did not share information about lessons learned at school unless directly questioned. Denise found out what her son was learning at school by trying to build a close relationship with his teacher. These were common activities among all the mothers of my participant group. Based on Denise's responses, I feel that a lack of parental support seemed an unlikely barrier to intergenerational influence for Dawson.

The social status of the child within the family is also an important relationship factor in successful intergenerational influence (Ballantyne et al., 1998b). "Many of the barriers to children becoming catalysts of environmental change result from the children's level of status within the family and the inability of parents to recognize that their children can actually teach them about the environment" (Uzzell, 1994, p. 203). If it is a family view that children are to be seen and not heard, children in the family will be taught and act accordingly. It is the status of respect in their family and community that empowers children to feel they can use their

knowledge to influence their parents and have an effect on the environment (Uzzell, 1994, p. 201).

To consider how the children view themselves within the structure of their families, I looked at several factors. I considered the reports of influence and the actions that the children reported to have had that influenced their parents at home. I also looked at their reports of their parents and their discussions on interests, activities and environmental actions as indicators of a higher level of status with the family. I also cross referenced the accounts of the parents, looking for indicators of the status of children within the family. All of the families interviewed for this study appeared to have supportive relationships between the members, based on observations made during the interview. This was particularly the case with the children with high influence efficacy, Rebecca and Matt, who described many new environmental actions and behaviours they have introduced in their households. Authenticated by their parents, Rebecca and Matt appeared to enjoy a status level that allows them demonstrate, encourage, persuade and even goad their parents and siblings into adopting these new behaviours. Rebecca explained:

Well I would say if I caught one of my family members throwing out a piece of paper that was full or blank ... I would say ‘how about you recycle that instead of throwing it out because you are wasting paper’ and I would guide them to recycling more paper.

The following statement by Matt also supports his reported view of high status and power within this family: “I make them recycle and throw things in the recycling bin instead of the garbage and instead of using too much paper towels ... to use less and I am trying to convince them to buy a composter.”

Rita shared that her daughter Rebecca was: “on our case ALL THE TIME ... don’t leave the water running ... take a short shower and so it’s [the *Open Minds Program*] certainly influenced her own use of natural resources and ours”. Karen, mother of Kim, a child showing

moderate influence efficacy, admitted that her family would not be as effective at recycling if it was not for her daughter's influence.

It was challenging to extract information on Dawson's view of his level of status within his own family because his interview responses were short, with limited description, for most of the interview. It is possible that he does not feel he has a high level of social status within his family, though there is no conclusive evidence from his own interview to support this. However, Denise reported that Dawson did have influence, particularly on such areas as where the family spends their charity donations and in the area of consumer purchasing. Denise also participates heavily in Dawson's school activities. She explains, "I was actually one of the room reps that went [on the *Open Minds Program* experience]." Denise also described two other experiences, similar to the *Open Minds Program*, which she had attended with Dawson. The parental attention and the time committed to his education suggest that Dawson has a high level of social status in his family and the respect of his parents, from the viewpoint of his mother. He is recognized as an influence in his family, though he may not be aware of it. This evidence supports the belief that the child's level of status within the family and a parental unwillingness to participate in their children's learning are not significantly impacting Dawson's report of having no influencing effect on his parents.

Self-confidence and Intergenerational Influence

Another possible reason that children do not share lessons learned about school at home is the level of self-confidence or self-esteem of the child (Uzzell, 1999, p. 407). To have confidence means to "have belief in oneself and one's powers and abilities" (Merriam-Webster, 2008b). An attempt was made to assess the level of self-confidence of the participating children by considering the type and nature of the responses in their journal exploration exercise and their

interviews. These children in my study exhibited varying degrees of confidence during the interviews. The confidence of the children appears to relate to the types of responses received during the interviews. Those ranked as having the highest influence efficacy, Rebecca and Matt, displayed the strongest confidence. Both of these children were open and direct with their answers. Their interview answers were longer compared to the rest of the children's responses and they both used examples and expressive anecdotes to illustrate their opinions. Rebecca and Matt also demonstrated confident postures and eye contact while being interviewed.

Kim and Sarah demonstrated moderate influence efficacy in interviews. When compared to Rebecca and Matt's interviews, Kim and Sarah showed less confidence in response to the question of whether they felt they influence their parents. They both answered the question with "sometimes". Kim and Sarah's answers were shorter overall and less descriptive than those in the strong efficacy group. Their body language during the interview conveyed an uncertainty about the questions being asked. These two children required more effort on my part to obtain descriptive examples and were not as forthcoming with the information as the children in the high influence efficacy group.

As noted on page 59, Dawson, a child who, in the initial analysis was assigned a low influence efficacy, did not appear to be very confident during the interview. He answered the majority of the questions with short one or two word answers despite my continued efforts to encourage longer and more descriptive answers. Often during the interview, after a long pause, he would ask to return to the question at a later time because he could not think of an answer. During the interview, this child conducted himself with a closed body posture, minimal eye contact and with lots of fidgeting. Dawson stated that he did not believe that he influenced his parents in any way. When pressed for further explanation, he said that he thought that perhaps he

might have some influence but only because his parents had to purchase more food to feed him. Dawson was not able to answer questions such as, what are your parents most interested in about what you learn at school? Do you think they have any favourite interests or school subjects themselves? It was his lack of concrete answers to these questions and his physical reaction to the interview that demonstrated to me that he was for some reason unsure or uncomfortable about something that either had to do with school or the interview itself.

After analyzing the observations, journal entries and interview transcriptions, I considered whether it was my presence that may have influenced Dawson's limited responses and uncertain reactions to my questions. I feel that this certainly could have had an effect, despite my interview design and best efforts to assure all the children that there were no incorrect responses to my questions. I tried to use their program journals to ease into the conversations and allow the children to be the experts, sharing their own experiences. However, all of the children interviewed were subject to an identical interview structure and similar questions. The majority of the children showed little difficulty with the questions and were quite forthcoming with their responses. Dawson may have been a little uncertain about sharing information about his experiences with me, but it was my interview with his mother, Denise, that suggested another possible reason for the responses I received from him.

Denise talked about how her child currently shares information "he doesn't usually ... it usually comes out when he is playing something similar." However, it was further in the conversation with his mother that I felt there was more to the types of responses I was receiving from Dawson than a lack of comfort with the interview setting or an introverted personality. When asked to explain more about how her child communicates with her about school, Denise went on to describe Dawson as being extremely critical of his own school work. "He [Dawson]

used to actually [share his projects or lessons] ... [but now] if his project didn't turn out in his mind perfect ... he would actually hide it [school work] in his desk or throw it away." She also shared her thoughts on how his experiences had shaped the way information from school is transferred home:

We had a very difficult year [the most recent school year] ... So I know for him, the way he is, he just keeps everything close and he just doesn't talk about ... if there was something exciting he would bring it up but I guess he didn't feel the freedom to express himself and just be relaxed ... so anything we found out ... I literally had to question him ... whereas before, even he just after came back from [*Open Minds Program*], he was always bringing stuff, he was showing, he was talking ... whereas I could just tell ... he didn't like school this year and that totally influenced how he reacted and his home environment ... normally he is much more expressive ... we never had a problem, he was always bringing home and showing.

This statement shed some valuable light on my interview with Dawson and his most recent school experience presented a possible reason for the responses I received.

Parent-Child-Teacher Influence Dynamic

Upon further reflection, I realized I had been considering the child-to-adult influence relationship in isolation, much in the same way that early intergenerational relationship researchers considered the adult-to-child influence relationship without considering the reciprocal relationship. Denise drew my attention to the fact that there can be additional participants in the influence relationship when considering environmental education. Teachers have an influence on their students' knowledge development since they spend more time with the children in a learning environment than the children's parents typically do. Stemming from my discussion with Denise, I considered how the influence relationship might be further impacted when teacher influence is considered. Denise reported a belief that Dawson's confidence and comfort level was drastically changed from one year to the next, and that perhaps a factor in this behavioural transformation was a change in his primary teacher. In the Portuguese case study

(presented in Chapter 2, p. 17) a part of the larger international report on children as catalysts for environmental change, Uzzell (1994) identified the teacher as having a role that was integral in the effectiveness of the child-to-adult influence relationship. Educators convey and ideally empower children with new information about themselves and the world around them. Teachers have a relationship, for better or worse, with the child and their parent. The child-parent-teacher relationship dynamic can change from teacher to teacher and over the course of the school year as the child continues their education. I feel that if this relationship is strained, the parent can lose confidence and trust in the teacher. The majority of children would not be immune to the tension between their parent and teacher and this would influence the child's relationship with their teacher. Children have a relationship with their parents and with those that teach them in a formal setting. I feel that within the role of each of these characters, there needs to be a reciprocal respect and trust in order for effective influence to occur. I also believe there needs to be a recognition for everyone's status as co-learners, and a belief that the child is recognized as a 'knowledgeable other' in the eyes of all the adults they are relating to. It is this mutual respect and high status that contributes to the child's self-confidence, which allows them to believe in their ability to influence others.

Dawson's mother reported a change in sharing and confidence in her son from one year to the next. One factor that could have influenced this change in child behaviour could be a change in teachers from one grade to the next. Not all teachers have the same communication and teaching styles and from Denise's description of Dawson's two most recent classroom teachers, the most recent teacher had a teaching style that varied differently from what Dawson had been accustomed to in previous years. Each of the links between the three players in this relationship needs to be strong in order to sustain an effective influence relationship (Uzzell,

1994, p. 162). Denise was hopeful that in the next school year her son would regain confidence and return to his former, more expressive self.

From the analysis of data collected, through the interviews, observations and journals of all the participants, a lack of self-confidence was likely the predominant factor creating Dawson's belief in his inability to influence his parents.

Adults and the Influence Relationship

Four out of the five parents interviewed reported that their children influenced their knowledge and behaviour. When asked what behaviours their children influenced, the parents all cited examples of environmental action and consumer purchasing. Environmentally, the children influenced recycling and composting behaviour, energy and water conservation measures and waste reduction practices. In consumer issues, the children influenced the purchase of food, encouraged the use environmentally friendly products, and making purchases with minimal packaging.

Just as Dawson's interview deviated from the average responses for the other child participants, an interview with Susan, Sarah's mother, was the outlier when compared to the responses of the rest of the adult participants. Susan was not convinced that her daughter had any influence over her and her family using lessons the daughter learned at school. This contradicted Sarah's responses since she felt that she "sometimes" did influence the family. The other four parents in the participant group shared that they were confident that their knowledge and behaviours are influenced by their children. Similar to my exploration of Dawson's barriers, I constructed a grounded theory explanation based on my interpretation of Susan's report of intergenerational influence in her family. I consulted the literature to investigate what barriers other researchers had previously identified for successful adult participation in child-to-adult

intergenerational influence. Uzzell (1999) described a number of constraints adults pose upon themselves that affect the way their child is able to influence their understanding and behaviours. These include a model of influence where the child has a minority status and the parent assumes the role of expert in the relationship. I believe that Susan could be experiencing a number of self-imposed barriers or constraints that are challenging effective child-to-adult influence in her family. Susan's responses were at times very contradictory when asked about the influence relationship in her family. Susan, mother of two, felt she was influenced by her children in day-to-day activities and that her life had changed since having them but when given examples of possible influence topics, she felt that her children were not an influence on her. After stating that she was not "influenced much" by her children, she proceeded to provide some examples of influence, such as consumer influence. This mother was very candid about how she felt and her understanding of the influence relationship between her and her child. I was interested in the experiences and barriers experienced by Susan as a source of insight because they differed from the rest of the parents who consistently reported being influenced by their children.

Uzzell describes, in his model of constraints or barriers to intergenerational influence, that a child can feel they are influential but the parent does not acknowledge that there is any influence (1999, p. 408). He suggests that parents need to be eager to engage in a dialogue with their children and have a strong communicative relationship with the child in order for effective influence to occur. In this traditional model of influence "the parent adopts the role of expert and the child has minority status" (Uzzell, 1999, p. 408). Each of these constraints was noted in Susan's interview and was further supported by reports from her daughter, Sarah.

A Willingness to Communicate

In order for effective child-to-adult influence communication to occur, there needs to be a willingness on the part of the parent to communicate with their child (Uzzell, 1999, p. 408). Susan demonstrated a willingness to participate in her child's education by attending the *Open Minds Program* with her daughter Sarah. Susan reported trying to directly ask Sarah guiding questions about her school experience and trying to maintain a close relationship with her teachers in order to understand what was happening in the classroom. Susan and Sarah both recognize that they shared a favourite school subject, and that they both enjoyed talking about the subject with one another. Sarah explained, "Social Studies ... love Social Studies ... my mom likes them too ... so we talk about it a lot." She also reported that both her parents like to hear about her spelling, particularly about how well she did and if studying at home paid off. "We practice a lot of multiplication stuff... so they like to see how well I do on tests and stuff." I feel that a lack of willingness or interest in her child's education or interests is not Susan's barrier to confirming child-to-adult influence in her family.

Prior Knowledge, Parent Profession and Child Status

Uzzell (1999) describes one of the parental barriers to intergenerational influence as "the adult taking the expert role and the child having a minority status" in the relationship (p. 408).

Susan's profession is that of a teacher and she shared the following:

... education-wise, because that's my job kind of thing ... I am not as easily influenced on that ... I'm the hammer there ... I think probably in some ways I am mostly the hammer so I don't know if they influence me much.

I wondered if the impact of the parents' profession would have an effect on the reported influence relationship, particularly if the parent is an educator themselves. Despite Susan's profession providing her with the understanding of the importance of asking guided questions regarding her daughter Sarah's school activities, it is possible that her view of her professional

role could be impacting the child-parent influence relationship. However, this cannot be confirmed without more specific, long term research. She seems to use the term “the hammer”, to represent her authority role in the household and she reports that she is the authority or “the hammer” most of the time. When asked to elaborate on other topics such as her child’s interest in environmental issues, she reported that her child is aware of environmental issues but states that she finds that Sarah is not ready for the responsibility of leading environmental actions, such as aiding in the family recycling:

... we are mostly in the talk stage because this hasn’t carried over into ... okay, let’s wash cans ... she [Sarah] has never really shown an interest in helping out with that. But she sees that it’s important that other people do it. She is more into the talk and not the action part yet.

This is in contrast to daughter Sarah’s report of feeling that she did influence the family’s recycling effort.

When invited to comment on other possible topics where she might feel influenced by her daughter, Susan admitted awareness of some influence by providing an example of a time when Sarah had some influence over the family “Probably where she [daughter Sarah] does have a lot of influence, I don’t want to say public service but like in charity kind of stuff ... she sees things and that we should do things for others. So in that way she influences us.” Later when asked to describe what methods her children try and use to influence her, Susan simply reported, “I am not easily influenced.”

Susan talked more in depth about the environmental ethic she and her husband grew up with, prior to moving to Calgary “Where we come from... recycling is compulsory, you have to recycle ... I think that we are probably more aware of the environment just cause of where we come from and the importance that was placed on it.” This prior knowledge could be effecting how Susan relates to environmental issues in the family and it could be this attitude that could

cause her daughter Sarah to respond to environmental action in the way her mother reports. Susan says she feels that her children's environmental ethic is in the developing stages and has yet to reach the level obtained by the adults in the family. My interpretation of her statements in this section is that Susan believes her knowledge in the area of the environment is currently greater than that of her children. I believe that a child observing this attitude would trust that the parent is the most 'knowledgeable other' in this situation and would be less likely to attempt to challenge the parent on these issues, particularly if this child did not have a strong sense of self-confidence. As mentioned in the discussion about child participant confidence, Sarah also appears to lack self-confidence, when compared to some of the other participants. I feel her mother confirms this with the following statement about the child's school routine:

It was always the same, the routine was the same. That's really important to her [daughter Sarah], she likes predictability ... [she is] not as adaptable to different things or new things ... routines they [the *Open Minds Program*] had in place would be helpful.

The need for predictability and the dislike of new situations could perhaps mean that Sarah does not have a level of self-confidence necessary to adapt to change. When a lack of self-confidence is combined with parents' self-reported status as 'expert', the child may not feel capable of overcoming the status constraint to achieve effective child-to-adult influence. In turn, the parent may not notice or believe the child is influencing the family's knowledge and behaviour in a strong and consistent way.

In the earlier discussion about barriers for children to effective intergenerational influence, it was noted that a child's perceived status within the family might be a possible reason for the child to report the inability to influence their family. The parent can also rank the child at a certain social level by not believing in or observing their ability to influence. This can be driven by prior knowledge of a subject such as environmental issues and a traditionalist

outlook of the role of children being as minor within the family structure. Susan does not feel her family's attitude or behaviour has ever changed as a result of something her child has learned at school, stating: "No. I can easily say no to that ... isn't that terrible? I am sure in other families it might ..." Further when asked if her children influence her consumer habits, she reports, "We're [she and her husband] pretty rigid ... so we don't really ... like they [both her children] are little, right?" My interpretation of this statement is that Susan does not feel that her children are at a significantly high social level within the family to be a strong influence. However, this does not mean that this level of status for the children will not change as Susan's children grow older and more confident in their abilities and knowledge.

It was clear from the interview with Susan that she was uncertain of her child's influence on her and her family. Based on the reports given in this interview, I feel that it is the parents prior knowledge and the social status of the child in the family that are possible reasons for the uncertainty of child influence in this family. The role of parent profession, when one parent is an educator for example, cannot be conclusively defined as the reason for reporting lack of influence. More research needs to be conducted into the impact of parent profession before such a claim can be made.

Researcher Effect

Susan seemed to have a different understanding of what the term influence means than the rest of the parents in the study. She stated her children influence her day-to-day action behaviours such as when she wakes up and when she goes to bed. However when asked if her children influence her in the topic areas of environment, consumer issues, politics and education she seemed uncertain and shared that she did not believe her children to be much of an influence, if at all. There seems to be a difference between having an impact on her life because of the

demands of the need to care for her children and having power over her or having something to teach her. Researcher influence could explain the uncertainty and inconsistency in Susan's responses on child-to-adult intergenerational influence in her family.

Several of Susan's statements suggest to me that the constraints to reporting child influence in her family are related to the level of status her children currently have in the family as well as the mother's personal prior knowledge. While I have identified these as possible barriers, I feel I may have challenged Susan to strongly confirm the existence of a child-to-adult influence relationship in her family. I also recognize the influence of the researcher on the participant and can appreciate that admitting that you are influenced by your child to an unknown adult could be viewed as a sign of weakness on the part of the parent. In many cultures, wisdom is seen as coming with age and if one subscribes to this paradigm, and then children, by virtue of their age, have less knowledge than their elders. In some cultural research, children are considered empty vessels that are to be filled by their elders and that any reciprocal influence is not deliberate (Ballantyne et al., 1998).

It also may be more of a challenge to obtain honest responses from interviews with adults because they may be more concerned with impressions than children and reflecting upon the possibility of your children influencing you, could be seen by some adults as a weakness may seek interviewer approval. It is also possible that my research participants may have only told me what they believed I wanted to hear. I tried to overcome this by asking each question in a number of different ways while using the children's *Open Minds Program* journals as a tool to open up the discussion in an informal way. To overcome the challenge of participants manipulating responses to suit the researcher, in the future, a longer term engagement plan with the

participants would facilitate the exploration of these barriers and challenges with both the parents and their children.

The Open Minds Program and Intergenerational Learning

While the intergenerational communication between children and their parents was the central focus of this research project, it also served to provide feedback specifically on the impact of the *Open Minds Program* on the program participants. Several questions about the program were asked of both the children and their parents, asking them to explore their feelings and understandings about the program and whether they believe attending this program had caused any change in their behaviour. It should be noted that intergenerational influence is not one of the stated goals of the Open Minds Program. The research that has been based on this type of program (Ballantyne et al., 1998b; Cochrane, 2000; Falk & Dierking, 1992, as cited in Chevron Open Minds School Program, 2006; Legault & Pelletier, 2000; Uzzell, 1999) shows that this experience can be an impactful, significant learning experience for the children who attend it. My seventh research question asks do the children feel that their participation in an environmental education program influenced them and if so, how do they feel it has influenced their knowledge and behaviour?

The Children's Open Minds Program Experiences

As was described above, I used the children's Open Minds Program journals as a tool to explore further into the experiences of my participants in this program. The children's journals were rich with sketches, colour and the written word demonstrating a high level of detail. Each child spoke with pride about their experience and when asked if they would like to return for another Open Minds Program experience, the sentiment was a clear and positive "Yes!" from all the children.

It was clear to me that the Open Minds Program was a significant experience for these children. One mother even expressed that her child does not normally save school work but has kept these journals. She believes that because of this, her daughter must feel this experience to be significant enough to keep these tangible memories. I feel it is the combination of activities and unique experiences that have really captured the imaginations of these children and created some lasting memories they want to hold on to. When the children were asked what the most important thing they felt they learned at the Open Minds Program was, they were all in agreement that environmental lessons about respecting and protecting nature was the significant lesson from this program. Kim shared “We learned how to protect the animals and the environment.” Matt agreed, “... how to respect nature, like the little things you can do to conserve everything, like recycling and composting. Rebecca also felt that the most important thing she learned was about the environment. Sarah expressed that she enjoyed learning about the animals and felt that was most important while Dawson’s message was also focused on nature: “That sort of every animal needs its own habitat and its own space.”

Parent Reflections

I asked the parents to share their thoughts on their children’s *Open Minds Program* experience. First I wanted to know if the parents felt that the Open Minds Program had caused any change in their children. All the parents responded that the program increased their child’s curiosity for learning, and in particular noted an increased appreciation for and awareness of the environment. Karen shared that her daughter Kim was: “more curious and interested in what’s around her” because of her *Open Minds Program* experience and that her daughter is taken action towards recycling in their family because of lessons learned in the program. Sarah’s mother Susan reported that she believed her daughter gained a greater: “appreciation for animals

and the environment” through having attended the program. Rita could not say enough about her daughter Rebecca’s increased awareness and how that has increased the family’s awareness: “I think it’s made her [Rebecca] more aware. She is certainly more informed about conservation ... she certainly makes us more aware when we are out places.” Martha shared that the *Open Minds Program* experience has increased her son Matt’s appreciation and awareness of the need to take action to sustain the natural world: “... he tends to appreciate nature more ... he is more aware of the recycling ... you have to conserve things so you don’t deplete the environment.” Denise reported that she was not entirely sure that Dawson had changed because of the experience but it was a catalyst as it did increase and support his interest in the natural world.

As all the parents reported that their children changed to some degree as a result of their *Open Minds Program* experience, I wanted to understand if the parents felt that this change went beyond the child and influenced the family’s behaviour, specifically environmental action. My final research question asked if the parents believe the family’s relationship to nature had changed as a result of something the child had learned at school?

For Karen, Kim’s mother, was not convinced that it was one specific experience that had changed their behaviour but a number of things her daughter had learned that were gradually changing the family’s environmental behaviours:

I think that just all our attitudes have changed gradually ... I don’t know if it is one specific thing that has changed it ... Different things that they learn and as they get more knowledge and we get more knowledge and then we start changing ... Honestly the recycling was a big thing for us because she was just so adamant about it. But other than that, I think it’s just sort of gradual ... we are all learning together. It’s great.

Sarah’s mother Susan reported that her family’s relationship with nature was changing, particularly that of her children who were just catching up to her and her husband’s beliefs: “So I

don't think our children's view of the environment has changed [us], they are just sort of catching up to what we personally believe.”

Rebecca's mother Rita reported that their family's behaviour had definitely changed as a result of lessons her children learned at school: “Absolutely. For sure ... it [their child's education] has us more aware and more cognizant of how we are influencing it [the environment] and how we are using it.”

Martha, Matt's mother, concurred, feeling that there was definitely a change in her family, one that can be seen in an increase of outdoor family activities, even taking vacations that include more outdoor experiences. In fact, the children in this family have been pressuring their parents to do more outdoor activities since Matt attended the *Open Minds Program*:

They really like it [being outdoors] ... we do outdoor things, like we go walk in the park that kind of thing ... when we went on [vacation] ...we went to a place about conservation. That was the highlight of our trip.

Dawson's mother Denise felt the experience had changed the family in more subtle ways, including the use of: “energy efficient light bulbs” and increased conservation practices such as supporting organizations such as the World Wildlife Fund.

It is from these reports and from the feedback from the child participants that I feel the *Open Minds Program* is a learning experience that has tremendous potential to not only influence the way children consider the natural world, but also to change the way families relate to the environment. As was reported by these participants, children are capable of influencing their parent's knowledge and behaviour. Parents are also able, for the most part, to recognize their children as a powerful source of influence. It is programs like the *Open Minds Program* that can help children overcome the barriers to effective child-to-adult influence identified in this research by providing support to all parties in the influence relationship. In order to tackle the

critical environmental challenges we as a society are facing, an approach that uses all generations of people on this earth is going to be necessary. When environmental educators combine programs like the *Open Minds Program* experience with intergenerational learning practice, I feel these environmental challenges will be met and overcome. The *Open Minds Program* should consider intergenerational influence as an additional program goal, as a means of spreading their important messages beyond their immediate audiences.

Chapter 6: Research Recommendations and Conclusion

Based on the analysis of the findings in this research project, there are several recommendations that I would make for future study into intergenerational learning. The opportunity to engage with the participants in a longer term grounded theory study would be helpful to build a deeper understanding of the complex relationships between adult and child, particularly in those relationships where barriers to influence exist. Longer engagement would allow researchers to understand how the influence relationships change over time. It would be of particular interest to see how a child's perception of influence changes with a changing level of self-confidence over time. Environmental educators can benefit from research in this area by developing programs that overcome barriers to influence identified by participants. Research over a longer period of time would allow educators to leverage their messages to the most appropriate age group, learning style or child teaching style to maximize the probability of their messages being communicated home at all ages. Increased time for engagement with the children's parents would increase the understanding of how adults perceive and receive influence from their children. It is important to understand what barriers adults face in the child-to-adult influence relationship so that they can be supported to overcome them.

This study was focused on the relationship between children and their mothers. Past research in intergenerational learning has been predominately conducted with mothers and their offspring. There has been little research in father-to-child influence relationships and no qualitative research to date has been specifically conducted on the child's influence on the male parental figure in their lives. Understanding how children relate to both genders of the parental figures in their lives, both the similarities and the differences, will help environmental educators to design effective approaches using a variety of methods that empower children to engage

strategies that might influence all of the adults in their lives. Research that continues to use child-mother relationships should consider the possible role of the mother's career or educational background as conduit or barrier to intergenerational learning. Further research could consider different types of family structures such as the influence of children on the knowledge and behaviours of single parents, step-parents or grandparents as these family compositions become increasingly common.

Specific research into self-esteem as a barrier to the influence relationship is an area of study that I feel holds great promise for the discourse of intergenerational influence. I believe, if researchers can develop a greater understanding of how self-confidence is connected to the children's desire and ability to communicate school related information in the home, this barrier to the child-to-parent influence relationship can be overcome by environmental educators. Increasing child confidence could then become an aspect of environmental education programming.

Conclusions

This research study has considered child-to-adult intergenerational influence within environmental education. The first four research questions considered the participants' interpretation of how intergenerational influence has impacted their lives. The first research child-directed question asked if the children reported influencing their parent's environmental knowledge and behaviour. The second child-directed research question inquired further to see if the children did in fact report that they felt they were influential, and if yes, how they believed they influenced their parents. Four out of five of the children interviewed reported they believed that they did influence their parents' environmental knowledge and behaviour and that they used a number of influence strategies. They shared examples of this influence, particularly

emphasizing the conservation of the environment as a significant topic area. However, one child, Dawson, reported that he did not believe he influenced his family. This case was analyzed further to understand the possible barriers to reporting influence that may exist. Child self-confidence in the child-parent relationships were explored as a possible reason for why this child did not outright report that he believed there was child-to-adult influence in his family. The results gained through this emphasis on Dawson's case contributes to the larger body of knowledge on intergenerational influence, a need identified by earlier researchers Uzzell (1994) and Ballantyne et al (1998a). A greater understanding of the relationship between self-confidence and intergenerational influence is a theme that requires additional research and would provide an opportunity for further contributions to the field of intergenerational influence within environmental education.

The parents of the participant children were also interviewed about their understandings of the nature and extent of intergenerational influence. Four out of the five parents interviewed answered the first parent-directed research questions by reporting that they did feel positive influenced by their children. They identified similar strategies as identified by their children for influence, including using facts and demonstrations as effective tools. One parent did not report having been strongly influenced by her children. The idea of 'parent as the expert' attitude was explored in relation to this case and found to be a possible reason for the responses of the parent interviewed.

This thesis contributes to the field of intergenerational research by analyzing and discussing child-to-adult intergenerational influence from the parent perspective and providing insight into child and parent relationships when influence is specifically discussed. Having a greater understanding of how children view their influence on their parents can help

environmental educators design programs that reach a larger audience than their original scope. It can also aid curriculum developers in providing learning experiences that connect children with their communities in ways in which they experience some influence. Environmental education can benefit from this kind of exploration into intergenerational influence as a way to expand the reach of environmental messages and provide a larger network of knowledge that can support family learning. Additional research opportunities are identified through the study that will enhance and support this research in the field. Intergenerational influence is an exciting area that holds tremendous promise to support environmental educators to better meet the environmental challenges our society faces.

References

- Alberta Education. (1996). *Alberta Education Programs of Study*. Retrieved January 17, 2009, from <http://education.alberta.ca/media/654825/elemsci.pdf>
- Ballantyne, R., Connell, S., & Fien, J. (1998b). Factors contributing to intergenerational communication regarding environmental programs: preliminary research findings. *Australian Journal of Environmental Education, 14*, 1-10.
- Ballantyne, R., Connell, S., & Fien, J. (1998a). Students as catalysts for environmental change: A framework for researching intergenerational influence through environmental education. *Environmental Education Research, 4* (3), 285-298.
- Ballantyne, R., Fien, J., & Packer, J. (2001b). Intergenerational influence in environmental education: a quantitative analysis. *Australian Journal of Environmental Education, 17*, 1-7.
- Ballantyne, R., Fien, J., & Packer, J. (2000). Program effectiveness in facilitating intergenerational influence in environmental education: Lessons from the field. *Journal of Environmental Education, 32* (4), 8-15.
- Ballantyne, R., Fien, J., & Packer, J. (2001a). School environmental education programme impacts upon student and family learning: a case study analysis. *Environmental Education Research, 7* (1), 23-37.
- Bowen, G. (2006). Grounded theory and sensitizing concepts. *International Journal of Qualitative Methods, 5* (3), 1-9.
- Bus, A., & van IJzendoorn, M. (1988). Mother-child interactions, attachment and emergent literacy: a cross-sectional study. *Child Development, 1262-1272*.
- Charmaz, K. (2006). *Constructing grounded theory: a practical guide through qualitative analysis*. London: Sage Publications.
- Chevron Open Minds School Program. (2006). *Chevron Open Minds School Program*. Retrieved June 27, 2008, from www.chevronopenminds.ca
- Chiovitti, R., & Piran, N. (2003). Rigour and grounded theory research. *Journal of Advanced Nursing, 44* (4), 427-435.
- Cochrane, C. (2000). *Creating thoughtful writers: a study of the campus calgary/open minds program*. Retrieved January 16, 2009, from Chevron Open Minds School Program: [//chevronopenminds.ca/images/creatingthoughtfulwriters](http://chevronopenminds.ca/images/creatingthoughtfulwriters).

- Cowan, G., & Avants, S. (1988). Children's influence strategies: Structure, sex differences, and bilateral mother-child influences. *Child Development*, 59, 1303-1313.
- Creswell, J., Hanson, W., Plano Clark, V., & Morales, A. (2007). Qualitative research designs: selection and implementation. *The Counseling Psychologist*, 35 (2), 236- 264.
- Duvall, J., & Zint, M. (2007). A review of research on the effectiveness of environmental education in promoting intergenerational learning. *Journal of Environmental Education*, 38 (4), 14-24.
- Gadsden, V., & Hall, M. (1996). *Intergenerational learning: a review of the literature*. Philadelphia: Pennsylvania University .
- Kaplan, M. (1994). Promoting community education and action through intergenerational programming. *Children's Environments*, 11 (1), 64-84.
- Leeming, F., & Porter, B. (1997). *Effects of participation in class activities on children's environmental attitudes and knowledge*. Retrieved June 17, 2008, from Academic Search Premier database.
- Legault, L., & Pelletier, L. (2000). Impact of environmental education program on students' and parents' attitudes, motivation and behaviours. *Canadian Journal of Behavioural Science*, 32 (4), 243-250.
- Liu, S.-T., & Kaplan, M. (2006). An intergenerational approach for enriching children's environmental attitudes and knowledge. *Applied Environmental Education and Communication* , 5, 9-20.
- Louv, R. (2008). *Last child in the woods*. Chapel Hill: Algonquin Books of Chapel Hill.
- Malterud, K. (2001). Qualitative research: standards, challenges, and guidelines. *Qualitative research series*, 483-488.
- Merriam-Webster. (2008a). *Efficacy*. Retrieved December 30, 2008, from <http://www.merriam-webster.com/dictionary/efficacy>
- Merriam-Webster. (2008b). *Self-confidence*. Retrieved January 19, 2009, from <http://www.merriam-webster.com/dictionary/self-confidence>
- Newman, S. (1980). *Rationale for linking the generations*. Pittsburgh: Generations Together Publications.
- Strom, R., & Strom, S. (1995). Intergenerational learning: grandparents in the schools. *Educational Gerontology*, 21 (4), 321-335.

- Sutherland, D., & Ham, S. (1992). Child-to-parent transfer of environmental ecology in Costa Rican families: an ethnographic case study. *Journal of Environmental Education, 23* (2), 9-16.
- Uzzell, D. (1994). *Children as catalysts for environmental change*. Brussels: European Commission Directorate General for Science Research and Development Joint Research Centre.
- Uzzell, D. (1999). Education for environmental action in the community: new roles and relationships. *Cambridge Journal of Education, 29* (3), 397-413.
- Vaughan, C., Gack, J., Solorazano, H., & Ray, R. (2003). The effect of environmental education on children, their parents and community members: a study of intergenerational and intercommunity learning. *Journal of Environmental Education, 34* (3), 12-21.
- Whitehouse, P., Bendezu, E., Fallcreek, S., & Whitehouse, C. (2000). Intergenerational community schools: a new practice for a new time. *Educational Gerontology, 26*, 761-770.

Appendices

Appendix A: Letter of Free and Informed Consent –Parent and Child

May 1, 2008

Dear Parent,

Subject: Intergenerational Eco-Education: an exploration of child influence on parental environmental behaviour. A research project with the Chevron Open Minds Program.

This letter is to request your participation, along with your child's, in completing an interview as a part of a research project on environmental education and intergenerational learning. Specifically, I am considering the influence that children have upon their parent/guardians learning and behaviour in general and in environmental topics. In addition to my role as an education docent at the Calgary Zoo, I am also a student at Royal Roads University. This project is part of a requirement for my Master of Arts in Environmental Education and Communication; the Chevron Open Minds Program is the project sponsor. The results from this study are expected to aid in the improvement of environmental education programs for children. You and child were selected to participate because of your child's participation in Open Minds Zoo School or Cross Conservation School in the 2006-2007 school year and your participation is voluntary.

To conduct this research, I would like to invite you and your child to participate in an individual interview, which should take from between 1 to 1.5 hours in length. To aid in the reflection on your child's experience, for both you and your child, with the Open Minds program, I would like to use their program journal, with the child's permission, to initiate the interview. The interview will be taped recorded to ensure accuracy of information and additional notes will be taken. Interview questions will concern opinions and thoughts on the environment and experiences with the Chevron Open Minds program. The questions have been approved by the Royal Roads University Ethics committee. Following the interview, the written transcription of the tape recordings will be returned to you, to ensure correctness before the analysis occurs. The final report will be used for the purposes of a Master's thesis and will be a public document.

To ensure confidentiality, no reference will be made to a participant's name or other identifying information in reporting the research. Pseudonyms will be used should any references be needed for research literature. All data will remain confidential and interview results will be kept in a locked cabinet. Access to raw data material will only be viewed by the researcher, supervisor and sponsor. If you and your child have chosen to participate, each of you has the option to withdraw at any time without penalty. You and your child will have the choice at that time to decide what is done with any data you have already contributed (e.g. destroy it; allow it to be used in the research).

A copy of this consent form will be provided to you and is only part of informed consent process. Should you have any questions or like more details about the study, please contact me at the number or e-mail provided above. I would be happy to discuss any questions you may have. If you wish to verify the authenticity of this project, please contact Dr. Rick Kool at the number or e-mail above. Upon the completion of this study, a paper will be submitted to Royal Roads University. If you are interested, you will be sent a copy of the paper. You will also be informed of any further publications of the research.

You and your child’s signature on this form indicate that you have understood to your satisfaction the information presented regarding participation in this research project. Signing this form indicates your free and informed consent to participate in this research project. Thank you very much for considering you and your child’s participation in this project.

Sincerely,

Laura Istead
 Student of Environmental Education and Communication
 Royal Roads University

Parent’s Signature

Date

Child’s Signature

Researcher’s Signature

Letter of Free and Informed Consent- Child

May 1, 2008

Dear Student,

This letter is to ask if you would like to participate in an interview as a part of a project on environmental learning. I am interested in learning about your time at the Chevron Open Minds program (Zoo School or Cross Conservation School) and would like to, with your permission, look at the journal that you made during the program and ask you questions about it. I am also interested in what sorts of things you talk and teach your parents about school and (Zoo School or Cross Conservation School).

The interview would take 1 to 1.5 hours to finish but we can take as many breaks as necessary. We will be using a tape recorder to tape the interview so that I can make sure I can understand all the information and stories you share with me about your experience. If at any time you feel like you don't want to share any more, you can let me know and we'll stop the interview immediately.

I hope you will be interested in talking to me about your experience at the Chevron Open Minds program. If you are interested, please sign the bottom of this letter, on the line that says student. Thank you for your consideration.

Sincerely,

Laura Istead
Student of Environmental Education and Communication
Royal Roads University

Student's Signature

Date

Researcher's Signature

Parent's Signature

Appendix B: Children's Questions

Part A- Using the child's journal, participants will be given an opportunity to revisit the journal and time to reflect back upon the experience itself.

1. Tell me about the journal you made at Cross or Zoo school.
2. Questions with regards to specific journal items will be asked here to gain the trust and build a relationship with interviewee as well as allow them to reflect back on their experience in more depth. These will of course vary slightly from child to child. Examples include: Why did you choose to work with this group? What does this particular picture mean to you? Tell me about this piece of writing.
3. You did lots of different types of activities in your program, tell me about them.
4. What do you remember most about the program?
5. What do you feel is the important thing you learned through your experience with (Cross or Zoo School)?

Part B

Influence General

6. Do you think you have an impact on your parent's behaviour or what they do? If yes, can you tell me some ways you think you have this impact? Can you give me some specific examples?
7. Do you ever try to teach your parents about some of the things you are learning at school? If yes, can you give me specific examples of something you have taught them?
8. How do you teach your parents things you learned at school?
9. What do you think works the best?
10. How does sharing the stuff you have learned at school, with your parents, make you feel?
11. Are there any subjects that your feel your parents you are able to teach your parents better than others? If yes, please explain and provide examples.
12. Do you think they get excited about any things you try to teach more than others?
Example: Maybe they like to hear about your science projects over math.

Influence Program Specific

13. Do you remember sharing any of your Open Minds experience with your parents? If yes, can you give me some examples of what you talked about?
14. What sorts of activities that you did at Open Minds, really made you want to share with your family members?

Appendix C: Parents Questions

Part A – Using the child’s journal- participants will be given an opportunity to revisit the journal and time to reflect back upon the experience itself.

1. How long ago did your child participate in the Open Minds program?
2. Tell me about your initial impressions of the program. What sort of information do you remember receiving from your child’s teacher about the program prior to their participation?
3. Did your impressions change once your child had completed the program? If so how?
4. Looking back at their journal, what sorts of thoughts, memories or feelings does looking at it bring to light?
5. Is there any particular part of their journal or experience that you remember your child talking most about?
6. What did you find most interesting/intriguing about what he/she talked about?

Program Influence

7. Do you think/feel this program has influenced or caused a change in your child? If yes, please give specific examples.
8. Do you think your child’s interest in or relationship with nature has changed since taking this program? If yes, please give examples.
9. Would you say it has changed as a result of your child taking part in Open Minds? Please give specific examples.
10. As you look back on your child’s participation in the Open Minds, are there any other events that stand out for you? Can you describe them?

Part B

Influence General

11. I am interested in learning about how children influence their parents. Do you feel that you are influenced by your children at times? If so, how do you they influence you?
12. If you could describe some general areas where your child has more influence on you than others, what would they be? And why? Examples here include; politics, economics (consumer habits), education, environmental issues
13. What sort of methods do they try and use to influence you? What methods do you think they feel are the most effective?
14. How does your child commonly share things they learned in school, with you? Please provide examples.
15. Would you say that your family’s behaviour or attitude towards something has ever changed as a result of something your child learned in school? If yes, please provide examples.
16. Would you say that your family’s behaviour or attitude towards the environment has changed as a result of something your child learned at school? If yes, please provide examples.
17. Looking back at their Open Minds experience, would you say the way they share school-related information has changed since they participated? If yes, how has it changed?