MEMORIES OF EARTH DAY: ENVIRONMENTAL EDUCATION AT SPECIAL EVENTS

By

ERIN ANN DESAUTEELS
B.Sc., Simon Fraser University, 2003

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

MASTER OF ARTS
in
ENVIRONMENTAL EDUCATION AND COMMUNICATION

We accept this thesis as conforming
to the required standard

..........................................................
Carlos G. A. Ormond, Thesis Supervisor
Simon Fraser University

..........................................................
Colleen Gillespie, Thesis Sponsor
City of Surrey

..........................................................
Graduate Committee Representative
School of Environment and Sustainability

..........................................................
Dr. Anthony Boydell, Director
School of Environment and Sustainability

ROYAL ROADS UNIVERSITY

September 2010

© Erin Ann Desautels, 2010
Abstract

Coinciding with the 40th anniversary of Earth Day, this research describes short and long term memories of participants who attended past and present Earth Day Celebrations in Surrey, BC, Canada. Particular interest was placed on discovering the most memorable aspects of their Earth Day experiences as well as determining motivations to attend. Research was conducted using online and face-to-face surveys administered prior to and during the April 2010 event. The study revealed that not only that hands-on stewardship activities of releasing salmon and planting trees proved the most popular among research subjects but also illuminated the importance of social and familial interactions at the event. The results of the study may serve to guide the efforts of event organizers in order to capitalize on the public’s interests in environmental special events and serve to meet both the environmental and social needs of the community.
# Table of Contents

Abstract ............................................................................................................................... ii

List of Figures ................................................................................................................... vii

Chapter One: Introduction .................................................................................................. 1
  Background ..................................................................................................................... 1
  Surrey’s Earth Day Celebration ...................................................................................... 1
  The Importance of Planning............................................................................................ 2
  Combining Fun and Learning ......................................................................................... 3
  Focusing Effort, Ensuring Fun ....................................................................................... 4
  Statement of the Research Problem ................................................................................ 4
  Research Questions ......................................................................................................... 5
  Study Limitations and Delimitations .............................................................................. 5
  Significance ..................................................................................................................... 7
  Researcher’s Perspective ................................................................................................ 8

Chapter Two: Literature Review ...................................................................................... 10
  Memory and Learning................................................................................................... 11
    The link between memory and knowledge. .............................................................. 11
    Long term vs. short term memories. ......................................................................... 11
    Testing memory and recall. ....................................................................................... 12
    Strengthening memory recall. ................................................................................... 13
  Informal Learning Opportunities .................................................................................. 14
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Memorable Aspects of Earth Day (2000-2010)</td>
<td>36</td>
</tr>
<tr>
<td>Open-ended responses.</td>
<td>37</td>
</tr>
<tr>
<td>Forced choice responses.</td>
<td>39</td>
</tr>
<tr>
<td>Long Term Versus Short Term Memories of Earth Day</td>
<td>39</td>
</tr>
<tr>
<td>Lasting memories</td>
<td>40</td>
</tr>
<tr>
<td>Short term memories</td>
<td>40</td>
</tr>
<tr>
<td>Unexpected results</td>
<td>41</td>
</tr>
<tr>
<td>Motivation to Attend Earth Day</td>
<td>42</td>
</tr>
<tr>
<td>Chapter Five: Discussion and Conclusions</td>
<td>45</td>
</tr>
<tr>
<td>Outcomes of the 2010 Earth Day Celebration</td>
<td>46</td>
</tr>
<tr>
<td>The Prevalence of Hands-on Stewardship Activities</td>
<td>47</td>
</tr>
<tr>
<td>Maintaining Memories of Environmental Stewardship Activities</td>
<td>49</td>
</tr>
<tr>
<td>The multisensory nature of environmental stewardship activities</td>
<td>50</td>
</tr>
<tr>
<td>Synergy of staffing and stewardship</td>
<td>51</td>
</tr>
<tr>
<td>Social and Familial Interactions</td>
<td>52</td>
</tr>
<tr>
<td>Learning at Earth Day</td>
<td>54</td>
</tr>
<tr>
<td>Extending environmental learning: practice makes perfect</td>
<td>54</td>
</tr>
<tr>
<td>A local to global event</td>
<td>56</td>
</tr>
<tr>
<td>Conclusions</td>
<td>56</td>
</tr>
<tr>
<td>Recommendations</td>
<td>57</td>
</tr>
<tr>
<td>Avoid overlaps</td>
<td>58</td>
</tr>
</tbody>
</table>
Establish goals and outcomes ................................................................. 58
Complete the environmental education plan ........................................ 59
Evaluate effectively .............................................................................. 59
Directions for Future Research ............................................................... 61
Future research questions ................................................................... 61
Appendix A  Phase I Survey: Online Questionnaire ............................... 64
Appendix B  Phase II Survey: Structured Interview Questions .............. 67
Appendix C  Research Letter of Approval granted by the City of Surrey 68
Appendix D  Letter of Consent ............................................................... 69
Appendix E Wordle Image ................................................................. 72
List of Figures

Figure 1 Atkinson and Shiffrin’s (1971) Model of information flow in the memory system

Figure 2. Distribution of Ages Surveyed from Earth Day Celebrations 2000-2010

Figure 3. Research Subjects Reporting of Most Memorable Aspects of 2000-2010 Earth Day Celebrations (Responses to the open-ended question)

Figure 4. Most Memorable Aspects of Earth Day: 2000-2009 Research Subjects

Figure 5. Participants’ Reports of the Most Memorable Aspects of Earth Day: 2010

Figure 6. 2000-2010 Participants’ Motivations for Attending Surrey’s Earth Day Celebration
Chapter One: Introduction

Background

Events that invite the public to learn about and celebrate the earth have been taking place the world over on a nearly annual basis for many years. On April 22\textsuperscript{nd} 1970, the first Earth Day celebrations took place in Washington DC within local educational institutions including colleges, high schools and elementary schools. Literature on the subject agrees that the events arose in response to mounting pressure from concerned constituents who appealed to the US government to combat increasing levels of environmental pollution (Cahn & Cahn, 1990; O'Riordan & Clark, 1995). The format of the events was inspired by the prevalence of teach-ins and other social protests popular at the time. Earth Day was revisited in 1990 and has been held with semi-regularity in subsequent years. Some speculate that the modern environmental movement began with the events surrounding the first Earth Day (O'Riordan & Clark, 1995).

During the 1990 Earth Day celebrations some 200 million people were involved in various events around the world (Cahn & Cahn, 1990), including the most popular event of tree-planting. Earth Day Canada (2010) reports that this year’s celebrations, while marking the 40\textsuperscript{th} anniversary of Earth Day, have seen the participation of 6 million Canadians along with 500 million people in over 180 countries throughout the globe in events and projects to address local environmental concerns.

Surrey’s Earth Day Celebration

Earth Day has been celebrated formally in the City of Surrey since the year 2000 when concern for local environmental issues had taken a prominent spot in the minds of residents, City officials felt strongly about linking residents with local environmental community groups, there was available funding for environmental education and passionate Environmental Services staff.
All of these elements aligned to ensure the development and delivery this ESE along with a growing docket of citywide environmental initiatives. Since its inaugural year, Surrey has not missed an Earth Day Celebration and has continued to invite residents and visitors to drop in at Bear Creek Park on or around April 22nd to enjoy at outdoor festival highlighting the City’s commitment to environmental sustainability and enjoy time with friends and family.

The City of Surrey’s 2010 Earth Day Celebration entailed a festive, family-centered combination of stewardship activities including a salmon fry release and tree planting, as well as entertainment for families with children’s performers; face painting and storytellers; interactive environmental games and activities; the attendance of local non-profit and environmentally-focused groups with displays and information; two mascots; as well as an organic food and drink vendor. Although not the 40th anniversary of the Earth Day Celebration in Surrey, this festival still marks the eleventh year of this well-attended ESE.

**The Importance of Planning**

Examining environmental special events such as Earth Day in Canada is an important contribution to collective academic knowledge because these events can be a great vehicle to expose the general population to contemporary environmental issues. Many governmental, non-profit and community advocacy groups relay their messages to the public through the tool of special events, spending significant time, money, and staff resources on events that last less than a day. In today’s economy, is this expenditure justified by the impressions and memories participants retain from these events?

Environmental educators need to ascertain what is most effective in improving people’s awareness, attitudes and behaviours towards the environment; and whether events are an effective venue for this type of education. Do specific activities and engagements strike a chord
within participants? This information can be used to influence the size and focus of environmental events and other enjoyable, educational opportunities promoting environmental awareness. Understanding the impact and importance environmental special events (ESEs) bring to a community may prove invaluable to environmental education efforts on both a local and global scale.

**Combining Fun and Learning**

With little to be found in the academic literature concerning the validity of ESEs as educational opportunities, I have found Falk’s (2005) work on free-choice learning to be a useful descriptive category for environmental special events. This type of learning is also known as edutainment, educational leisure and informal learning (Falk, 2005). Free-choice learning opportunities such as those afforded at environmental events, allow learners to direct their own educational journeys to correspond with their personal interests. Learners progress at their own comfortable paces and choose their own experiences. Falk (2005) believes these informal experiences are extremely important in forming the deeper understanding of various (and specifically environmental) topics, because the formal learning system or schooling in the traditional sense tends not to allow time for self-discovery and exploration through topics that specifically interest individuals.

While learning about a new topic, learners may be more open to information when it is delivered in a low-pressure context that does not require specific commitment from the learner, as when presented through environmental events.

When fun and learning are perceived as interchangeable both the priorities of learners and the goals of environmental educators can be met. Packer (2006) claims, “what [the learners] seek from their visit is not so much to learn something as to engage in an experience of learning
that is inherently valuable or enjoyable in its own right, regardless of the learning outcomes that may or may not ensue” (p. 329). Free-choice learning environments may have a specific learning outcome or goal in mind from the perspective of the organizer/developer, but it is also understood that the learner may come to the ESE because of specific motivational factors (Packer & Ballantyne, 2002), but depart the event with very different knowledge from that which was intended.

**Focusing Effort, Ensuring Fun**

It is difficult to directly measure the outcomes of informal learning through the application of formalized tests and questionnaires because these learning experiences do not necessarily occur in discreet packages, but rather accumulate over the course of a learner’s lifetime (Ballantyne & Packer, 2005). Each learner may glean different information from his or her experience and standardized testing would take away from the ideals of free-choice learning. Although problematic, measures of what event-goers see as memorable in a given event, such as Earth Day, might be used to focus the future efforts of environmental event organizers. It is also problematic to measure the impact of a *single* environmental event or environmental activity for a participant because over time many experiences are combined and synergistically move the learner towards a fuller, general understanding of the world. It was hoped that recording discrete experiences found at Surrey’s Earth Day might indicate what elements of the event were most attractive to the public and might indicate the most engaging and educational opportunities.

**Statement of the Research Problem**

By identifying specific activities that prevail in both the short and long term memory of event participants, will organizers be better equipped to produce future ESEs that not only appeal
to participants’ informal entertainment needs but also serve the environmental education mandates of their given organization?

**Research Questions**

This study aims to answer the following four research questions.

1. **What impressions and memories are taken away by participants attending Surrey’s Earth Day Celebration?**

2. **Over time, which memories of ESEs prove the most salient/lasting?**

3. **How can identifying these memories guide environmental educators toward designing and implementing more effective and meaningful environmental special events?**

4. **What broad assumptions can be made as to the value of environmental special events as an avenue for environmental education?**

**Study Limitations and Delimitations**

In this study efforts were made to include as many past and current participants of Surrey’s Earth Day as possible. Representation was sought from both genders and across the age spectrum. All who could complete the survey without outside assistance were invited to participate. Study participants were limited to those subjects who had attended Surrey’s Earth Day Celebration at least once since its inauguration in the year 2000. Other Earth Day celebrations are geographically distinct from the event held within the City of Surrey. During the collection of data at Surrey’s Earth Day many event participants commented that they had attended other Earth Day events in other cities in Canada in previous years. They may have included in their comments memories related to those event experiences and not connected to Surrey’s Earth Day Celebrations.
Limitations include the fact that this year’s Earth Day Celebration in Surrey was carried out under poor weather conditions in the form of cool temperatures, intermittent showers and some breezes resulting. These conditions likely contributed to low attendance. As Surrey’s Earth Day is held outdoors under tents in the springtime, disagreeable weather serves to discourage participation by individuals and families who are ‘fair-weather’, opportunistic participants at outdoor events. Poor weather may also limit the exposure individuals will have to various aspects of the event. Participants may not be willing to stand in the rain and wind in order for their children to complete a craft or play a game. Event participants may visit all event booths, but may reduce the time spent at each compared to when the weather is more reasonable. As a result they may only get a diluted or superficial experience of the Earth Day event as a whole.

An unanticipated complication/limitation arising from the 2010 Earth Day Celebration was the unfortunate coincidence of Earth Day with another large event that took place in Surrey on the same day. Vaisakhi (or Baisakhi) is a community festival of great cultural importance in the Punjab as it signifies the Sikh community’s New Years Day (Shah, 2000). The event and parade draw tens of thousands of members of the Indo-Canadian population who reside in Surrey and the surrounding Lower Mainland area to celebrate the time of harvest. Historically, this event has been held on a different weekend from Earth Day so this conflict has not been found at former events. In the past Earth Days have featured strong representation from the Indo Canadian group and they were visibly lacking in attendance at the 2010 event. The inability to collect a strong sample of the opinions from this group is seen as a significant gap in the data collected and the ethnic backgrounds represented in the results.

Only participants who could answer either the online survey or verbally respond to the in-person survey were polled. This excluded those who may have attended previous Earth Day
events but who do not own computers. No limitations were set with respect to the number of
responses to various questions asked in the survey, and research subjects were not forced to pick
their “top three” most memorable aspects of the event. I believe this condition may have led to a
diluted and generalized response where in some cases participants chose all options presented by
the survey by selecting all aspects as equally memorable.

The use of volunteers to assist with data collection may have produced some unintended
results. Despite an orientation as to the purpose of the survey and how to administer it,
volunteers may have injected personal interpretations and not fully understood the data the
researcher was seeking. For example, a particular volunteer consistently recorded the location of
other Earth Day events in which the research subjects had participated outside of Surrey although
this was not an aspect the study examined, nor was it indicated in the survey questions. Although
it cannot be confirmed, another volunteer appears to have been attempting to maximize the
overall number of completed surveys in an attempt to generate more data. Therefore this
volunteer neglected to ask or record responses to the more time demanding open-ended questions
contained in the survey.

**Significance**

By determining what event-goers remember from environmental special events (ESE)
such as the City of Surrey’s Earth Day Celebration, I hope to add to the academic literature on
the subject of memories retained from informal learning opportunities in which event
participants engage and to assess how their memories could be utilized by environmental
educators. There is currently little information in the academic literature concerning this topic.
This study has the potential to improving understanding and program development in the
growing field of environmental education activities undertaken by the public sector. By
identifying popular aspects of ESEs and then revealing some of the emotional associations these aspects bring forth in event-goers, I aim to understand how these memories might aid in directing the efforts of environmental special event organizers.

**Researcher’s Perspective**

Having been involved in the design and implementation of various ESEs through work with the City of Surrey over the past number of years, I have developed an understanding of what environmental special events can and should offer to the public. That said, this opinion comes from a municipal government perspective and with a municipal government mandate. Most events put together by the staff of the City of Surrey are designed with agendas in mind that typically serve to complement any ongoing or new initiatives and to address ‘the bottom line’. For example, initiatives may be designed to persuade residents to reduce illegal dumping in parkland and green spaces or to encourage private property owners to transform some of their land into habitat for local wildlife. All of these programs aim to serve the purposes of the City and support the attainment of its mandates.

While the environmental education field is notably broad the scope of environmental education initiatives within the boundaries of the City of Surrey’s Urban Forestry and Environmental Programs section is limited. Educational themes are primarily land-based and emphasize flora and fauna species found in Surrey and are associated with natural areas and specimen trees. A different section of the City’s staff is concerned with public education related to the aquatic environment. This results in a differentiation of educational responsibilities among City staff. Although some opportunities exist for collaboration, physical separation and different management teams limit those opportunities. In the context of this study this delineation is important because thus far my priorities have been refined and focused to reflect the goals and
aims of the City of Surrey Section with which I have been primarily involved. As an environmenta
ly themed special event Surrey’s Earth Day Celebration was an ideal subject for this study because it incorporates both land-based and aquatic elements of the natural world. It also presented a great opportunity to work with various government and non-government organizations and community groups to present a broad picture of current environmental conditions, challenges, and opportunities in Surrey and the Lower Mainland region.
Chapter Two: Literature Review

From the start the literature review for this project proved to be difficult. With few academic studies concerning special events with an environmental focus or even defining this category of special event within the tourism literature, I was faced with the initial task of assessing what was known about the educational value and environmental significance of events such as Surrey’s Earth Day Celebration by examining the literature on related topics of informal learning opportunities and community events. This study may prove be the first of its kind and provide a starting point for future research.

Acknowledging that Surrey’s Earth Day has been celebrated for over a decade, it was logical to seek input from both past and current event participants in order to develop initial data related to the event’s impact in the form of their short and long term memories of the events. This gave rise to the need to review research on the interplay of memory and learning. Because this research was supported by the City of Surrey and constituted some of the first formal research conducted on behalf of the City concerning the outcomes of providing Environmental Special Events to residents and visitors, it was important to provide background on the sustainability and environmental goals established by the City of Surrey in order to define the context within which these events are provided.

Therefore, this Chapter provides a synthesis of the literature relating to memory and recall as a basis for learning, informal or free-choice learning opportunities, as well as guiding principles for informal environmental program evaluation; and community event effects. Also included is an overview of relevant environmental goals as developed by the City of Surrey.
**Memory and Learning**

It is important to understand some of the research done on memory and learning and its ramifications for education and for environmental education in particular. As in-depth examination into the science of neurology and neuropsychology exceeds the scope of this research, what follows is an overview of selected research as it specifically relates to the nature of how humans store and recall information.

**The link between memory and knowledge.**

While acknowledging that visitors to a museum (or ESE) may acquire memories from their visit, Rennie and McClafferty (as cited in Anderson, Lucas and Ginns, 2003) pose the important question of whether learning has occurred if visitors (including event participants) cannot “link that knowledge to situations beyond their visit” (p. 178). An environmental special event should be designed to advance the environmental knowledge of the participants while still providing entertainment as a community special event. Kihlstrom (2000) states that memory “is extremely important [as it] forms the cognitive basis for learning”. To understand how humans develop knowledge, we can study and use memories obtained in certain situations along various time scales within which we hope to assess learning.

**Long term vs. short term memories.**

Researchers have “discerned a clear difference between thoughts currently present in consciousness [short term memories] and those that could be brought to consciousness after a search of memory that often required considerable effort [long term memories]”(Atkinson & Shiffrin, 1971 p.1). Short term (also known as explicit or episodic) memory constitutes the basic memory system, which humans share with other animals (Atkinson & Shiffrin, 1971; Gardiner, 1988; Hayne & Colombo, 2000; Nuthall, 2000; Sprenger, 1999). Short term memory primarily
serves to temporarily store relatively uninterpreted representations of events and experiences (Conway, 1997). In evaluating memories, it is important to keep in mind Knapp and Benton’s (2006) cautionary statement that “knowledge, attitude and/or behaviour changes may be assessed in the short term but are significantly more difficult to measure months, or perhaps years, following these isolated events” (p. 166). This claim was substantiated by Atkinson and Shiffrin (1971) who found that most information enters the short term memory, but there is no guarantee that it will subsequently be stored in long term memory. The information residing in the short term may be copied into long-term memory although the transfer of information from short term to long term is highly dependent upon rehearsals of that information in the short term (Atkinson & Shiffrin, 1971).

Long term memory is assumed to be a relatively permanent memory store, from which information is not normally lost (Atkinson & Shiffrin, 1971 p. 4). Although information is not lost, there is no guarantee that it will be readily accessible in the future without significant effort if it is successfully accessed at all. Researchers agree that there are many factors at play in accessing long term memories and that the success with which they are recalled is dependent on various factors (Atkinson & Shiffrin, 1971; Gardiner, 1988; Nuthall, 2000). When long term memories are successfully accessed, they are transferred back to the short term memory and can then be applied to the given situation within which they were drawn. Figure 1 below presents a summary of this process as adapted from work by Atkinson and Shiffrin (1971).

**Testing memory and recall.**

Explicit memory tests are those in which subjects are asked to remember, in the sense of being able consciously to recollect, prior events and experiences. Such tests include conventional episodic memory tests such as recognition and recall. Implicit memory tests are those in which
the conscious recollection of prior events and experiences is not required (Gardiner, 1988; Hayne & Colombo, 2000). Both of these types of tests are employed in research examining long and short term memories.

**Figure 1** Atkinson and Shiffrin’s (1971) Model of information flow in the memory system

**Strengthening memory recall.**

Knapp & Benton (2006) list three powerful variables affecting episodic memory: “(a) [sic] the repetition of a concept; (2) making the information relevant to the participant; and (3) providing active-based experiences” (p. 173). Corporate marketing strategies often apply repetition as a way of increasing the power of memory. Krohe’s (2007) claims that, “repeated exposure to brand associations over time hardwires these [brain] connections; this explains the extraordinary durability of brand images” (p. 21). Although we may begin to hate many of the
branding messages to which we are exposed, Anderson & Shimizu (2007) found that “memories associated with a negative versus positive affect had the ability to code memory with equal saliency” (p. 179). The literature suggests that those who have attended multiple Environmental Special Events will have developed a higher level of environmental knowledge. Nuthall (2000) found “it is memory that defines the way successive experiences are connected to each other and makes learning from those experiences possible” p.84. Repeated visits serve to strengthen the environmental learning with each additional event that is attended where participation in environmental experiences is added to the memory bank.

In the context of the purposes of this research project it is also of note that research suggests that that “episodic (short term) memory is location driven and studies have shown that if people receive information in a specific location they will more easily remember it in that same location” (Sprenger,1999, p. 73). Krohe (2007) also makes the distinction that “we were a feeling, seeing, and hearing race before we became a thinking one, and nonverbal messages are the kind that the brain evolved to handle. [These messages] survive longer in long-term memory” (p. 21). This parallels Knapp & Benton’s (2006) third powerful memory variable of active-based experiences and Sprenger’s (1999) assertion of the important role of location.

Informal Learning Opportunities

As environmental educators in the non-formal sector workers in municipal governments and similar agencies aim to provide opportunities that develop “an effective, environmentally literate citizenry able to participate with creativity and responsibility in a democratic society” (North American Association for Environmental Education, 2009 p. 4). How we go about making this happen is open to a variety of traditional and non-traditional instructional methods and creative educational interpretations of how learning about the natural world can occur.
Most members of society still receive the bulk of their knowledge through formal institutions of education that utilize traditional classroom-based methods of learning. However, Falk (2001) notes “much of the literature examining sustainability education is concerned with formal education programmes” [and] only a small percentage of the public’s understanding of the world in general, and environmental conservation and sustainability in particular, is gleaned from such sources” (Falk, 2001 as cited in Ballantyne & Packer, 2005, p.281). Because of this, there has been a recent trend in research examining informal learning opportunities that exist outside the institutions of traditional schooling.

Anderson, Lucas and Ginns (2003), Ballantyne and Packer (2005), Brody (2005), Falk (2005), and Packer and Ballantyne (2004) have examined informal education in-depth. These authors use various terminology to describe informal education including ‘free-choice learning’, ‘educational leisure’, and ‘edutainment’. Packer & Ballantyne (2004) define these “museum learning” opportunities to include art, history and natural history museums, botanical gardens, nature centres, national parks, science centres, zoos, aquaria, historic houses, historic reconstructions and heritage and archaeological sites (p. 54).

Preliminary research into the relevant literature concerning informal learning revealed little directly discussing Environmental Special Events as legitimate environmental education learning opportunities. The learning opportunities mentioned in the above studies have much in common with those provided through environmental special events but none directly mention this type of environmental learning by name or refer to it within the categories described.

Although they are left off the ‘museum list’ and notwithstanding their transient nature, I believe ESEs fall into the category of learning environment. Because they are typically provided in out-of-doors settings events like Earth Day provide multiple, simple, informal ways to engage
participants in meaningful environmental learning and may even address a wider spectrum of learning styles than afforded by traditional museums. This argument is strengthened by Ballantyne and Packer (2005) who state that, “the focus of free-choice learning research is on the multitude of ways in which visitors make sense of the information they encounter, rather than whether visitors ‘get the message’ the provider intended to convey” (p. 283).

Upon first consideration, spending an afternoon at an ESE may seem trivial and inconsequential in meeting the aims of environmental education, yet Packer and Ballantyne (2004) argue elegantly that “leisure settings provide an important medium through which people can acquire information, develop ideas and construct new visions for themselves and society” (p. 54)

**Evaluating Informal Learning**

Substantiating the success of a given environmental special event is difficult. O’Sullivan (2009) notes that outcomes related to attitudes or memories can be subjective, and events (and resulting evaluations) are often highly tailored specifically to a given local area or municipality. As few studies have been completed examining the success of effecting changes in environmental attitudes and behaviours through event participation, it is difficult to determine the validity and reliability of the memory results reported for this project or to ascertain if these results are consistent with learning found in other public sector community events. Additionally, in informal settings the direction of learning cannot necessarily be pre-defined entirely by the educators or organizers (Dierking et al., 2002b from Storkdieck, 2005), so results may not be detected in the areas intended by event organizers and educators.

While acknowledging that evaluation is a critical step in ensuring program excellence and justifying municipal spending, it is important to note that there are a variety of ways in which
environmental special events can be presented. As these events are still not yet well-documented within the environmental education or community event literature, there is a large element of subjectivity in their assessment. Evaluative approaches can and do vary significantly between events resulting in a lack of comparability (O'Sullivan, Pickernell, & Senyard, 2009).

**Community Events: Impacts and the Role of Education**

To varying degrees around the world festivals and special events are being promoted by public sector bodies as contributors to local, regional and national development (Harcup, 2000; Hughes, 1999). Accompanying an acceptance that investment in festivals and special events is a positive form of community development, there is also recognition of the “need for a deeper understanding of their contribution” (O'Sullivan, et al., 2009 p. 20).

**The Niche Filled by Environmental Special Events**

Although much of the existing literature examines municipally-organized, community-driven or public sector-sponsored small and large scale festivals and events (Gursoy, Kim, & Uysal, 2004; Harcup, 2000; Kim & Uysal, 2003; O'Sullivan, et al., 2009; Wood, 2006), till now few studies have examined the impact, implications and long term potential of the role of environmental special events as means of environmental education. We have learned that events (or festivals) have the power to bring communities together and support various socioeconomic outcomes (Harcup, 2000). But save for the role that special events have been reported to play in adult learning (Measham, 2007), the depth to which ESEs can promote environmental awareness and inspire behaviours relating to further developed environmental ethic is largely unknown.

Because special events have a remarkable ability to bring neighbourhoods together to accomplish various goals and raise awareness of many issues it is a natural assumption that combining events with environmental content may have the potential to produce changes in
environmental behaviours or attitudes within these same neighbourhoods. Shandas and Messner (2008) agree that despite the daunting challenges of designing ways to engage citizens effectively, public participation programs that seek to address environmental problems are growing in number. Through the interactive activities and hands-on experiences inherent to ESEs and by harnessing the energy and drive of neighbourhoods and communities, we may have the power and ability to affect significant positive changes and effectively bring to light issues in a community’s natural environment.

**Environmental education at events.**

An area of consideration that also is largely unexamined in current literature is the potential for community events to meet environmental or sustainability education goals. Measham asserts “community events provide a stimulus for children and adults to learn about their environment together and to celebrate being in a given place” (2007 p. 347). Research in this field seeks to confirm “the importance of such community events in connecting communities with their environments, and providing a well-suited context for geographic and environmental education for all parts of society” (Gursoy, et al., 2004; Measham, 2007).

If only for the conservation and preservation of natural resources, it is important for research in the tourism industry to examine the impacts of environmental special events and the associated memories of participants. When organizers better understand the residents and visitors’ environmental perspectives they will be able to plan their events more efficiently. This would benefit not only the organizers and associated municipalities but also the community’s residents and visitors (Kim & Uysal, 2003).
Social and cultural opportunities.

While offering a setting for education, environmental special events such as Earth Day also have the ability to provide social and cultural interactions for families and visitors. According to Wood (2006), “while the ability of events to improve community identity and feelings of civic pride among participants” is already well-documented, there is much discussion in the literature concerning the value and breadth of the social and cultural benefits of such events (Harcup, 2000; Kim & Uysal, 2003; Measham, 2007; Wood, 2006). Fredline and Faulkner (as cited in Wood, 2006) state that “relatively little progress has been made on social impacts specifically associated with events” (p. 166). Much research in this area has traditionally focussed on determining the economic impacts of special events by applying quantifiable measures of the deliverables for the municipalities or local governments who organize them. Working on local authority events in England, Wood (2005) has attempted to combine an understanding of the economic and social impacts. This work recognises that local authorities use events and festivals within their regions to achieve a diverse range of outcomes. However, in general, measuring impacts is rarely systematic and objective (O'Sullivan, et al., 2009).

Highlights of Environmental/Sustainability Mandates for the City of Surrey

As a municipality, the City of Surrey is responsible to fulfill various public roles within the community for the care and betterment of its residents and taxpayers. Within this local government structure, the Parks, Recreation and Culture (PRC) department, and specifically the Parks division, is responsible for various parks-related, environmental initiatives including environmental education in coordination with other City departments. To ensure the City is accountable for its actions, City staff are guided by a number of documents developed and
updated on a regular basis to ensure that the projects undertaken are justified in terms of community demand, the improvement of neighbourhoods and the wellbeing of residents. Two recent documents of importance that serve to address areas in which environmental special events have direct applicability include: the City of Surrey’s Parks, Recreation and Culture Strategic Plan (2008) (hereof referred to as the Strategic Plan) and the Sustainability Charter (2009).

Before delving into the specific strategies that incorporate environmental awareness and appreciation, it is important to understand the context within which these documents were developed. The Vision for the City of Surrey and the Mission statement for the City’s Parks, Recreation and Culture (PRC) department reads: “Creating a Community Where Individuals, Culture and the Environment Thrive” (City of Surrey, 2008). The mention of the environment within the overriding Vision statement is indicative of the City’s assignment of high priority to the natural world. More evidence of this concern is found within the PRC department’s Mission Statement which brings forward the importance of “enhancing the quality of life in our communities by working together to champion environmental stewardship” and to “preserve, develop and deliver cultural, informational and educational resources and services” (City of Surrey, 2008 p. 19). An additional Vision statement strengthening the argument for the environment is found within the City’s Sustainability Charter (2009). It reads: “Surrey values and protects its natural environment through stewardship of its rich tree canopy, and enhancement of its natural areas and biodiversity” (City of Surrey Planning and Development, 2009 p. 16). Through consultation with residents and staff, the consultants who prepared the Sustainability Charter and Strategic Plan developed recommendations and areas of focus for the City to consider along with initiatives to implement. While acknowledging that Surrey already
does a commendable job of offering environmental and outdoor education opportunities, both documents emphasize the need for increased programming in these areas (City of Surrey, 2008; City of Surrey Planning and Development, 2009). So too are the City’s efforts recognized in terms of facilitating community celebrations and special events throughout Surrey. Staff are invited to improve their effectiveness in the areas of strengthening and supporting family oriented leisure activities, social interactions and public education.

To inspire individual growth, the City is challenged with providing opportunities “for everyone in the community to learn about, understand, relate to and experience all aspects of their environment” (City of Surrey, 2008 p. 22), while also encouraging “citizen engagement with social issues…to build community capacity”(City of Surrey Planning and Development, 2009) (p. 35). These recommendations require making environmental experiences and environmental education accessible to as wide an audience as is possible.

Environmental stewardship also ranks high in terms of subjects needing increased attention throughout the City of Surrey. The Strategic Plan reports that over four fifths of resident respondents felt “the protection of Surrey’s native wildlife and habitat was very important”(City of Surrey, 2008 p. 31) yet many of those consulted indicated that they felt Surrey was “falling behind in the identification, protection, planning and management of the environment”(p. 61). The Sustainability Charter (City of Surrey Planning and Development, 2009) also speaks to improved attainment of environmental stewardship objectives by way of the enhancement and protection of natural areas, fish habitat and wildlife habitat (p. 52) and the need for the expansion of the existing Nature Matters program (an environmental stewardship program which partners the Parks Division with the Engineering department’s Drainage and Environment section) (p.50).
As both of the abovementioned planning documents for the City of Surrey address the necessity for improvements in the delivery of services relating to community building, public education and environmental stewardship, it is practical and efficient to achieve goals and achieve recommendations by providing opportunities that address these multiple needs as through the organization and production of Environmental Special Events.
Chapter Three: Research Methodology

Research Design and Rationale

Although I was strongly encouraged to examine event participants’ impressions of Earth Day in connection with their environmental behaviours at home, I opted to focus on the need to generate an accurate description of Environmental Special Events as an educational phenomenon. (Gall, Gall, & Borg, 2003) argue for the establishment of a firm basis for explaining or changing the impact of ESEs. As this was the first study of its kind for the Urban Forestry and Environmental Programs section within the City of Surrey’s Parks Division in determining the impact of their ESEs occurring throughout the City, the study was intended to gather many opinions and establish baseline information for memories garnered at this annual flagship event. A non-experimental research design was employed in order to accomplish the aim of capturing both descriptive and longitudinal data in order to examine present and past participants’ memories of Surrey Earth Day Celebrations. Data was collected using mixed methods: 1) an online questionnaire, and 2) face-to-face structured interviews. Open-ended questions within the survey allowed for descriptive data to be incorporated into data collection.

The survey served to provide baseline data for the City of Surrey that would help to shape more specific areas of inquiry for future research undertaken by the City, which might include interviews or focus groups. As Kane and O’Reilly (2001) suggest for research similar to this, I required a broadly based response to a specific set of questions in order to ascertain the perspective of opinions from past and present Earth Day participants. The research described here was exploratory in nature and can serve to gather preliminary information that will help define problems in the Earth Day Celebration event model and suggest hypotheses for improved event delivery.
Selection of research subjects.

As Surrey’s Earth Day Celebration has an 11-year history in a city with a population of nearly half a million (City of Surrey, 2010) there was a large population of potential research subjects suitable for inclusion in this research. Myself and other staff who have observed the attendance for the past five years of Surrey’s Earth Day Celebration approximate the participation each year to have been nearly 2000 individuals, providing upwards of 20,000 potential respondents (C. Gillespie, personal communication, September 3, 2010). Because this research was done with support in the form of materials and resources provided by the City of Surrey, it was possible to reach past and present participants through many of the same methods that were used to encourage their participation in the 2010 Earth Day Celebration. My involvement in the past five years of the event also served to aid in the understanding of the characteristics of participants typically attending Surrey’s Earth Day and how this sample of the local population gives a reasonably accurate reflection of the cultural and racial diversity found throughout the City of Surrey although the demographics of participants outside of age and gender were not examined in this research.

Both short and long term memories were examined in order to guide researchers and organizers alike towards the most salient and lasting memories of ESEs. Those memories that were most vivid and durable can be interpreted as the most successful aspects of the events in question. To incorporate those participants with long term memories and ensure that as diverse a response as possible was gathered, all prior attendees of Earth Day were considered valid research subjects and were attempted to be included in data collection. Appealing to past event-goers strengthened the data collected by providing longitudinal information about the participants’ lasting memories of the City of Surrey’s previous Earth Day Celebrations and also
served to increase the number of respondents and the power of the subsequent conclusions
drawn.

**Structure of data collection**

A mixed method design employing both quantitative and qualitative data collection was
employed in this study. Surveys in the form of both an online questionnaire (See Appendix A)
and as face-to-face structured interviews (See Appendix B) were used to yield data concerning
the elements at environmental special events that participants reported as memorable. The
opinions of both past and present City of Surrey Earth Day Celebration participants were
gathered in this research design.

Consultations with City of Surrey staff including the Manager of Urban Forestry and
Environmental Programs and Coordinator of Environmental Programs took place prior to survey
creation in order to ensure that the questions addressed pertinent topics of interest to City
management. Consultation also included discussions with a staff member who had attended the
last eight of nine Earth Days within the City of Surrey and who was able to confirm that the
various program elements examined had indeed been offered in some form during each of the
previous Celebrations. The survey was subsequently approved by the sponsor for publication to
the website and administration at the Earth Day Celebration. Approval to carry out research
activities was sought and approved through the City of Surrey’s Parks, Recreation and Culture
Department (See Appendix C). Within the City of Surrey, the survey instrument was proofed by
three levels of management for question sensitivity, applicability to the research topic, benefit to
the City and overall suitability for deployment as a City-sponsored survey.

Data collection was completed in two phases, both utilizing a survey instrument. Both
open-ended and multiple-choice (or forced-choice) questions were incorporated into the design
of the survey instrument. Although more complex to analyze, open-ended questions, “are useful when you are doing exploratory research and want to see the range of possible answers” (Kane & O'Reilly de Brun, 2001 p. 131). For this reason open-ended questions were included in the survey instrument.

A survey utilizing primarily multiple-choice questions was an appropriate tool for this research. I have a history with the organization under investigation, the City of Surrey, as well as experience in the development and delivery of various environmental special events. Kane and O’Reilly-de Brun (2001) support the use of a quantitative survey for this type of research because “forced-choice questions require that you know enough about the situation to give relevant choices” (p. 161). Given my five-year history in developing and delivering a variety of ESEs for the City of Surrey, I felt able to provide an informed list of possible memorable outcomes for event participants. As suggested by Kane and O’Reilly-de Brun (2001) consultations with City officials also helped to ensure that the answers were exhaustive (covered all possibilities) and exclusive (did not overlap). In both phases, the survey tool consisted of less than ten questions in order to minimize the time needed for completion and enable a large number of respondents to complete all questions. Questions were presented in the same format and order in both the online and direct interview survey versions, allowing for some variation in the structured interview for the survey administrator to elaborate as needed to ensure the meaning of the questions was understood by the research subjects.

Two phases of data collection.

In Phase I, past Earth Day Celebration (2000-2009) participants were recruited through an online campaign administered through the City of Surrey’s website with the assistance of the
Marketing section. This data was sought to acquire longitudinal data as to the lasting effectiveness of various aspects of Earth Day as experienced over the last decade.

The online survey was made available for a period of 9 days in April 2010 (April 7th through 16th) through the homepage of the City of Surrey (www.surrey.ca). The homepage provided a link inviting research subjects to complete the online survey. The survey was hosted by Zoomerang at www.zoomerang.com with the support of the City of Surrey’s account with the Zoomerang corporation.

The online survey period preceded the 2010 Earth Day Celebration. This was done in an attempt to reduce confusion with other Earth Day events taking place in neighbouring municipalities. An introduction page gave details as to the purpose and length of the survey and also informed research subjects that those who opted to leave their names along with their completed survey would be entered into a prize draw. The names collected for the prize draw were not associated with the completed surveys in later data analysis in order to assure that particular individual survey forms could not be identified by the name of the person who completed the survey.

Phase II of data collection took place at the 2010 Earth Day Celebration event where volunteers and I administered the face-to-face interviews by wandering through the crowd and approaching participants in a non-structured fashion. As this research took advantage of a convenience sample of the global Earth Day special event population, the research team was at this event was required to saturate the crowd of event-goers and obtain as many completed surveys as possible within the limited event timeline. The research team members were identified by yellow, City of Surrey logoed t-shirts which were provided by the sponsor.
Volunteer involvement in data collection.

Prior to the event, volunteers were briefed on the purpose and goals of the research and given time to review the script preceding the survey questions, as well as to familiarize themselves with the letter of consent required to obtain surveys from minors. Volunteers were trained directly before the event and instructed to approach subjects representing a diversity of apparent ages, genders, cultures and races present at the event. The only restriction was that subjects had to be able to answer the survey on their own volition. Volunteers were to read the interview questions aloud and record the answers as accurately as possible, paraphrasing and confirming with the research subjects as needed. Volunteers were also instructed to share the written interview questions with the research subjects (if requested) in order to accommodate subjects wanting or needing to read and understand the questions in print. Volunteers were strongly encouraged to approach families with children and obtain consent through the use of the Letter of Consent (Appendix D) that I provided in order to allow children to participate as research subjects.

Also, in order to gather impressions and memories of participants’ complete Earth Day Celebration, volunteers were instructed to attempt to fill out surveys with participants who were either leaving the event or had experienced a large sample of the activities available. While this expectation could not be assured, an attempt was made to allow research subjects to relate memories on the ESE as a whole.

Incentive gifts.

In order to encourage the participation of event visitors, an incentive gift or opportunity to receive a gift was provided for every successfully completed interview. In Phase I, in the preamble to the survey, participants were notified that they would have the option to be entered
into a prize draw for a “basket of ‘eco-friendly’ goodies”. In Phase II, face-to-face research subjects were given an incentive gift provided courtesy of the City of Surrey in the form of a free recreation pass as well as a reusable tote bag. Children were given a recreation pass and magnifying glass. After observing other event participants in possession of the incentive items, these gifts proved to function as an impetus for event participants to approach the research team to discover how they could secure a gift for themselves.

Both past and present event participants were asked for their contact information in order to be identified as possible candidates for a follow-up interview to aid future research potentially to be undertaken by the City of Surrey.

**Participants and Site**

Research subjects included all English-speaking participants at past and present Earth Day Celebrations taking place at Bear Creek Park in Surrey, BC between the years 2000 and 2010. All research subjects were also required to have the ability to answer the questions on their own; therefore, no children under 4 were surveyed. Although I was not able to control the selection of online survey research subjects in Phase I, in Phase II structured interviews were sought with respondents of various ages, genders and ethnicities in order to capture a sample representative of the wide spectrum of those attending the event.

**Age of research subjects.**

Both adults and children were identified as suitable candidates for this research projects in that many events were aimed primarily at families. Children are an intended audience of Surrey’s Earth Day Celebration. Many of the activities offered in various booths include a heavy focus on games, arts and crafts, and other forms of children’s entertainment and education. For any children interviewed, written parental consent was obtained before undertaking any data
Parents were given a letter outlining details of the research project including any potential risks to the child.

Adults were also an important research demographic since the aim of much of the information presented at this and other ESEs is intended for an adult audience as indicated in the complexity of issues addressed in the various brochures and displays. In most instances, adults are also the decision-makers and direct the social activities of their families during their leisure time. Discovering why this age group chooses to attend Surrey’s Earth Day, whether they have children or not, is an important aspect of understanding the priorities of mature residents and visitors alike.

**Event location description.**

Bear Creek Park, the location for all of the past and present Surrey Earth Day Celebrations, is located at the very well traveled intersection of King George Boulevard and 88th Avenue in Surrey. Sometimes referred to as “the Stanley Park of Surrey”, Bear Creek Park is home to the Surrey Arts Centre; Surrey Art Gallery; various athletic fields and a track oval; the Bear Creek gardens; two large children’s’ playgrounds and water park; climbing wall; youth skate park; and the Bear Creek Train. The Park also plays host to open field spaces and a complex system of nature trails. The Earth Day event takes place near the Surrey Arts Centre and boasts easy access to major public transportation routes including bus and Skytrain, as well as ample parking spots. The various amenities attract many visitors to enjoy the park and also provide happenstance audiences for events such as Earth Day.

**Data Analysis**

The online Zoomerang tool used to gather questionnaire data was also used as the analysis platform for all data collected in both Phases I and II. To check for completeness and
ensure all questions were answered by research subjects I reviewing all structured face to face survey results collected by the research team, I also hand-entered the in person survey data and combined this with the formerly collected online questionnaire data. Online questionnaire surveys were omitted from data analysis when research subjects self-reported in the initial screening question that they had not attended a previous Surrey Earth Day Celebration. Data was manipulated in the Zoomerang environment utilizing the available filter and cross-tabulation features provided by the site.

In order to compare open-ended and forced choice questions, the open-ended answers were examined, themes were generated, categories were defined and quantitative counts were determined within each category. Many of these themes matched those found in the forced choice questions and this allowed for comparisons among research subjects. Descriptive data was generated and basic statistics were gathered and reported.

**Study Conduct**

The first phase of this research was to complete the ethics review process at Royal Roads University. Because the research participants were to include children there was an additional step necessary to ensure the research met the highest ethical standards through the use of a Letter of Consent. Once the research was approved by the Royal Roads University Research Ethics Committee, the next phase was to develop the survey instrument in collaboration with interested parties within the City of Surrey. Once their approval was granted, the cooperation of the Marketing section within the City was needed in order to offer the survey online and gain access to the City of Surrey’s Zoomerang account.

As the 2010 Earth Day event approached, a notice was placed on the City of Surrey’s Volunteer^2 online volunteer recruitment website to recruit the research team needed for the
structured interview phase of data collection. Five volunteers were selected and confirmed their attendance at the event in April.

During the Earth Day event, the volunteers and I were diligent in determining the age of potential research participants in order to ensure that participants under the age of 18 had Letters of Consent signed by a parent or guardian before the survey interview took place.

Following the event, the hard-copy survey data was entered into the online Zoomerang account to allow for statistical analysis and to ensure the anonymity of research subjects. Both Microsoft Excel® and Zoomerang™ were utilized in organizing and describing data.
Chapter Four: Results/Findings

Past and present participants at Surrey’s 2010 Earth Day Celebration completed one hundred and seventy two surveys, including 54 Phase I online questionnaires and 118 Phase II face-to-face structured interviews. Thirty-one online questionnaires were screened out during data analysis because these participants self-reported having never attended the Earth Day event. Their completion of the survey may have been motivated by the prize draw advertised on the City of Surrey’s homepage. The exclusion of these surveys resulted in 23 online questionnaires that were considered to be valid for the purposes of this research. Of the 118 face-to-face structured interviews completed at the 2010 Earth Day Celebration, all were found to be valid and usable. Combining the online questionnaire and face-to-face structured interview data resulted in 141 completed surveys that underwent data analysis.

Demographics of the Research Subjects

In total, 53 males and 85 females contributed to the research with the gender of 3 research subjects remaining unknown due to gaps in the data collected by research team volunteers. Regardless, female participation was 22% greater than that of males. The prevalence of female respondents is representative of the typically larger percentage of mothers or female caregivers that have observed in attendance at various Environmental Special Events (ESEs) in Surrey, including Earth Day Celebrations. Gender data is summarized in Table 1.

<table>
<thead>
<tr>
<th>Gender</th>
<th>No. of Respondents</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>53</td>
<td>38</td>
</tr>
<tr>
<td>Female</td>
<td>85</td>
<td>60</td>
</tr>
<tr>
<td>Unknown</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>141</td>
<td>100</td>
</tr>
</tbody>
</table>
Gender distinction was be analyzed in detail through this research, because when I examined and compared the memorable aspects of Earth Day as reported by males versus females, I found that the top two memorable features reported by each gender shared the same rankings; therefore, gender data was ignored for subsequent data analyses. Further results on memory ranking are discussed in subsequent sections of this chapter.

The age of surveyed research subjects followed a normal distribution, centered on the 31-40-age range with the median and mode ages falling within this age range. The age of one participant was not recorded during data collection (N = 140). Age distributions are summarized in Figure 2.

![Age Range](image)

*Figure 2. Distribution of Ages Surveyed from Earth Day Celebrations 2000-2010*

From Figure 2, it is apparent that the age group most represented in the sample group was the 31 through 40-year old age range (N = 43) followed closely by the 41 to 50-year olds (N = 32). This prevalence of middle-aged participants was expected because the event is marketed heavily towards families with young children.
The least represented age groups in the data collected were children (Ages 0-20, N = 16) and those 61-70 years of age (N=4) and those over 70 (71+, N=6). Procuring interviews with children proved difficult. Although many parents and grandparents may have been comfortable answering the survey themselves, in many cases they were not willing to have their children or grandchildren involved if they were required to go through the additional step of reading and signing the Letter of Consent and having the child’s name recorded. Although the parents and guardians were informed that identifying features and names would not be retained in the data analysis, I believe that the need to divulge these details proved to be an obstacle to adequate data collection for this age group.

Participants over the age of 60 were also not well represented within the data collected. The reasons for this may be speculated to be that many seniors may not own or utilize a computer thus limiting the online survey responses. Additionally as previously mentioned, the weather was poor on the day of this year’s Earth Day Celebration and members of this age group may be ‘fair-weather’ participants at ESEs and therefore were under-represented in the sample taken at the 2010 event.

**Response Rates**

The online participation rate was low with 33 completed surveys resulting from 1380 visits to the Zoomerang survey (2.4% completion rate). This rate most likely results from those attempting to fill in the online survey realizing, upon reading the instructions preceding the questions, that they were required to have personally attended the 2010 Surrey Earth Day Celebration and then choosing not to complete the survey. There still remains the possibility that research subjects who filled out the online survey had not actually attended a past event, but
were motivated by the possibility of winning a prize to still continue on with survey completion. As online participation rate was relatively low, this effect on data analysis should be minimal.

For data that was gathered directly from attendees at the 2010 Earth Day Celebration, the 118 surveys collected by the research team represented a maximum response rate of 16% of the total event participants for this year. (The event organizers estimated attendance at the 2010 celebration as being between 750-1000 participants). Although many surveys are known to obtain response rates of less than 50% of the sample (Snowball, 2010), this particularly low response rate may have been due to the fact that upon approaching potential research subjects, the research team found that in many cases those contacted were either unwilling to complete the survey on their own behalf or on behalf of the children they were accompanying. Some event participants were also under the age of 4 and were thus unable to complete the survey of their own volition. Regardless of these considerations, a sufficient number of surveys was collected to permit drawing relevant conclusions and viewing patterns among and between participants of Earth Day.

**Most Memorable Aspects of Earth Day (2000-2010)**

The survey results were interpreted in two ways since both open-ended and multiple-choice (forced-choice) questions were asked of all research subjects in regard to their most memorable Surrey Earth Day Celebration activities. Forced-choice answers were tallied while open-ended answers were first transcribed then coded, then finally tallied and added to the forced-choice answers for an overall data analysis.

The single open-ended question provided the opportunity for research subjects to consider their personal experiences and impressions of the event(s) without being prompted. The open-ended question was asked first so as to gather impressions and memories that were
largely unprompted as no further information about the specific answers the research team was seeking was initially given. When more than one answer was given to the open-ended question only the participant's first response was included in the data set.

**Open-ended responses.**

One hundred and one research subjects provided open-ended responses to the question “What has been the most memorable aspect of your Earth Day experience?” These answers were transcribed, coded and tallied to establish frequency patterns. Of these responses (not including those captured by the ‘Other’ category), the top two were 1) tree and/or seedling planting (N = 21) and 2) fish release (N = 19). Responses not Note that the survey included a list of categories of interest that were determined after consultation with City of Surrey staff as being important. However, a number of respondents listed ESE memorable experiences/activities that were not covered by the pre-determined list. Such responses were recorded as ‘other’ and generated approximately 20% of the total responses (N = 21). Some responses included in the "other" category were overly broad (e.g. “Everything.”) or irrelevant to the ‘in the moment’ Earth Day event memories. Such responses included statements such as “need more advertising” and “good access from roads”.

Upon coding the responses I chose to include an additional category to address ‘familial social interactions’. This category included responses that referred to the research subjects’ observations of their family members (usually children) interacting with various aspects of the Earth Day event, but centered on the family member, not the aspect of the event. For example, one dad commented that his most memorable aspect was “watching my kids be engaged in learning about our natural environment” while a mother mentioned how “spending time with my kids and showing them the benefits of taking care of our earth” was very memorable to her. This
category captured 12% of the responses (N = 12), a significant finding and one that I had not initially anticipated. Figure 3 summarizes the most memorable event elements as reported by Earth Day participants.

In order to illustrate the variety and frequency of answers given to the open-ended memorable aspect question, I created a word cloud image using the online Wordle (www.wordle.net) program by entering the raw data gathered through this question. From this, the most popular responses are represented by the largest font sizes and less frequent responses are written in increasingly smaller font sizes. The resulting image can be viewed in Appendix E.

Figure 3. Research Subjects Reporting of Most Memorable Aspects of 2000-2010 Earth Day Celebrations (Responses to the open-ended question).
Forced choice responses.

The multiple choice question concerning most memorable aspects of Earth Day followed the open-ended question and was designed to gather quantitative data about the elements of the Earth Day celebration which I had previously determined as potentially important aspects of the event experience. The list of elements was finalized after consultation with City of Surrey staff. Respondents were instructed that they could choose more than one response from the list of potentially memorable aspects. Of the responses included in the list, tree or seedling planting and fish release again came out on top with 55% and 53% respectively of the respondents (N = 74 & N = 72) listing them as highly memorable elements of their Earth Day experiences.

Long Term Versus Short Term Memories of Earth Day

Those participants who completed the online survey and commented on previous Earth Day Celebrations from 2000 through 2009 represented those contributing long-term memories, or lasting impressions of Earth Day. Short-term memories were gathered from participants attending the 2010 event because these memories were just being formed and may or may not be retained. Many 2010 respondents had attended past events as well as the current year, but as experiences from the 2010 event were the most salient, it was believed that primarily the current year’s short-term impacts would be vividly represented.

The open-ended question asked of respondents from past events was “The most memorable aspect of my Earth Day experience was:” while research subjects from the 2010 event were asked “The most memorable aspect of my Earth Day experience today or at past Earth Days has been:”. The forced-choice question asked of all research subjects was “I also believe the following aspects of Surrey’s Earth Day Celebration to be memorable (you may choose all that apply)”. Data from both the open-ended and forced-choice questions relating to
most memorable aspect were transcribed, coded and pooled in for past years (2000-2009) and current year (2010) Earth Day participants respectively.

**Lasting memories.**

For those participants who had attended Surrey’s Earth Day Celebration in the years 2000-2009, 16% of research subjects found that tree or seedling planting (N = 18) and the fish release (N = 18) were the most memorable aspects of the Earth Day for them. These were followed by informational displays (N = 13) and interactive games (N = 11). A summary of the most memorable aspects of Earth Day reported by participants from 2000-2009 is given in Figure 4 below.

![Figure 4](image)

**Figure 4. Most Memorable Aspects of Earth Day: 2000-2009 Research Subjects**

Note: Respondents could choose more than one answer.

**Short term memories.**

For those attending the 2010 Earth Day Celebration, the most salient memories echoed those found to be most memorable by subjects who had attended and recalled events from previous Celebrations. The attendees at the 2010 Earth Day found the most memorable
components to be tree and/or seedling planting (N = 76), fish release (N = 73) and informational displays (N = 46).

**Unexpected results.**

Not to be ignored, the social familial interactions category, although not given as an option in the forced-choice survey item, was reported by 6% of participants in previous Earth Day celebrations as most memorable (N = 7). This is comparable to present Earth Day participants’ 2% response rate with this aspect as most memorable (N = 7). To put this in perspective, when the social familial responses are placed in a separate category distinct from the general category of “Other” captured only 4% of the participants recalling previous Earth Day celebrations, (N = 4) and 5% of the participants attending in 2010 (N = 21). These findings are summarized in Figure 5 below.

*Figure 5. Participants' Reports of the Most Memorable Aspects of Earth Day: 2010*

Note: Respondents could choose more than one answer.
Motivation to Attend Earth Day

Motivation to attend Earth Day was ascertained through a single, forced-choice question. Research subjects were given the option to choose more than one answer of those listed. Of the seven options given, three were cited most often by research subjects. In order of prevalence these were “I wanted to spend time with friends and family”, “I am environmentally-minded” and “I wanted to do something fun and free”. Respectively these captured 42% (N = 59), 38% (N = 53) and 35% (N = 49) of respondents’ reported motivations for attending. Figure 6 contains a summary of all reasons participants chose to attend Surrey’s Earth Day Celebration.

Figure 6. 2000-2010 Participants’ Motivations for Attending Surrey’s Earth Day Celebration

Based on the high degree of emphasis placed on spending time with friends and family as a motivation to attend Earth Day 2010, the addition of the ‘social familial interactions’ category
among the most memorable aspects of Earth Day should constitute no surprise. As event participants are motivated to spend time with friends and family in this outdoor event setting, it is expected that the focus of their time at Earth Day would be on engaging and interacting with family members as they enjoy the event.

Although of lower frequency, the remaining four options chosen as motivational influences shed light on the percentages of ESE participants who were motivated by prior experiences to attend Earth Day in subsequent years. Sixteen percent of respondents (N = 22) stated that they chose to attend Earth Day 2010 because of a previous (seemingly positive) experience at the same event. We cannot assume that 78% of the research subjects had never attended Surrey’s (or another) Earth Day event, yet it can be stated that prior experience was not reported as the primary deciding factor affecting participants' choice to attend the current or previous ESEs.

People who were volunteering or working at the 2010 event constituted 12% of the total research subjects (N = 17). Although volunteers and workers at the current Earth Day were not sought out at the 2010 event for inclusion in this research project as their motivation(s) to attend may be seen to be separate by event organizers from the intended audience who participate in ESEs, their responses were still included in this data analysis. Further research is needed in this area to determine if the motivation to attend Earth Day or other ESEs is indeed fundamentally different among workers or volunteers when compared with the general event participants.

There were 10% of research subjects (N = 14) who were merely walking by yet chose to stop and attend the Earth Day event by participating in at least one of the activities offered. These respondents may represent the opportunistic participants who have little to no motivation to attend ESEs related to environmental awareness; those not interested in family outings or
without a family to entertain; or simply unreached/untouched by the marketing deployed by the
City of Surrey. The opinions of these participants may prove helpful, in their inherent
objectivity, to discovering how to attract new audiences to Surrey’s Earth Day and other ESEs if
their experience was transformative enough to inspire a return trip. If the research subject was a
return participant who had attended more than one Earth Day Celebration in Surrey, they were
not asked about their motivation for attending their initial Celebration.
Chapter Five: Discussion and Conclusions

Because the research undertaken in this project provides new information which augments that found within the community special events, and informal learning sectors, this study is meant to establish baseline information from which to expand themes and ideas about Earth Day and related environmental special events (ESEs) and their implications for the purposes of environmental education.

In expanding upon my findings, I begin by reflecting on the meaning and implications of this year’s Earth Day Celebration in Surrey, then delve into a description of how the workings of human memory give significance to the results collected from event participants, and justify how these memories can be the basis for building further environmental knowledge. Results related to the most memorable aspects of Earth Day are discussed at length; unexpected results related to social memories arising at the event will also be investigated. I propose also that memory information can provide a baseline from which to determine the effectiveness of aspects of Earth Day in providing environmental learning to drive visitors towards greater comprehension of environmental issues and an increased level of ecological literacy. Following this, I discuss the inclusion of environmental special events into the category of informal learning experiences by acknowledging the contribution of these short-lived, transient events to an increase in the access and appreciation of natural environments among the public. I also differentiate the need for providing environmentally focused special events from other community events offered by the private and public sectors. I then contend that the Earth Day Celebration (and other ESEs) can specifically meet many of the strategic plans and guidelines put forth by the City of Surrey. This is followed by suggestions of how to go about boosting the impact of ESEs to foster an increase the number of individuals these events can affect. Next, I make recommendations for
establishing goals to be met by Earth Day specifically (and other environmental special events as the City deems necessary) and delineate resources that event organizers and environmental educators in various sectors can utilize to ensure that ESEs presented are of high quality by way of solid evaluation. Finally, future research is suggested in this area and a variety of possible research questions and avenues for enhancing further understanding of ESEs are identified.

Outcomes of the 2010 Earth Day Celebration

Environmental special events will, in many instances, have outcomes different from other community events that do not stress environmental education. It is important to identify and attempt to meet these distinctive environmental goals in order to accurately describe some of the results of these events.

There are currently no explicitly defined outcomes for environmental special events (including the Earth Day Celebration) as hosted by the City of Surrey. General guidance is presented through relevant planning documents for the City as a whole (including the City of Surrey Sustainability Charter (2009); and also through the Parks, Recreation and Culture Department (via the most current Strategic Plan (2008). Whether the outcomes are listed explicitly or not prior to the event, analysis of the aftermath can still reveal findings useful in determining what the impacts and outcomes were actually achieved.

From my discussions with this year’s City of Surrey Earth Day Celebration coordinator concerning some of the direct outcomes resulting from the 2010 event, I learned through discussions with this year’s Earth Day organizer for the City of Surrey, Ashley Bangsund, that: 1) participants, volunteers and staff worked together to plant approximately 160 trees and shrubs to enhance natural areas, 2) nineteen local environmental community groups attended, offering a variety of games and crafts in addition to static informational displays to promote their causes, 3)
eight internal sections of the City of Surrey promoting environmentally-related projects and programs were represented and 4) a minimum of five volunteers gave their time to engage with members of the environmental community and the public (A. Bangsund, personal communication, July 7, 2010). These four explicit outcomes may work to implicitly strengthen both community and civic pride by increasing awareness of the state of local natural resources and encouraging care of the natural world. This aspect of the event would be well-served with more extensive examination than this project provides through future research.

Whether or not participants are directly involved in the attainment of the event outcomes, there is much to be gained implicitly through simply attending and engaging in the event. As environmental special events and the City of Surrey’s Earth Day are typically set in parks and natural settings, they provide an avenue for communion with nature. The ability to interact and ask questions of staff and volunteers adds much to the event experience as well, as this gives access to immediate, onsite interpretation of the natural amenities surrounding and imbedded within the event location. This connection to the natural world strengthens communities by providing a sense of place as participants gain more knowledge of their local parks and green spaces, while also inviting exploration and discovery of neighbourhoods and natural amenities (Measham, 2007). They also benefit by meeting people in their community outside their normal circle and by networking with civic officials or community groups.

The Prevalence of Hands-on Stewardship Activities

In keeping with the conclusions drawn by Knapp and Benton (2006), those activities found at Earth Day that embodied the ‘hands-on’ approach mentioned repeatedly in the literature were indeed well-represented in the data collected in regard to the most memorable elements of the Celebration. Tree or seedling planting and the fish release are event aspects that are both
highly ‘hands-on’ and experiential in nature and are stewardship activities directly related to addressing environmental restoration or natural resource improvement. Perhaps not surprisingly, we find that these prominent stewardship activities as the most memorable aspects of Surrey’s Earth Day Celebration together represented 40% of the open-ended responses. These two activities represent historical goals of Earth Day in terms of inspiring stewardship behaviour in communities and combating pollution head-on. They may give the greatest sense of accomplishment because of their hands-on nature and may also provide associations in the minds of the participants to a specifically “Earth Day”-relevant event. Helping to ensure that these hands-on stewardship aspects of ESEs remain salient to returning participants is their consistent role at Surrey’s Earth Day Celebrations year after year. Their predictable presence works to cement memories and reinforce associations with the same activities because they are experienced annually by participants, thereby increasing the likely depth and longevity of their inclusion in personal memories.

These hands-on stewardship activities may stand out in the memories of past and current Earth Day participants because they are unique to ESEs and provide shared experiences in which for families to engage together. While community festivals may provide similar types of displays, games, and craft activities as can be found at ESEs, the opportunities to “get your hands dirty” (or wet, as the situation allows) are limited by the themes or locations of these community events. For many urban dwellers, interactions on a personal level with nature are severely limited as many do not have easy or safe access to natural areas and streams within their communities. Environmental special events that provide a tree planting or a fish release component allow increased opportunities for members of urban communities to engage in these activities in a safe way with the accompanying education of how and where to participate in these activities. On a
number of occasions I have seen firsthand how participants attempting these activities for the first time appear to have significant trepidation about even touching a tree’s root ball or holding a bucket containing the fish fry. Many times, after questioning their uncertainty, it was established that this hesitation arises not from previous negative experiences, but purely from a lack of familiarity with these natural features. After overcoming this initial fear (if possible in the short time interaction with the activity is considered), many event participants experience a thrill from this new sensation.

As a final note to this section, the other aspects found to be less memorable at Surrey’s Earth Day may still be entertaining or educational for participants, but the method in which these aspects is delivered is common to many other types of community events and festivals, reducing their ability to stand out or be incorporated in participants’ memories. This statement is not meant to underestimate the importance of the inclusion of crafts, games, mascots and food and drinks to the overall Earth Day Celebration experience. It is rather an attempt to explain their lackluster status in the results.

**Maintaining Memories of Environmental Stewardship Activities**

When looking at the overall data collected, it is clear without requiring much interpretation, that the two activities that proved to be most memorable within the Earth Day activities offered were the tree or seedling planting and the fish release. It is revealing to examine the popular responses garnered from the open-ended question found in the survey. It is apparent that the memories of these events either 1) were located in the subject’s short term memory or 2) were easily retrievable or accessed with little difficulty in their long term memory. Points to keep in mind are the optional nature of control processes such as rehearsal found within human memory and the fact that the control processes are selected at the subject's discretion (Atkinson & Shiffrin, 1971). What this signifies is how information that is deemed important or useful to the user will be
more easily retrieved while information not of interest or of (apparent) use to the participant will be easily forgotten. Even if this memory is stored long term in the brain, it may be locked there and accessed seldom if ever. Research subjects sampled from those who had attended past events had stored memories related to their Earth Day experiences and were able to successfully access these memories in responding to the questionnaire. The reflexive nature of the responses is encouraging because it suggests that the information gleaned from previous ESEs is either ‘on people’s minds’ or is easily brought to the forefront of their memories. To this, it is important to also consider that the questionnaire itself may act as a stimulus for research subjects to recall their past Earth Day or ESE experiences and without this stimulus, these individuals may not have elicited these memories for some time (till another stimulus were to bring the memory forward), if at all.

**The multisensory nature of environmental stewardship activities.**

The Earth Day activities of planting trees and releasing fish are multi-sensory in nature in that they engage the hands in digging and pouring out the water and salmon fry, and occur in a multisensory outdoor setting with the sounds of the babbling creek, and powerful scents emanating from the freshly turned earth and the algae-covered rocks. These two activities are able to register on various sensory levels so that memory information is gathered on more than one sensory level, increasing the probability that this specific stewardship memory will be stored and then easily accessed. Also, these stewardship memories can be reactivated by a wide variety of subsequent sensory experiences that remind the participant of their involvement in their Earth Day experience (Hupbach, Gomez, Hardt, & Nadel, 2007). For example, those who found the fish release to be most memorable may have this memory triggered by subsequent experiences which may include playing in or near streams, purchasing salmon for dinner at a grocery store or even reading a book about fish.

These two activities are also highly social as cooperation is often needed to plant a larger tree or proficiently handle a shovel. The slippery rocks and unsteady banks of the creek where the fish
release takes place may also necessitate help from a friend or family member who to carry a water
and fry-filled bucket closer to the stream bank and assist in the relocation of the salmon from the
bucket to the rushing creek. The shared feeling of satisfaction in performing these stewardship tasks
together makes an easy connection to a place in the memories of Surrey’s Earth Day, a claim
supported by the research subjects’ references to the involvement of other family members while
describing their most memorable event component.

**Synergy of staffing and stewardship.**

Interactions with staff and volunteers were ranked as memorable by 6% of the
participants who had attended previous events (N = 7) and by 8% of the 2010 event participants
(N=31). I therefore suggest that linking environmental stewardship activities with meaningful
interactions with other people might result in even greater outcomes in terms of creating
enduring memories and developing pro-environmental attitudes. Perhaps these social
connections could lead to greater effectiveness relaying the messages event participants.
Harnessing the thrill and excitement many participants feel from being involved in supporting a
living thing in nature is essential to continued environmental stewardship and lifelong nature
education and appreciation. I have trained numbers of staff and volunteers to interact with event
participants and to capitalize on this experience and imparted knowledge concerning the
implications of each participant’s contribution I recognize the importance of the social
connections that can be formed during events such as Earth Day. For budgetary reasons staff and
volunteers are often in short supply and are not able to interact in a meaningful way with event
participants because their time and attention is diffused among a large group of people. If each
participant can be given the time needed to understand the ramifications of his or her actions, this
knowledge may lead to a desire to become more involved in the protection of their natural
surroundings. At the very least, the participant may leave with a sense of accomplishment
warranted by their actions at the event. Investing in proper training and availability of staff and volunteers to facilitate these stewardship experiences is vital.

**Social and Familial Interactions**

An element that was not anticipated, yet was revealed through data analysis, was the importance of social and familial interactions found at Surrey’s Earth Day Celebration. For the open-ended question alone, a significant 39% (N = 7) of past and 8% (N = 7) of present participants recalled social or family interactions as most memorable aspect of their Earth Day experience. As this data constitutes information obtained before listing the exhaustive options of the offerings available at Earth Day, these findings are surprising and telling as to the priorities of many participants attending ESEs. The results are important in that they speak to the importance of the social elements inherent in community festivals which are also found in environmental special events. Despite many organizations’ and public sectors’ desire to engage the community to directly address environmental issues, it is important to acknowledge and exploit the additional desire for social interactions and provide places for families to connect with each other and their neighbours. As Measham (2007) asserts, environmental events have the capacity to not only bring families together, but also to forge connections with their natural environment in a meaningful way. By providing opportunities for individuals to ‘multitask’ through environmental events, we allow them to effectively combine time spent with their families with meeting their need for attaining personal growth and meaning in the activities they choose (City of Surrey, 2008).

Similar to the findings of Anderson (2003) through research into vividness of long term memories, many of the subjects recalled events related to people and social interactions, rather than activities directly associated with the event. The memories were general and reflective in
nature. Where I expected to have more purely episodic, event-driven memories reported, in actuality, emotionally driven memories of general activities were more often recalled. These responses were not linked to a specific genders as both males and females commented on social interactions. A male respondent (age 31-40) commented that the most memorable aspect from Earth Day was “watching my kids be engaged in learning about our natural environment” while a female respondent (age 21-30) felt that the most memorable aspect of the event for her was, “Spending time with my kids and showing them the benefits of taking care of our earth”. Not all socially motivated responses involved an environmental aspect as is noted by references that comment purely on “fun”. Some of these include various moms’ memories of “just a fun day out with my son”, and “had lots of fun with my 2-year old at Bear Creek Park” as well as recollections of “all the fun activities that my son participated in”. These responses correlate beautifully with Medved’s (2000) findings that learning and memories are defined not only in terms of a recollection of the details of an [event], but also as a recollection of the social context. The social context also has an emotional overtone that may facilitate the formation of long-term memories.

Because of the important role that social interactions appear to play for many participants, it would be in the best interests of the City of Surrey and other ESE organizers to appeal to the emotions and social inclinations of the public in order to elicit greater participation at events by developing event components that specifically foster greater levels of social interaction. While events are prominently promoted as “free family events”, it would be wise to strengthen this marketing perspective with further emotionally focused branding, emphasizing the opportunities for social interactions that can be found.
Learning at Earth Day

In the open-ended question asked in the survey, many respondents commented on “learning” in a general sense but didn't describe the method in which this learning occurred. This “learning” may have been achieved through a conversation with someone at the event, be it staff, a volunteer or another participant. I contend, based on the data collected, that the contribution to learning was made by informational displays found in the majority of booths at Earth Day. Passive informational displays attained a respectable rank of third, behind tree or seedling planting and fish release. It is possible that other forms of learning could be found in the messaging attempted in a game played by the research subject or another family member or perhaps in a brochure he or she picked up. These instances of learning could have arisen from a variety of avenues, yet the respondents were not caught up in the method of learning (i.e. a game versus hearing a fact from event staff) but more so the process (i.e. learning or experiencing) found in gaining new insight.

Extending environmental learning: practice makes perfect.

As many teachers and educators (environmental or otherwise) are aware, an important key to retaining information and learning is repetition (Hupbach, et al., 2007; Nuthall, 2000). Within the memory literature, repetition is known as ‘rehearsal’ and can be practiced through verbal, non-verbal and physical methods (Walker, Skowronski, Gibbons, Vogl, & Ritchie, 2009). This rehearsal of experiences or practices can lead to improved retention of the vividness and richness of a given experience (Anderson & Shimizu, 2007; Gardiner, 1988). In this instance, rehearsal of environmental messages and actions can improve the memories associated with environmental activities and experiences. As repeat participants to Earth Day experience more instances of environmental content, whether they consider themselves to be environmentally-minded or not, this further repeated activation of memories serves to maintain them with greater saliency.
In light of Falk’s (1990) research concerning the effect of frequency (or repetition) on long term memory recollection, it is worth speculating that more environmental special events attended by a given participant should constitute more instances of rehearsal of the environmental messages presented and result in a greater depth and vividness of Earth Day memories. Although the method of message delivery may change (i.e. a participant experiences a game this year instead of the fish release they tried last year), as long as the continuity in messages is maintained, the essence of the environmental knowledge remembered and passed along should be retained.

Individuals should be given opportunities to physically rehearse or practice their environmental learning on a frequent basis throughout the year by way of additional environmental opportunities offered in their community. Whether this is accomplished through attending community-based planting events or neighbourhood-level garbage removal programs, these opportunities provide experiences in hands-on stewardship activities as well as providing opportunities for social interactions. By activating environmental memories through actions, participants may gain the skills and knowledge that educators attempt to link to environmental behaviours.

While involving the public in environmental stewardship activities is a start in promoting greater concern about the local neighbourhood or community environment, it doesn’t facilitate the ongoing care and concern that is required for ongoing improvements and stewardship of the natural environment. This ongoing stewardship also presents another opportunity for rehearsal, or practice. While planting a tree or seedling in a local park is important and contributes to a greener environment, this single act must be followed with further maintenance to ensure the viability of the tree and the continued health of the associated ecosystem. Depending on the age
and location of the planted tree, this maintenance must continue for many years until the tree is able to survive. For a tree seedling this can be up to three years (R. Brayfield, personal communication, September 1, 2010), requiring a significant investment of time and money on behalf of the agency that has initiated the planting. In this case, the City of Surrey provides the staff time and materials for this maintenance cycle to be completed. Without it, there can be a high mortality rate of planted trees, resulting in wasted materials and effort.

A local to global event.

O’Sullivan (2009) suggests that “festivals and special events may range from the local/community event primarily designed to deliver benefits to local stakeholders, to the mega-event designed to reach a global audience and to make a positive national impact upon the host country” (p. 24). Yet I believe Earth Day holds the unique distinction of being a hybrid of these two categories of events. The locally held events may be seen as cumulative in that they have resulted in a globally recognized environmental movement and have contributed to national recognition for those countries that have chosen to participate. The ability of local Earth Day celebrations to be tied into a larger purpose can give a greater sense of community to those involved in attending a single, local, isolated event. Ensuring they feel part of the global Earth Day programme is an important factor to keep in mind when interacting with participants and relaying the individual impact they are effecting at home and impressing upon them a sense of accomplishment.

Conclusions

By examining the variety of short and long term memories gathered from event participants of the City of Surrey’s 2010 Earth Day Celebration, it is clear that environmentally-themed special events can provide environmental education opportunities to their participants. In
some cases, the memories and their associated experiences remain accessible in the memories of participants for many years, requiring little effort to access and recall. This can be seen as a triumph of maintaining environmental information in the forefront of the public’s mind.

Further the capability of environmental special events to meet the needs of the public sector in terms of fostering environmental education, stewardship and sustainability is well-represented in the findings of this research project. Because these events embrace the unique combination of elements pertinent to both environmental education and community events, they can serve to address both areas of concern to the public sector in one fell swoop. Hence, the efficiency with which governments and NGOs can accomplish many of their mandates through environmental special events should not be underestimated.

For participants in this study I found that hands-on stewardship activities proved most memorable and that venues such as environmental special events that provide these opportunities have the unique ability to get participants involved in environmental learning. In contrast, it is less likely that a typical community event would provide stewardship activities and therefore, ESEs fill a niche combining experience and education that allows participants to feel a connection with their natural environment and develop greater understanding of the requirements of environmental citizenship.

By embracing the combination of fun and free-choice learning opportunities that can be found at environmental special events like Surrey’s Earth Day Celebration, we may be able to successfully combine the two sides of environmental education described by Chawla as, “One that emphasizes scientific knowledge and technical or managerial solutions to environmental problems; and another that seeks to instill a sense of care and responsibility for the earth among the general population” (2006, p 359).

**Recommendations**
In reflecting on the literature used for this research as well as the information provided by the data collected, I make the a number of recommendations to the City of Surrey as Earth Day heads towards it 50th global anniversary.

**Avoid overlaps.**

The City of Surrey should attempt to avoid conflicts in date and time with other large celebrations taking place in Surrey or the surrounding communities in order to maximize the number of potential participants available to attend the Earth Day Celebration. Although both Earth Day and the Vaisakhi Celebration are associated with particular calendar dates, communication between the two organizing bodies could help to avoid unnecessary conflicts. This could be accomplished by hosting the event on an alternate date from that of the Vaisakhi Celebration. If different dates are not deemed possible, then I would recommend holding the events at different times of day to allow participants to attend both, if they should so choose.

**Establish goals and outcomes.**

As mentioned previously, like many municipalities, the City of Surrey’s Parks, Recreation and Culture (PRC) department utilizes a Strategic Plan in order to identify areas of concern and focus budgetary spending within the department. Although this document is an excellent tool, it serves as an general guide for PRC decisions and allows for many interpretations and vagaries.

At this time, explicit goals for the City of Surrey’s Earth Day Celebration have not yet been defined. Assumptions and inferences from various topics covered in the Strategic Plan currently in place for the City of Surrey’s PRC Department serve to identify and define needs within the community and the mandate of the department as well as the role which the City plays
in ensuring community events that promote community, friends, and family, as well as environmental responsibility and awareness, are undertaken.

**Complete the environmental education plan**

As I have been working with the City of Surrey for the past five years, I am aware that the Environmental Programs section has at times taken steps to develop an Environmental Education Plan to guide and support environmental education, stewardship and outreach for the City. I believe that the research reported here adds to the base of environmental education knowledge gathered by City staff, and supports the need for a specific Environmental Education Plan outlining goal for environment special events. A section of this document should be dedicated to defining and identifying existing ESEs – including Earth Day – taking place within the City of Surrey. Both large and small in scale, these events would benefit greatly from a clear direction and underlying purpose. For new environmental educators in the municipality this document could serve to orient their efforts within a bigger scheme of City-wide environmental goals and could also serve to provide expected outcomes and clear deliverables to aid staff in their development of future Environmental Special Events.

**Evaluate effectively.**

My claim that ESEs, such as Earth Day, are adequate informal learning environments rests on the assumption that learning is indeed taking place, and results in an increase in the environmental knowledge of participants. While the memories taken from ESEs are useful tools to begin to substantiate environmental learning, there is also a need to properly evaluate Surrey’s Earth Day as an informal learning experience by utilizing one of the many rubrics available for program evaluation. As ESEs remain largely unknown, uncategorized and unevaluated in terms
of their educational value, there is a need to legitimize their presence within the informal learning community.

As the City of Surrey does not have a specific evaluation structure in place for special events or ESEs, there is a need to make available resources that would facilitate these evaluations. My search into the resources available for informal program evaluation unearthed a functional publication developed by the North American Association for Environmental Education (NAAEE), a professional association for environmental education. In 2009, with almost 40 years of history within the environmental education industry, the NAAEE released a document entitled Nonformal Environmental Education Programs: Guidelines for Excellence. As stated in the introduction, this document contains:

…a set of recommendations for developing and administering high quality nonformal environmental education programs. These recommendations provide a tool that can be used to ensure a firm foundation for new programs or to trigger improvements in existing ones. The overall goal of these guidelines is to facilitate a superior educational process leading to the environmental quality that people desire. (North American Association for Environmental Education, 2009 p. 1)

By examining the guidelines set out by this document and applying them to Surrey’s Earth Day Celebration the City will be able to determine if they are providing an adequate nonformal (or informal) environmental education program according to the six steps outlined in the document. As the City of Surrey claims to strive for stronger efforts related to environmental stewardship and community (City of Surrey, 2008; City of Surrey Planning and Development, 2009), any improvement identified through this evaluation process will be valuable for future Earth Day expansion and ESE success.
Directions for Future Research

As the topic of environmental special events is largely underrepresented in the literature, it is important to expand the knowledge base for this emerging field. As government and municipalities show a growing concern for connecting people to the land, connecting individuals to their neighbourhoods, embracing neighbourhood interactions within communities and enhancing and preserving the natural environment as a backdrop for these interactions, environmental special events may provide a vehicle to make these connections on a local scale. With landmark ESEs such as Earth Day we have the ability to more broadly research and examine the impacts of globally-held environmental special events.

Future research questions.

As this research has generated a number of questions to be studied at environmental special events through future research, the depth to which learning and subsequent environmental behavioural change has its beginning as ESEs cannot yet be estimated, but may prove to be substantial. A sample of questions recommended when pursuing new research related to the role of environmental special events to environmental education could include:

1) What does the landscape of ESEs across Canada look like? What number and type of events are taking place across Canada that can be classified as ESEs?

2) What role do ESE memories play in expanding environmental knowledge for participants?

3) To what degree do participants of ESEs give credit to these ESEs for increasing their environmental knowledge and understanding/awareness and appreciation?

4) Are ESEs addressing cultural needs for environmental learning? (i.e.: are diverse cultural backgrounds represented or encouraged to participate in ESEs)
5) What are the experiences of staff and volunteers attending ESEs? What is the contribution to the environmental literacy of staff and volunteers who are involved ‘behind the scenes’ at ESEs?

6) Are ESEs promoting and addressing ongoing stewardship involvement of participants to ensure the continued health and preservation of the environment?

I would urge new research in this field to include more in-depth qualitative methods of data collection in order to access the emotional aspects that involvement in ESEs may bring. Although the research instruments used for this project incorporated only a single open-ended response this item resulted in some surprising results. This experience leads me to suppose that further interviews into the nature of the memories of Earth Day events could have the potential to be rich and vivid. The research should include one-on-one interviews with individuals to potentially uncover more poignant details related to their experiences at the 2010 Surrey ESE. Interviews should target those who are initially screened and who self-report perceived impacts from the event since this has the potential to inform experts and researchers as to what the City is doing right in terms of education at environmental events.

Drawing from the large pool of past event participants, future research attempted in this field should seek to increase the sample size of Earth Day Celebration respondents, and include demographic information, especially that concerning the cultural backgrounds of participants. This information this was not collected in this project. As a diverse range of cultural backgrounds was noticeably lacking at this year’s event, it may prove to be illuminating to uncover memories of participants of various ethnicities. This information could serve to boost attendance by identifying gaps in content or activities that appeal to different cultures.
Those participants who have attended Surrey’s Earth Day for several years would make ideal research subjects for additional studies in order to determine if there is a correlation between repeat visitations to Earth Day celebrations and a stronger association with nature or environmental concern. As Shultz (2007) concluded, there can be significant correlations between frequency of visits to natural places and a person’s sense of connection to nature.

The ultimate aim of environmental education is to inspire behavioural change towards more environmentally sound lifestyles through ecological literacy. Although admittedly it is difficult to establish the link between environmental knowledge and its translation into environmental behaviours (Storksdieck, Ellenbogen, & Heimlich, 2005), subsequent research should seek to identify positive changes in attitude and/or behavior that participants attribute to their participation in ESEs. A natural progression of this research would be to examine whether these memories are transformed into sustained attitudinal and behavioural changes that positively benefit the environment.
Appendix A

Phase I Survey: Online Questionnaire

Survey Title - Memories of Surrey's Earth Day Celebration

Page 1 - Heading
Your answers to the following brief survey about the City of Surrey's Earth Day Celebration are greatly appreciated and will be used to further research and understanding about environmental special events.

All successfully completed surveys will be entered into a prize draw to win a basket of "eco-friendly" goodies!
Participation in this survey is completely voluntary and you may choose to opt out at any time. All answers will be kept in the strictest confidence and you will not be identified through data collection nor in the final research document. No information will be shared with parties outside the research team.

Page 1 - Question 1 - Choice - One Answer (Bullets)
I have attended Surrey's Earth Day Celebration

- Once
- More than once
- Never

Page 1 - Question 2 - Choice - Multiple Answers (Bullets)
I have attended Surrey's Earth Day Celebration in the following years (choose all that apply)

- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- I can't remember the year

Page 1 - Question 3 - Open Ended - Comments Box
The most memorable aspect of my Earth Day Celebration experience was:
I also believe the following aspects of Surrey's Earth Day Celebration to be memorable (choose all that apply):

- Live Entertainment/Performers
- Craft Activities
- Interactive Games
- Tree or Seedling Planting
- Fish Release
- Informational Displays
- Interacting with Event Staff and/or Volunteers
- The Mascots
- Food and Drinks
- Other, please specify

I attended Surrey's Earth Day Celebration because (choose all that apply):

- I wanted to spend time with my family/friends
- I wanted to do something fun and free
- I am environmentally-minded
- I volunteered at the event
- I worked at the event
- I attended a previous Earth Day Celebration
- I was simply walking by, I wasn't aware of the event prior to that day

Age

- 0-10
- 11-20
- 21-30
- 31-40
- 41-50
- 51-60
- 61-70
- 71+

Gender

- Male
- Female
If you are willing to be part of additional research associated with Surrey's Earth Day in the future by participating in a one-on-one interview with the researcher, please include your contact information below. This information will not be sold or used for purposes other than contacting you for the interview. Participation in this research project is completely voluntary.

- Enter me into the prize draw and contact me about a follow up interview.
- Only contact me about a follow up interview.
- Only enter me into the prize draw.
- Don't contact me at all

**Contact Information**

- Name
- Company
- Address 1
- Address 2
- City/Town
- State/Province
- Zip/Postal Code
- Country
- Email Address

Thank you for your feedback. Your answers are greatly appreciated. For more information on the results of the research project, please contact the researcher, Erin Desautels at erin.desautels@royalroads.ca. The final project will be available in September 2010.
Appendix B

Phase II Survey: Structured Interview Questions

Memories of Earth Day - Survey
Have you attended Surrey's Earth Day Celebration before?
☐ No, this is my first year *(Skip to question #3)*
☐ Yes, more than once (Go to question #2)

Do you recall in which year(s) you attended Earth Day?
☐ 2009 ☐ 2010
☐ I can’t remember the year

The most memorable aspect of my Earth Day experience today or at past Earth Days has been:

__________________________________________________________________

From the following choices, what other aspects of Earth Day are memorable to you? You may choose all that apply:
☐ Live entertainment/performers
☐ Arts & Crafts activities
☐ Interactive Games
☐ Tree or seedling planting
☐ Fish release
☐ Informational displays
☐ Interacting with event staff or volunteers
☐ Mascots
☐ Food and drinks

Is there else you found memorable about Surrey’s Earth Day that I didn’t list?

__________________________________________________________________

Why did you come to Earth Day today?
☐ I attended in a previous year
☐ I wanted to spend time with family or friends
☐ I wanted to do something fun and free
☐ I am environmentally-minded
☐ I am volunteering
☐ I am working at the event
☐ I was just walking by, I wasn’t aware of the event prior to today
☐ Other

Gender ☐ M ☐ F

Age
☐ 0-10 → CONSENT NEEDED
☐ 11-20 → CONSENT MAY BE NEEDED
☐ 21-30
☐ 31-40
☐ 41-50
☐ 51-60
☐ 61-70
☐ 71+

Thank you for your time. Enjoy the event!
Appendix C

Research Letter of Approval granted by the City of Surrey

January 25, 2010
File: 2800-01

Dear Erin:

Re: Permission to Carry out Academic Research at Surrey’s Earth Day 2010

This letter is in response to your recent written request to undertake public surveys of event participants at Surrey’s Earth Day Celebration 2010, in support of your Master’s thesis project.

The City supports your proposed efforts towards gaining a greater understanding of event participant’s memories of environmental special events, as your findings may better inform our efforts to educate Surrey residents about environmental matters that are within the City’s purview.

I recognize that you have yet to finalize your survey methodology, but accept that the overall survey protocol will be similar to that outlined in your draft thesis proposal submitted to me electronically on January 25th, 2010. In your present capacity as an employee, I know that you understand the requirement that volunteers assisting you with this project must have completed a criminal record check, in keeping with the City’s policy. Further, personal information collected through the survey and follow-up interviews must be treated with the utmost confidentiality throughout the entire project.

Good luck with your project. I look forward to reading your final thesis.

Owen Croy
Manager of Parks

c.c. Manager, Urban Forestry and Environmental Programs
Appendix D

Letter of Consent

School of Environment and Sustainability
Royal Roads University
2005 Sooke Road
Victoria, British Columbia
V9B 5Y2
Web: http://www.royalroads.ca

ROYAL ROADS UNIVERSITY
Informed Consent By Participants in a Research Study

The University and those conducting this research study subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of participants. This research is being conducted under permission of the Royal Roads University Research Ethics Board. The chief concern of the Board is for the health, safety, and psychological well being of research participants. Should you wish to obtain information about your rights as a participant in research, or about the responsibilities of researchers, or if you have any questions, concerns, or complaints about the manner in which you were treated in this study, please contact the Associate Vice President, Office of Research Ethics by email at [email protected] or phone at [phone number].

Your signature on this form will signify that you understand the procedures, possible risks, and benefits of this research study; that you have received an adequate opportunity to consider the information in the documents describing the study; and that you voluntarily agree to participate in the study.

Any information that is obtained during this study will be kept confidential to the full extent permitted by the law. Knowledge of your identity is not required. You will not be required to write your name or any other identifying information on research materials. Materials will be maintained in a secure location and kept for 4 years after the completion of the study.

Project Title: Memories of an Environmental Special Event: Earth Day

Duration: February – May 2010
Principal Investigator: Erin Desautels (MAEEC Candidate)
Thesis Supervisor: Carlos G. A. Ormond
Investigator Department: Faculty of Education

Project Description: Many government bodies and non-profit organizations utilize family-friendly, entertaining events to educate the public and celebrate the environment and current environmental issues. This research will shed light on the memories that event-goers take away from environmental special events, such as Earth Day, in order to
guide efforts made by organizers in having the biggest impact and lasting memories both raising awareness and increasing appreciation for the environment.
The researcher intends to survey a wide sample of past and current attendees to the City of Surrey’s Earth Day Celebration and gather their most striking memories they can recall from the event. The researcher will also delve further into the root of the memories through semi-structured interviews to understand why these memories are particularly salient. The outcomes of the survey and subsequent interviews will identify memorable aspects of environmental special events

**Procedures, risks and benefits**

**Benefits of the Study**: This study will allow event organizers of environmental special events to concentrate their efforts on event activities that offer the greatest impact (through both education and entertainment) to those attending the event.

**Procedures**: The study will be conducted at the City of Surrey’s Earth Day Celebration in Surrey, BC. The study will utilize a mixed methodology that incorporates both qualitative and quantitative research methods. Data collection protocols will include administration of a quantitative survey prior to the Earth Day event, structured interviews on the day of the event and follow-up semi-structured interviews after the event. The survey will be administered online while the structured interviews will be conducted face-to-face by trained volunteers and the semi-structured interviews will be conducted by the researcher at a later date. I anticipate that the research undertaken will explore the memories and lasting impression(s) that environmental special events have upon event-goers.

**Risks**: We do not foresee any risks to you as a result of participating in this study. Data obtained from the study and all research information will be stored on a secure external hard-drive and maintained for 4 years by the researcher. Choosing to participate or not participate, or withdrawing from the study will not in any way affect your ability to participate in the 2010 Earth Day Celebration.

I certify that I understand the procedures to be used in this study and I understand that I have the right to withdraw from the study at any time, and that any complaints about the study may be brought to the Associate Vice President of Research Ethics, Dr. Mary Bernard, at [mary.bernard@royalroads.ca](mailto:mary.bernard@royalroads.ca) or [250-391-2553](tel:250-391-2553)

I understand that I may withdraw my participation at any time. I also understand that I may register any complaint with the Associate Vice President of the Office of Research Ethics. I have been informed that the research will be confidential and that data will be stored in a secure external hard drive for 4 years. I understand the risks and contributions of my participation in this study and agree to participate:

I may obtain copies of the results of this study, upon its completion by contacting (after September 2010) either the Principal investigator, Erin Desautels, [erin.desautels@royalroads.ca](mailto:erin.desautels@royalroads.ca).
<table>
<thead>
<tr>
<th>First and last name of participant</th>
<th>Phone and/or email Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Parent or Guardian</th>
<th>Signature of Parent or Guardian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
</tr>
</thead>
</table>
Appendix E

Wordle Image

The image depicts an analysis of word frequency found in the open-ended answers given by research subjects to the survey question: “The most memorable aspect of my Earth Day Celebration experience was…” (www.wordle.net)
References


City of Surrey Planning and Development. (2009). *The City of Surrey's Sustainability Charter.* Surrey, BC.

http://www.earthday.ca/pub/resources/faqs.php


