INDIVIDUALS, INSTITUTIONS AND INITIATIVES: FACTORS AFFECTING SUSTAINABILITY INITIATIVES WITHIN EDUCATIONAL INSTITUTIONS

by

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Abstract

This research project explores factors affecting sustainability initiatives within educational institutions. Using grounded theory and mixed-methods, the project evaluates the experiences and perspective of nineteen individuals involved with sustainability initiatives in schools. Twelve research participants are from one school community while the other seven are sustainability programme coordinators at a range of educational institutions. Results indicate that significant life experiences and situational factors both have an impact on an individual’s perspective on sustainability. The success of sustainability initiatives relies heavily on keen advocates for sustainability within the community and the support ascribed to sustainability by the institution. Providing engaging, hands-on experiences, supporting individuals and groups, and encouraging role modeling can foster an ethic of sustainability across the community. The outcome of this research project is a framework designed to help individuals and institutions in their efforts to support and implement sustainability initiatives.

Keywords: Sustainability, education, barriers, environment
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Chapter 1: Introduction

The Emergence of Sustainability

“We define sustainable development in simple terms as paths of progress which meet the needs and aspirations of the present generation without compromising the ability of future generations to meet their needs” (Brundtland, 1987, p. 4).

In the thirty years since publication of the Brundtland Report, sustainability has become a key strategic planning goal for corporations, educational institutions and governments. Sustainability policies and reports are common and institutions now apparently recognize their perceived value, making them readily available online (Prentice, 2010; Samsung, 2010; University of British Columbia, 2010). While the basic tenets of the Brundtland Report definition echo in many of the current sustainability documents, the definition of sustainability has evolved. A common modern interpretation of the term is characterised by the three-pillar model of sustainability. “The core of mainstream sustainability thinking has become the idea of three dimensions, environmental, social and economic sustainability” (Adams, 2006, p. 2). This usage is illustrated in the comments of the Canadian Minister of the Environment, Jim Prentice: “We must balance environmental issues with economic and social considerations. By doing so, we can make long-term sustainable progress on the environment that is integrated with progress on the economic and social agenda for Canadians” (Prentice, 2010, para 2). The three-pillar model of sustainability is also adopted in the University of Victoria’s definition: “Sustainability is the state of achieving the ecological balance that allows social development and economic prosperity to be achieved across generations” (University of Victoria, 2009, “Definitions,” para 1).
Sustainability Declarations

The development and adoption of the Talloires Declaration by a group of 22 universities in 1990 was a significant development in the advancement of sustainability within post-secondary institutions. “The Talloires Declaration is a ten-point action plan for incorporating sustainability and environmental literacy in teaching, research, operations and outreach at colleges and universities” (University Leaders for a Sustainable Future, 2008b, para. 1). As of 2010, some 400 educational institutions have signed the declaration, including thirty-five Canadian universities and colleges (University Leaders for a Sustainable Future, 2008a). Organizations such as the Green Schools Alliance (2010) with nearly 2000 affiliated schools and regional groups such as the Washington Green Schools (2010), with over one hundred participating schools, are now providing elementary, middle and high schools similar opportunities to make sustainability commitments. Although it has taken more than 30 years to find purchase in educational institutions, sustainability is now a key policy concept.

Implementing Sustainability

The real challenge however is in the implementation of declarations and policy statements. The incredible variation between educational institutions makes a single process impractical. The Center for Ecoliteracy, established to support education for sustainability, states: “There is no blueprint for schooling for sustainability. This movement, which is growing in school systems across North America and around the world, is characterized by its diversity” (Center for Ecoliteracy, 2010a, para. 1).

Research by Shriberg (2002b) on sustainability in higher education also provides insight into the complexity of implementing sustainability initiatives. Although focused on US universities and colleges, Shriberg identifies critical elements and barriers to sustainability within
educational institutions. He suggests that “movement toward campus sustainability will occur when change agents convert disparate efforts into comprehensive efforts integrated across departments and functional areas by convincing institutional leaders and other stakeholders about the criticality of sustainability at the institutional level” (Shriberg, 2002b, p. 292). The need for an integrated effort is also encouraged by the Association for the Advancement of Sustainability in Higher Education, which is focused on “providing resources, professional development, and a network of support to enable institutions of higher education to model and advance sustainability in everything they do, from governance and operations to education and research” (2010, “Our Mission”).

Reflecting the variability between institutions and populations, sustainability efforts within educational institutions differ dramatically in scope and scale. Examples of efforts to introduce sustainability concepts into campuses include the introduction of administrative and academic positions, changes in curricula, adoption of new pedagogical approaches, and changes to facilities management, daily operations and planning. Curriculum changes, in particular, have been slow but steady. Schools and universities have sought natural fits for sustainability within existing courses as well as developing sustainability-focused courses (cf. Review of the Ontario Science Curriculum to Increase the Positioning of Environmental Education (Ministry of Education, 2007), Sustainable Resources 11 and 12 (Ministry of Education, 2008)).

Support for sustainability initiatives within institutions also varies significantly, from official sustainability departments to volunteer staff sustainability advisory committees, student green teams or no formal groups. These groups provide much of the direction as well as momentum for initiatives ranging from waste reduction to emissions calculations, from transit incentives to gardening. Sustainability is also being incorporated into new construction as well as
retrofits and renovations as buildings themselves become educational tools, modeling and showcasing the emerging approach to education for sustainability.

**Overview of Study**

Using an online survey and a follow-up interview, the first phase of this research project explored perspectives, motivations and experiences of twelve individuals involved in sustainability initiatives at St. Michaels University School (SMUS), a private day and boarding school for 900 students in Victoria, British Columbia (BC). The Phase 1 participants included students, teachers, administrators and staff members. Phase 2 of the project added in the perspectives of sustainability programme coordinators from seven different educational institutions, representing public and private schools, non-profit organizations and universities.

Phase 1 research participants were invited to participate based on their involvement in sustainability initiatives at SMUS. Phase 2 research participants were selected based on their position or role as an environmental or sustainability programme coordinators within their organization. **The goal of the surveys and interviews was to find out how individuals within institutions are successful in selecting, planning and supporting sustainability initiatives.**

In phase 3 of this thesis, the themes were developed into a framework for use by individuals or organizations seeking to better support the implementation of sustainability programmes within their own school or university.

**Statement of Research Problem**

The questions listed below guided this research project and they come from my deep interest in organizational change and involvement with sustainability programming. The questions may seem simple, but my experience and reading has shown that the adoption of sustainability programmes in educational institutions is far from straightforward.
• Why does one student succeed in establishing a sustainability project in a school where others fail to do so?

• What makes certain initiatives relatively easy to implement and others more challenging?

• What are the differences between a school that successfully implements and maintains a range of sustainability initiatives and one that has low levels of initiation and/or maintenance?
  
  ○ Are these patterns constant and independent, or are they interrelated in more complex ways?

Guided by these questions, I explored factors affecting the success of sustainability programmes within educational institutions. I used grounded theory as a methodology, which allows flexibility in how the research is framed from a theoretical and epistemological point of view. The research objectives described below are thus not prescribed beforehand, but are derived from the guiding questions above, my review of literature, and from insights taken from the survey and interview responses.

Research Objectives

**Objective 1: Explore how individual characteristics and experiences affect the success of sustainability initiatives within a school community.**

The individuals involved in sustainability initiatives at SMUS occupy diverse positions (students, staff, faculty and parents). There is also considerable diversity in their educational backgrounds and life experiences. This research objective explores those factors and others (academic advancement, peer recognition and ecological worldview) in an attempt to understand how those characteristics and experiences affect the success of sustainability initiatives within schools.
**Objective 2:** Explore how organizational characteristics, structures and systems affect the success of sustainability initiatives in educational institutions.

What are the characteristics of institutions and how do these systems and structures support or impede sustainability initiatives? Impediments identified in the literature include inadequate funding and dysfunctional organizational culture with poor links between staff and management. I contrasted systems and processes at SMUS with a range of educational institutions to identify which are the critical structures or systems needed to effectively develop and support sustainability initiatives.

**Objective 3:** Explore the success and effectiveness of specific sustainability initiatives within educational institutions in terms of significance and complexity to implement.

Within the surveys, both Phase 1 and Phase 2 research participants were asked to prioritize a range of initiatives based on two variables: significance and complexity. Significance relates to how important the initiative is to the institution in terms of sustainability. Complexity relates to how difficult it is to implement that type of initiative at an educational institution. The interviews were used to further explore specific initiatives. The goal of this objective was to understand how educational institutions can prioritize initiatives, making the most effective use of institutional resources and avoiding initiatives that have low success rates or limited effectiveness.

**Objective 4:** Develop a framework which 1) guides and supports individuals in their efforts to implement, manage or improve sustainability initiatives within educational institutions and 2) helps educational institutions better support individuals and increase the success rate of sustainability initiatives.

The culminating objective of this research project was to develop a framework which
helps individuals and schools in their respective efforts to develop and support sustainability initiatives.

**Study Limitations and Delimitations**

This research project is limited by the nature of a Masters in Environmental Education and Communication degree thesis to interviews of nineteen people, and is thus neither comprehensive nor exhaustive. That said, I have endeavored to be systematic in my research, both in participant selection (breadth of roles) and survey/interview design, so that a wide range of success and deterrent factors are explored.

The intent of this research project is not to provide the road map to incorporating sustainability for every educational institution, but rather to provide useful starting points and tools to help schools navigate their own sustainability journey more effectively.

An additional limitation related to research participant selection is my decision to choose participants who had a connection to sustainability programmes. As a result, their perspectives and responses do not represent the broader community.

**Need or Significance**

The influence and role of educational institutions make them critically important in the shift towards sustainability. The authors of the Talloires Declaration believe this, stating that “universities have a major role in the education, research, policy formation, and information exchange necessary to make these goals possible” (University Leaders for a Sustainable Future, 1994, para. 4). Similarly, as noted by Ballantyne, Fein & Packer (2001), environmental educational programmes for students can be effective avenues for the dissemination of environmental ideas and behaviors to the greater community.

Educational institutions therefore have both an opportunity and responsibility to begin
making dramatic changes in the nature of the education they provide. Recognizing the many challenges associated with changing behaviour in educational institutions, a number of education programmes have been designed and made available to schools to assist in increasing the profile of sustainability within each school. Many of these programmes and existing frameworks are explored in the literature review section.

Researcher’s Perspective

As the coordinator of the Sustainability Initiative at SMUS, this research project is directly connected to my work. Sustainability is one of the five streams within the School’s relatively new Leadership Curriculum and accordingly I have been provided with resources and encouragement to promote and further sustainability initiatives across the community.

In this research project I do not examine other positive change movements being attempted at SMUS and in other institutions. For example, I do not explore existing programmes within SMUS that are designed to increase cultural understanding and respect although I do believe that these types of programmes are directly connected to sustainability via the health and wellbeing of the community. My starting point is that sustainability initiatives benefit learning institutions and their communities. From that start point I focus on the complexities around the successful implementation of this type of institutional change.

Chapter 2: Literature Review

The following topics were explored and reviewed prior to and during the research project informing the approach, the process and the results: motivation in human behaviour change, existing sustainability frameworks, basic steps for schools, sustainability assessment frameworks, emissions calculators, limitations of sustainability assessment frameworks.
Motivation in Human Behaviour Change

As noted by Maslow in *The Theory of Human Motivation Needs* (1943), the fulfillment of basic needs is fundamental to human decision-making. Maslow suggests that as the most pressing needs are met, an individual’s needs list is continually re-ordered allowing them to focus on other areas. The ongoing selection of new needs is considered to be very individual and unique as the process considers biological, cultural and situational factors (Maslow, 1943, p. 3).

Situational factors are also recognized as having a significant impact on behaviour (e.g., Barr, 2003; Jackson, 2005; Tikka, Kuitunen & Tynys, 2000. Barr (2003) notes that the “assumption that basic knowledge dissemination will have more than a minor indirect effect on behaviour is naive. Environmental behaviour has a range of determinants - situational, psychological and value-based factors that combine to provide a complex behavioural response” (p. 237).

Jackson’s review of the evidence on consumer behavior and behaviour change provides an in-depth look at motivation for environmental behavior and theories of motivation (Jackson 2005). Referring to the impact of those around us, Jackson notes that:

According to social learning theory, we learn most effectively from models who [sic] are attractive to us or influential for us, or from people are simply ‘like us’. Sometimes we learn by counter-example. And we learn not to trust people who tell us one thing and do another. (p. xi)

The effect of peer and mentor association is confirmed by Wentzel’s research on social relationships and motivation (1998). “Significant relations between perceived support from peers and motivation to display prosocial forms of behavior remind us of the critical, positive role that adolescents can play in their classmates' social adjustment to school” (p. 207).
While much of the research done on motivation within school communities focuses on student academic motivation or classroom motivation, some of the results are applicable to this research. Wolters identifies four distinct categories of student motivation: motivation for subject mastery, motivation out of fear of not mastering the subject, motivation based on performance targets (better than peers or averages), and motivation out of fear of being below a performance target (Wolters 2004, p. 236). This echoes Batson’s identification of three decision-making pathways: reward seeking/punishment avoiding, distress reduction, and altruism (as cited in Lee & Holden, 1999, p. 376). Although outside of the realm of the educational system, research on consumer behavior by Lee & Holden was also useful in this research project as it identified changes in consumer behavior as a result of distress and empathy (1999, p. 382).

Within a school setting, the importance of nurturing and supporting intrinsic motivation rather than extrinsic motivation is supported by a number of research projects including Covington’s research on rewards and intrinsic/extrinsic motivation (2000). That research illustrates the need for individually-tailored programmes or individually-developed goals to help each student be successful. “The degree to which students become intrinsically engaged in their schoolwork depends in part on whether they are achieving their grade goals, that is, whether they feel successful” (p. 24).

**Existing Sustainability Frameworks**

There is a range of existing frameworks designed to support the development and improvement of sustainability initiatives within schools and educational organizations. Some have been developed by or within universities while others have been produced by non-profit organizations or government education departments. This section outlines the main types of processes as well as the general features of each.
Basic Steps for Schools

A number of very simple lists have been developed to identify a general process for an organization as they start their journey towards sustainability. Examples reviewed include the Ontario Ecoschools (2010), Eco Schools Scotland (2010), Ministry of Education of British Columbia’s Sustainability Best Practices (2010b), and The Green Schools Initiative (2010). These four represent just a few of the lists available following a basic web search using the search phrase “sustainability list school”, and should not be taken to be representative of all of them.

The following list represents the common elements of those reviewed:

- Establish Green team/ multi stakeholder committee
- Assessment/monitoring/Audit
- Prioritize/develop a plan
- Communicate the plan
- Implement plan
- Connect to the Curriculum
- Monitor and evaluate progress
- Celebration of successes

Sustainability Assessment Frameworks

A wide range of sustainability assessment frameworks (also termed environmental auditing frameworks) have been produced over the past decade by and for universities, and increasingly for businesses, cities and other organizations. These generally include the use of specific indicators to measure and compare elements such as water use, electricity consumption, pesticide use and other areas with a goal of measuring or assessing sustainability on campus
Each indicator is typically linked to goals and benchmarks and some result in the generation of a sustainability report card. This type of assessment framework and reporting system has been used very effectively by the city of Santa Monica, California in their annual Report on the Environment (City of Santa Monica, 2010). Similarly, the Sierra Club of BC’s Sierra Youth Coalition has also produced a comprehensive framework for schools (Sierra Club of BC Foundation, 2010), based on the work of Cole (2003).

The importance of this type of assessment framework is highlighted by Shriberg (2002a), who completed a review of the existing sustainability assessment frameworks. He notes that “cross institutional assessment tools identify sources of support and resistance for sustainability initiatives, which helps lead to effective sustainability policies, objectives and programs” (p. 255).

**Emissions calculators**

While not specifically mentioned in the Basic Steps for Schools discussion, CO₂ emission calculators are a key component of most of the sustainability audit frameworks. Online CO₂ emission calculators are common, including a number that are designed for use by institutions and schools (Ministry of Education, 2010a; Lingl, Carlson & the David Suzuki Foundation, 2010). Emissions calculation is also increasingly relevant in jurisdictions that have mandated monitoring of emissions in public institutions. In the case of British Columbia, all Boards of Education are now required to calculate and report their carbon emissions as part of their annual carbon neutral action report (Ministry of Education, 2010b, p. 1).

**Limitations of sustainability assessment frameworks**

One of the limitations of sustainability assessment frameworks is the gap between operational efficiency and behavioural change. “While measuring ‘what’ campuses are doing
and ‘how’ they are doing it, most assessments neglect ‘why’ initiatives began and are maintained (i.e., motivations)” (Shriberg, 2002a, p. 266).

Cole notes that the effectiveness of a specific sustainability assessment framework is determined in part by its adaptability and flexibility (Cole, 2003). The variability between institutions in terms of size, location, demographics, climate and other variables make developing a single framework challenging as it cannot be all things to all institutions. Cole emphasizes the efforts made to make her framework useful to a wide range of universities, but its very generality may ultimately affect individual usefulness (Cole, 2003, p. 48).

At SMUS, an environmental audit at the engineering level was completed in 2007 with the intent of developing a more comprehensive electricity, water and natural gas monitoring system. While the audit final report provided a great deal of information about utilities on campus, without a comprehensive approach as outlined in the Basic Steps for Schools section above, the recommendations of the audit have been implemented slowly.

Chapter 3: Methodology
Research Design and Rationale

Methodological Foundation

Grounded theory was selected as the framing methodology due its flexibility and freedom from initial theoretical bias. Originally presented by Glaser and Strauss in "The Discovery of Grounded Theory" (1967), grounded theory was devised in response to existing research methods which Glaser and Strauss felt were not inclusive of the subjects’ complex connection with the topic being researched and the researchers’ involvement. They “argued that scientific truth results from both the act of observation and the emerging consensus within a community of observers as they make sense of what they have observed” (Suddaby, 2006, p. 633).
As noted by Brown, Stevens, Troiano and Schneider in research on the experiences of undergraduate students, “the purpose of grounded theory studies is to explore and understand how complex phenomena occur” (2002, p. 2). This is echoed by McClaren who described grounded theory as a “rigorous type of investigative journalism” (personal communication, Aug 6, 2009). As an exploration of values and perspectives of the research participants, grounded theory is well suited to this research project. The inductive approach allows themes and theories to emerge from the process of researching rather than through testing a pre-determined hypothesis. Grounded Theory “is more inductive than content analysis, as the theories emerge from, rather than exist before, the data” (Cohen, Mannion & Morrison, 2007, p. 491).

Themes which emerge either in the survey data or in the initial interviews can be explored in greater depth in subsequent interviews until theoretical or category saturation is reached. “A researcher must continue to collect data until no new evidence appears. This process, called ‘category saturation’, is one of the primary means of verification in grounded theory” (Strauss & Corbin, 1998, p. 636). Interview questions may therefore change in successive interviews to allow discussion on emergent themes. As the research is conducted, additional literature relating to emergent themes can be included in the process, informing subsequent steps and interviews.

**Mixed Method Approach**

The open-ended nature of the research objectives also informed my selection of a mixed-methods use of surveys and interviews to collect quantitative and qualitative data. The quantitative data, including the use of the New Ecological Paradigm scale was used to compare and contrast research participants. The qualitative interview data provided information about the perspectives and experiences of the nineteen individuals involved in the research project.
New Ecological Paradigm Scale

Originally devised by Dunlap and Van Liere, in 1967, the NEP scale has been revised by the original authors and is used as an assessment tool in a variety of research projects relating to environmental issues (Dunlap, Van Liere, Mertig & Jones, 2000). Dunlap (2008) notes that:

[The NEP scale] is increasingly treated as a measure of environmental beliefs, which I believe is the most accurate interpretation, although ecological worldview is my personal preference for a descriptor because I believe the NEP Scale measures the degree to which respondents view the world ecologically. (p. 10)

For the purposes of this research project, the revised NEP Scale (Dunlap et al., 2000) was used to explore variability in ecological worldview of research participants. An example of the use of the NEP includes Berenguer, Corraliza and Martin’s work on environmental values, attitude and action in rural and urban Spanish populations (2005). In their research, they compared NEP scores to place of residence and environmental concern and action, which is similar in many respects to the objectives of this research project.

Dunlap suggests that NEP scores can be used as a predictor of environmental behavior (2008, p. 12) while other variables such as attitude have been found to be poor predictors (Ungar 1994). This is significant as the research participants in this project were all selected for their involvement in sustainability initiatives rather than simply their knowledge or attitude. Additionally, environmental knowledge has been shown to vary between cultures (Laroche, Tomiuk, Bergeron, & Barbaro-Forleo, 2002) and between occupations (Tikka et al., 2000). Environmental attitudes in children have also been shown to vary across cultures (Evans, Juen, Corral-Verdugo, Corraliza & Kaiser, 2007).
Research Steps

Phase 1 Exploration of Individuals at SMUS

1.1 Locate research participants

Twelve individuals were involved in Phase 1 of this research project. The prerequisite for consideration as a research participant is some manner of involvement in sustainability initiatives at SMUS. Individuals were selected so that a variety of positions within the school community are represented in the study (students, faculty, staff and parents). Prospective research participants were contacted in person or by email.

1.2 Collect consent forms

The research consent form, Appendix 1, was completed by each research participant before they could complete the Phase 1 survey, Appendix 2. Consent was also required from the parent/guardian of any minor participating in this research project.

1.3 Administer survey

A link to the survey, Appendix 2, was emailed to each research participants.

1.4 Conduct interviews

Interviews with research participants averaged approximately 30 minutes in length but ranged from 20 to 60 minutes. Interviews took place in classrooms, meeting rooms and offices at the school. Interviews were recorded using a digital voice recorder. Appendix 3 includes the draft interview questions recognizing that the interview questions were expected to change as new areas of interest were identified within subsequent interview.

1.5 Transcribe interviews

Interviews were manually transcribed by the researcher.
1.6 Data analysis

Interviews transcripts were coded manually. Transcripts were reviewed and sections marked with one or more colours as they related to each of the emerging research objectives (RO). In broad terms the text was then easily identified as follows; individuals (Yellow = RO1), institutions (Blue = RO2) and initiatives (Green = RO3). In many cases a sentence or section of an interview was ascribed to more than one research objective. The sections relating to each research objective were then reread a number of times and codes and comments were added in the margins. The codes and comments were then reviewed, consolidated and combined in multiple stages, resulting in the generation of main themes within each of the research objective areas. The coding process refined an initial list of literally dozens of minor themes into main themes within each area. This parallels the multi-stage coding process as outlined by Larossa (2005) and Cohen et al. (2007).

Phase 2 Exploration of Educational Institutions

2.1 Contact environmental or sustainability programme coordinators at educational institutions

Contact was made by phone or email with eight environmental programme coordinators from a diverse group of educational institutions.

2.2 Collect consent forms

The research consent form, Appendix 1, was completed by each research participant before they could complete the Phase 2 survey, Appendix 4.

2.3 Administer survey to research participants

A link to the Phase 2 survey, Appendix 4, was be emailed to each of the Phase 2 research participants.
2.4 Conduct interviews with individuals involved in the initiatives

Interviews with each of the Phase 2 research participants averaged 30 minutes, ranging from 20-50 minutes. They took place in classrooms at SMUS or the offices or classrooms of the research participants. Interviews were audio recorded. Appendix 5 includes Phase 2 draft interview questions recognizing that the interview questions were expected to change as new areas of interest were identified within subsequent interview.

2.5 Data Analysis

In a manner similar to Phase 1, interview data was reviewed a number of times, codes and comments were assigned and then consolidated and combined into themes. The emergent themes from Phase 1 and 2 were then contrasted and compared.

Phase 3 Development of Framework

3.1 Develop a framework which aids in the implementation of sustainability initiatives

Data from Phase 1 and 2 was combined with resources identified through the literature review to produce a practical framework to support the successful implementation of sustainability initiatives in schools.

Study Conduct

For the most part, the research project proceeded as outlined in the plan described above. Departures from the expected plan are outlined below in more detail.

One Phase 2 research participant completed the survey but was not able to complete the interview component of the research project due to holidays or other conflicts. Their survey responses were used in this research project.

Interview length was more variable than expected. This appeared to be due to the overall enthusiasm of research participant. Interviews with younger research participants tended also to
be shorter.

As noted in the methodology, the interview questions were adjusted in successive interviews to allow discussion on emergent themes. Examples include the theme of variation in environmental perspectives between cultural groups, the issue of time constraints and the high level of involvement of students and staff at SMUS.

Coding of transcripts was initially attempted with HyperResearch software but the process was found to be much simpler if done manually on paper. Similarly, the Phase 2 interviews were not transcribed as originally expected as notes taken while listening to the interviews were equally effective in generating themes.

**Qualitative Versus Quantitative Analysis**

Although the surveys are partially qualitative, factors including sample selection and sample size limit statistical analysis of the results. I surveyed and interviewed 12 participants in Phase 1, and interviewed 7 in Phase 2. Given this small study size, statistical analyses (error margins, estimates of statistical significance) are for the most part inappropriate. And, the scope (size) of the study meant that I could not choose a random or quasi-random sampling design, deciding instead to select individuals who would speak more from a “sustainability activated” point of view. The prerequisite for selection as Phase 1 research participants was involvement in some aspect of sustainability initiatives at the school. As a purposive sample, as described by Cohen et al. (2007), it is unlikely that the Phase 1 research participants represent the views of the entire school community although they may represent the views of others who are similarly keen to see the school become more sustainable.
Chapter 4: Findings

Survey Results and Findings

In this section the results of the surveys (Appendix 2 and 4) are presented. Phase 1 research participants from SMUS (n=12) answered questions identified with an A or B (e.g. B2). Phase 2 research participants from other educational institutions (n=8) answered questions identified with a D (e.g. D4). In some cases Phase 1 and 2 research participants were asked the same question although the question numbers are different. In those cases the questions are both identified (e.g. B2/D4).

*Phase 1 Questions A1 through A15: The New Ecological Paradigm (NEP) Scale*

Only Phase 1 research participants were asked to answer the NEP questions (A1-A15). To calculate a score, all even numbered questions were reversed and a score was assigned on a scale of 1-5 for each question from Strongly Disagree (1) to Strongly Agree (5). This allows for an overall score from 15 to 75.

The average NEP score was 57, with a median of 56, a low of 50 and a high of 67. If the scale is balanced with 45 as the midpoint between an anthropocentric perspective and a biocentric/ecocentric worldview, all research participants were positioned towards the biocentric/ecocentric end of the scale. As noted earlier, however, there was no control group and purposive sampling was used, and so it is not possible to determine where the research participants are relative to their peers.

*Question B6*

In this section I provide results and findings from Phase 1 Survey Question B6 (Which of the following would make the biggest difference to help you make your school more environmentally responsible?).
Figure 1. Distribution of responses to Phase 1 Survey Question B6 (Which of the following would make the biggest difference to help you make your school more environmentally responsible?)

As shown in Figure 1, half of the Phase 1 research participants (n=6) indicated that having more time to work on initiatives would make the biggest difference in making the school the more environmentally friendly.

**Questions B2, B4a, B4b and B5**

Question B2, B4a, B4b through B5 were included in the Phase 1 survey to determine how the research participants feel about sustainability and their own efforts within the SMUS community.

Table 1. Response to Phase 1 Survey Questions B2, B4a, B4b and B5Phase 1 Survey Question

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<thead>
<tr>
<th>Response to Phase 1 Survey Questions B2, B4a, B4b and B5</th>
<th>Average response</th>
<th>Range of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question B2. How important is it that you try to make your school greener/more environmentally responsible? (1 is not important. 7 is extremely important).</td>
<td>6.5</td>
<td>5 to 7</td>
</tr>
<tr>
<td>Question B4a. How hard have you worked to make your school greener/more environmentally responsible? (1 is not worked hard. 7 is worked extremely hard)</td>
<td>4.2</td>
<td>3 to 6</td>
</tr>
<tr>
<td>Question B4b. Relative to your peers at school how motivated are you to make the school greener/more environmentally responsible? (1 is</td>
<td>5.3</td>
<td>4 to 6</td>
</tr>
</tbody>
</table>
As shown in Table 1, Phase 1 research participants generally felt that it is very important to make the school greener/more environmentally friendly. They feel they have worked moderately hard in that endeavor, they are slightly more motivated than their peers, and they feel moderately effective in their efforts.

**Questions B7/D1**

In this section I describe responses by both Phase 1 and Phase 2 research participants to questions B7/D1 (How interested do you think each of the following groups is in making the school greener/more environmentally responsible? (1 is not interested, 7 is extremely interested)).

![Figure 2. Phase 1 and 2 Research participants’ perception of the interest of school groups to make the school greener. Phase 1 responses are shown in dark blue. Phase 2 responses](image-url)
are shown in green. Self-reporting responses are shown in light blue.

Average responses from Phase 1 research participants (shown in dark blue in Figure 2) indicate that there is relatively uniform interest in making school greener across the community, with teachers and students ranked as the most interested group and parents and alumni as the least interested. It should be noted that the ranking is based on very small differences.

There was however a large range in individual responses about each group. Individual Phase 1 research participants felt very differently about the level of interest of each group. Responses ranged from 3 to 6 in five of the groups and from 2 to 7 in two of the groups. This suggests that there is variability in the perception of what other groups are doing at the school.

The Phase 2 averages (shown in green in Figure 2) were overall slightly higher than the Phase 1 averages and there was slightly less range in individual responses. Phase 2 respondents suggested that Principals/Directors are most interested in making the school greener, while alumni were the least interested. A number of Phase 2 research participants mentioned later that this question was challenging to answer as in some cases there is no contact with certain groups. For example, a middle school sustainability program coordinator would likely have very little contact with alumni. Similarly, the amount of contact that a teacher or administrator has with parents can vary significantly depending on the individual parent and the level of activity in groups such as a Parents Auxiliary Committee.

The light blue bars in Figure 2 list the responses made by Phase 1 research participants about people in similar roles (e.g., How teachers ranked teachers or how students ranked students). With the exception of the parents, there was reasonable accuracy in the Phase 1 research participants’ ranking of their own group. In most cases respondents ranked themselves as very near the overall response average. This suggests that they may have used themselves/their own group as a benchmark for other groups. It also suggests that individuals
within a community do not have a good idea of what other groups are actually doing or thinking about sustainability.

**Questions B8/D2**

In this section I provide results and findings for Question B8/D2 (Of the following environmental initiatives, which one do you think is most important to each group?).

Table 2. Relative importance of environmental initiatives to the combined school community (all groups) based on responses to Question B8/D2 (Of the following environmental initiatives, which one do you think is most important to each group?) and Question B11/D5 (Pick the top three areas that you would like to work on at your school).

<table>
<thead>
<tr>
<th>Initiative</th>
<th>A (Phase 1 n=12)</th>
<th>B (Phase 2 n=20)</th>
<th>Combined Average (n=20)</th>
<th>Question B11/D5 results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling</td>
<td>34%</td>
<td>36%</td>
<td>35%</td>
<td>13%</td>
</tr>
<tr>
<td>Energy Conservation</td>
<td>26%</td>
<td>20%</td>
<td>24%</td>
<td>23%</td>
</tr>
<tr>
<td>Carbon Emissions</td>
<td>18%</td>
<td>14%</td>
<td>16%</td>
<td>10%</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>8%</td>
<td>13%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Composting</td>
<td>5%</td>
<td>2%</td>
<td>4%</td>
<td>8%</td>
</tr>
<tr>
<td>Habitat Protection</td>
<td>4%</td>
<td>7%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Sustainable Transportation</td>
<td>4%</td>
<td>5%</td>
<td>4%</td>
<td>18%</td>
</tr>
<tr>
<td>Water conservation</td>
<td>1%</td>
<td>4%</td>
<td>2%</td>
<td>12%</td>
</tr>
</tbody>
</table>

As shown in column C of Table 2, the research participants (n=20) indicated the following three areas are the most important their school communities: recycling, energy conservation and carbon emissions. This is consistent according to both Phase 1 (column A) and Phase 2 (column B).

Listed in column D are the responses to Question B11/D5 which asked research participants what they are interested in working on as compared to Question B8/D2 which asks what different groups think are the most important areas. The difference between column D and column C indicates that there is a significant difference between what is important and what the
research participants are interested in working on.

For example, only 2% of the entire school community thinks water conservation is important while 12% of the research participants are interested in working on that area. Similarly, 35% of the community thinks recycling is important but only 13% of the research participants want to work on it. The discrepancy may be a result of the research participants having already spent a lot of time on recycling or setting up recycling systems and they may simply want to work on something else. The areas identified as of higher importance may also already have well established systems already in place and so there would be no need to work on that initiative any more.

Figure 3. Phase 1 (n=12) results for Question B8 (Of the following environmental initiatives, which one do you think is most important to each group?)
The results shown in Figure 3 indicate that Phase 1 research participants feel that recycling is most important to student and student councils. Phase 2 results (Figure 4) show a slightly more even distribution of recycling across the school. Both Phase 1 and 2 results (Figure 3 and 4) indicate that a few types of environmental initiatives dominate the staff and Director/Principal groups. Of those four types of environmental initiatives (Recycling, Energy Conservation, Carbon Emissions and Renewable Energy), the first two are given higher much ranking than the others. This indicates that the research participants feel that the Director/Principal and Staff groups have tighter focus, potentially due to these types of initiatives being more natural fits for the role of administrators and staff.

It should be noted that a number of research participants both in Phase 1 and Phase 2 mentioned their lack of comfort answering question B8/D2 as they felt they did not have a solid idea what was important to each group, especially in the cases of alumni and parents.
Questions B9/D3 and B10/D4

In the following section I outline the results and findings for the following questions:

- **B9/D3.** How important are each of the following to you? (1 is not important, 7 is extremely important)

- **B10/D4.** How important do you think each of the following are to the School? (1 is not important, 7 is extremely important)

The results of questions B9/D3 and B10/D4 are illustrated in Figures 5 and 6 below. The same two questions were posed to both Phase 1 and Phase 2 research participants.

![Figure 5: Results of Questions B9/D3 How important are each of the following to you? (1 is not important, 7 is extremely important)](image)

Figure 5 indicates there was very little variability in individual responses. Of 160 responses (n=20 ranking 8 categories) there were ten 4’s (6%), twenty-five 5’s (16%), fifty-two 6’s (33%) and seventy-three 7’s (46%). This suggests that the research participants in both Phase 1 and 2 felt that all of the categories were important. Phase 2 research participants (shown
in blue) felt slightly stronger in each category than the Phase 1 research participants (shown in yellow).

Although the results of question B9/D3 (Figure 5) were not useful in ranking the categories themselves, they did identify a contrast between the interests of the research participants and their perceptions of their respective schools’ interests in question B10/D4 shown in Figure 6.

Figure 6. Results of Questions B10/D4 (How important do you think each of the following are to (the/your) School? (1 is not important, 7 is extremely important))

In question B9/D3 (importance to the individual), the average of all eight categories was 6.0 in Phase 1 and 6.5 in Phase 2 (6.0 is the equivalent to very important). In question B10/D4 (importance to the school), the averages for the same categories were 4.1 in Phase 1 and 5.3 in Phase 2.
It should be noted that two Phase 1 research participants gave SMUS very low scores in most categories in question B10. Both individuals commented later that from their perspective SMUS simply has not done enough in terms of sustainability.

Phase 1 research participants felt SMUS was less interested in the following areas: habitat protection, renewable energy and carbon emissions. Recycling, organic waste and energy conservation all ranked higher, which is appropriate considering the focus of recent sustainability initiatives at SMUS.

Phase 2 research participants felt their respective educational institutions were less interested in the areas of water conservation and habitat protection. Again, recycling and energy conservation ranked higher.

**Question B11/D5**

In the following section I outline the results and findings for Question B11/D5 (Pick the top three areas that you would like to work on at your school). When research participants were asked to pick their own top three areas of interest preferences were clearly identified (Figure 7).
As shown in Figure 7, Phase 1 research participants (yellow columns) clearly identified energy conservation as a priority, followed by sustainable transportation and then water conservation. Phase 2 research participants (blue columns) also identified energy conservation as a priority, followed equally by sustainable transportation and recycling.

At the low end, Phase 1 research participants listed habitat conservation and composting/organic waste collection as the least appealing areas to work. Phase 2 research participants ranked water conservation and renewable energy as least appealing.

The difference between the Phase 1 ranking and the Phase 2 ranking is significant to the success of initiatives. Energy conservation, Sustainable transportation and Carbon Emissions were all similarly ranked by Phase 1 and Phase 2. Interest in Habitat Conservation, Recycling and Composting/Organic Waste Collection was more dissimilar. Water Conservation and
Renewable Energy, which the Phase 2 group was not interested in (only one of eight Phase 2 research participants selected these two areas), was much more important to the Phase 1 research participants.

It should be noted that this difference may have arisen because the twelve Phase 1 research participants are at same school while the eight Phase 2 participants come from eight different schools. There could also be influences such as the effect of promotion of specific initiatives within SMUS or geographic, financial or other variables affecting SMUS or other schools.

Within the Phase 1 responses, there was no observable grouping by age or position at the school. Similarly, within the Phase 2 responses, there were no clear patterns to explain responses based on public/private schools or size of school. There could also be variables such as a focus of Phase 2 research participants on long-term planning versus day-to-day activities. One Phase 2 research participant mentioned in their interview that they recycling and composting were going well at their school and so the focus had shifted to other areas (P2-5).

**Questions B12/D6**

In the following section, I examine results and findings focused on Question B12/D6 (What areas are missing in question B11/D5 above (Recycling, Energy Conservation, Carbon Emissions, Renewable Energy, Composting, Habitat Protection, Sustainable Transportation, and Water conservation)?)

Of the six Phase 1 responses to this question, five were requests for additional environmental education or awareness and one for environmental ethics. Some simply stated “education” or “environmental education” while others offered more detailed responses.

*We also need a course in applied environmental science which would revolve around credit for action, not credit for study.*  (P1-3)
I think that general awareness should be encouraged as well because though many people know about environmental issues, but they do not necessarily understand them or think about them during everyday life. (P1-5)

It should also be noted that the students (n=3) involved in Phase 1 all noted the absence of education in the list (Recycling, Energy Conservation, Carbon Emissions, Renewable Energy, Composting, Habitat Protection, Sustainable Transportation, and Water conservation).

The Phase 2 responses to Question D6 were generally longer and more proscriptive. Respondents offered the following topics: fostering a connection with the natural world; policy and decision-making structures; construction practices; purchasing practices; changing mindsets around consumption behavior; ethics, the social aspect of sustainability; making community connections and partnerships; development of school gardens and discussion of food security issues.

**Question B13**

In the following section, I examine results and findings focused on Question B13 (How prepared (informed/experienced/knowledgeable) do you feel you are to be working on environmental initiatives at your school? (on a scale of 1-7))

The average response to Question B13 in Phase 1 was 4.6 with a range from 3 to 6. The result suggests that the Phase 1 research participants are reasonably well prepared (informed/experienced/knowledgeable) to work on initiatives.

**Question B14/B15/D7/D8**

In the following section, I examine results and findings focused on Questions B14/B15/D7/D8 (How hard do you think each of the following initiatives would be to implement. (1 is easy to implement. 7 is extremely hard to implement)).

Table 3, 4 and 5 illustrate the ranking of the eighteen relatively popular and common
school initiatives. I generated this list of initiatives based on my own experience at SMUS and familiarity with the sustainability efforts of other schools. It should not be taken to be a comprehensive list of initiatives that schools should attempt but rather a representative group of typical initiatives.

In Table 3 the initiatives are ranked according to the Phase 2 responses to Questions D7/D8. Clusters of results were coloured to identify easy initiatives (green), moderately challenging initiatives (yellow) and difficult initiatives (blue).

The goal of these tables is to identify disparities that exist between the Phase 1 and 2 research participants and to develop a mechanism to rank initiatives. The analysis starts with Phase 2 responses as it is expected that the Phase 2 research participants have the most diverse and informed appreciation of the challenges of implementing various sustainability initiatives.

Table 3. Ranking of initiatives based on results of Phase 2 questions D7/D8 (How hard do you think each of the following initiatives would be to implement. 1 is easy to implement. 7 is extremely hard to implement)).

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Phase 2 Ranking</th>
<th>Phase 1 Ranking</th>
<th>Overall Average (all responses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper recycling</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>Pop bottles and can recycling</td>
<td>1.4</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Collecting dead batteries for recycling</td>
<td>1.4</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Going trayless in the cafeteria</td>
<td>1.5</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Arranging a guest speaker</td>
<td>1.5</td>
<td>1.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Switching to non-toxic cleaners</td>
<td>1.8</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Conserving water on campus</td>
<td>1.9</td>
<td>3.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Organizing bike to school days</td>
<td>1.9</td>
<td>2.7</td>
<td>2.4</td>
</tr>
<tr>
<td>Conserving electricity on campus</td>
<td>2</td>
<td>2.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Collecting Organic Waste for composting</td>
<td>2.1</td>
<td>1.9</td>
<td>2</td>
</tr>
<tr>
<td>Worm composting on campus</td>
<td>2.5</td>
<td>2.8</td>
<td>2.7</td>
</tr>
<tr>
<td>Soft plastic recycling</td>
<td>2.7</td>
<td>1.9</td>
<td>2.2</td>
</tr>
<tr>
<td>Putting up bird houses on campus</td>
<td>2.9</td>
<td>2.2</td>
<td>2.5</td>
</tr>
<tr>
<td>Planting native plants on campus</td>
<td>3</td>
<td>2.6</td>
<td>2.8</td>
</tr>
<tr>
<td>Planting a school garden</td>
<td>3.3</td>
<td>2.5</td>
<td>2.8</td>
</tr>
<tr>
<td>Garbage free lunches</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Cleaning up a local stream</td>
<td>3.5</td>
<td>2.7</td>
<td>3</td>
</tr>
<tr>
<td>Setting up a carpool system</td>
<td>3.6</td>
<td>4.4</td>
<td>4.1</td>
</tr>
</tbody>
</table>
As Table 3 illustrates, the Phase 2 research participants felt that all initiatives listed were relatively easy to implement. The range in individual responses varied significantly for a few initiatives, most responses were relatively uniform. One Phase 2 research participant noted in their interview that their school was located in the Bahamas where few recycling facilities exist and so the results for those four initiatives from that research participant were omitted.

Table 4. Ranking of initiatives based on results of Phase 1 questions B14/B15 (How hard do you think each of the following initiatives would be to implement. (1 is easy to implement. 7 is extremely hard to implement)).

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Phase 2 Ranking</th>
<th>Phase 1 Ranking</th>
<th>Overall Average (all responses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Going tray-less in the cafeteria</td>
<td>1.5</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Paper recycling</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>Arranging a guest speaker</td>
<td>1.5</td>
<td>1.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Pop bottles and can recycling</td>
<td>1.4</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Switching to non-toxic cleaners</td>
<td>1.8</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Collecting Organic Waste for composting</td>
<td>2.1</td>
<td>1.9</td>
<td>2</td>
</tr>
<tr>
<td>Soft plastic recycling</td>
<td>2.7</td>
<td>1.9</td>
<td>2.2</td>
</tr>
<tr>
<td>Collecting dead batteries for recycling</td>
<td>1.4</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Putting up bird houses on campus</td>
<td>2.9</td>
<td>2.2</td>
<td>2.5</td>
</tr>
<tr>
<td>Planting a school garden</td>
<td>3.3</td>
<td>2.5</td>
<td>2.8</td>
</tr>
<tr>
<td>Planting native plants on campus</td>
<td>3</td>
<td>2.6</td>
<td>2.8</td>
</tr>
<tr>
<td>Organizing bike to school days</td>
<td>1.9</td>
<td>2.7</td>
<td>2.4</td>
</tr>
<tr>
<td>Cleaning up a local stream</td>
<td>3.5</td>
<td>2.7</td>
<td>3</td>
</tr>
<tr>
<td>Worm composting on campus</td>
<td>2.5</td>
<td>2.8</td>
<td>2.7</td>
</tr>
<tr>
<td>Conserving electricity on campus</td>
<td>2</td>
<td>2.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Conserving water on campus</td>
<td>1.9</td>
<td>3.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Garbage free lunches</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Setting up a carpool system</td>
<td>3.6</td>
<td>4.4</td>
<td>4.1</td>
</tr>
</tbody>
</table>

When the ranking was based on the Phase 1 responses, the colours (determined by the Phase 2 ranking) are obviously no longer nicely organized (Table 4). While the general trend is similar, there are some differences. This may be the result of Phase 1 research participants not having the depth of understanding of the complexity, processes or work involved in all of the
initiatives in the way that the Phase 2 research participants do. It could also be due to the
different manner in which a participant interacts with an initiative as compared to a programme
coordinator.

If one considers the list in initiatives from the perspective of a participant in that specific
initiatives rather than the coordinator, the Phase 1 ranking seems fairly appropriate. As a
programme coordinator, organic waste and soft plastic collection are far more complicated to
organize and facilitate than collecting dead batteries. To the individual who simply deposits any
of those items into the appropriate bin, none of those three initiatives would be overly difficult.
Similarly, Phase 1 research participants indicated that conserving water and electricity on
campus are more difficult than the Phase 2 participants. A single student or teacher might indeed
find it difficult to install showerheads or change light bulbs en masse whereas a programme
coordinator may be able to coordinate those changes effectively.

The combined ranking (Table 5) was developed to see what the ranking would look like
when the Phase 1 and 2 responses were combined. (n=20 or n=19 in the case of recycling). The
results are very similar to the Phase 2 ranking with an interesting anomaly of putting up
birdhouses, which Phase 2 research participants thought should be more difficult.

Table 5. Ranking of initiatives based on a combined average of responses to questions
B14/B15/D7/D8 (How hard do you think each of the following initiatives would be to
implement. 1 is easy to implement. 7 is extremely hard to implement)).

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Phase 2 Ranking</th>
<th>Phase 1 Ranking</th>
<th>Overall Average (all responses)</th>
</tr>
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<tbody>
<tr>
<td>Going trayless in the cafeteria</td>
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<tr>
<td>Paper recycling</td>
<td>1.4</td>
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<td>1.4</td>
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<tr>
<td>Pop bottles and can recycling</td>
<td>1.4</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Arranging a guest speaker</td>
<td>1.5</td>
<td>1.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Collecting dead batteries for recycling</td>
<td>1.4</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Switching to non-toxic cleaners</td>
<td>1.8</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Collecting Organic Waste for composting</td>
<td>2.1</td>
<td>1.9</td>
<td>2</td>
</tr>
</tbody>
</table>
Overall the results suggest that none of the initiatives are perceived to be overly difficult and that there is reasonable agreement across the community and across institutions about how hard various initiatives will be to implement. This is significant in terms of planning and preparing effectively to implement initiatives. As observed in the case of the Phase 2 school with no access to recycling facilities, variations in location, access to services and other factors should be considered in the selection of initiatives.

**Question B3**

In the following section, I examine results and findings focused on Question B3 (Why do you want to make your school greener/more environmentally responsible?” (short answer)). The short answer responses ranged from a few words to a couple of sentences. Each of the responses was analyzed individually and then assigned general themes. The themes were then all listed and the process repeated. The five main themes are listed below according to the number of times they were mentioned listed in brackets after the theme. Following each theme is an example from the survey responses and the research participant identification number (E.g. P1-7 or Phase 1 research participant number 7).

- To model environmentally responsible practices (10 responses)
“To set an example for students to follow in their lives after school” (P1-7).

• To teach social and environmental responsibility (7)

“A fully responsible adult understands and values the environment and wishes to protect it. Schools must do all they can to help students see the importance of protecting the environment” (P1-3).

• Out of feelings of personal responsibility to act (7)

“It is important in order to make change in our world for all of us to do our part. An individual can make a difference!” (P1-4).

• To reduce the school’s footprint (6)

“Every effort to reduce our ecological footprint is important” (P1-9).

• To prepare students for the future (3)

“The work of a school is to partner with parents and the greater community to bring young people into full, responsible adulthood” (P1-3).

These themes are incorporated into the Phase 1 and 2 Interview analysis later in this section.

**Question B16/D10**

In the following section, I examine results and findings focused on Question B16/D10 (If there was no environmental programme at the school, what would be the first thing you would do to make the school greener/more environmentally responsible?)

Phase 1 and Phase 2 responses to question B16/D10 varied in length (from one word to multiple sentences) and content. The responses were grouped in themes and then identified by type (in italics).

Phase 1 responses:

• Start a recycling system (5) **Specific Initiative**
• Bring people together and start an environmental team (3) \textit{Building Capacity}

• Get rid of on-campus parking and plant gardens in their place (1) \textit{Specific Initiative}

• Conduct an environmental audit (1) \textit{Specific Initiative}

• Support students in their efforts to green the school (1) \textit{Building Capacity}

• Talk to administrators to generate support for a programme (1) \textit{Building Capacity}

Phase 2 responses:

• Start a recycling system (2) \textit{Specific Initiative}

• Bring people together and start an environmental team (1) \textit{Building Capacity}

• Run classes outside (2) \textit{Specific Initiative}

• Bring in guest speakers to inspire and motivate the school (1) \textit{Building Capacity}

• Increase awareness (1) \textit{Building Capacity}

• Talk to administrators to generate support for a programme (1) \textit{Building Capacity}

• Reduce consumption of disposable products (1) \textit{Specific Initiative}

• Start an environmental programme (1) \textit{Building Capacity}

• Focus on sustainable transportation (1) \textit{Specific Initiative}

Half of the research participants focused on specific initiatives while the rest focused on building capacity for a larger programme. There was no clear separation by age, position at the school, NEP or other factors. The repeated mention of recycling suggests this is a preferred first initiative at schools, potentially with the expectation that it will be a gateway to further initiatives. The focus on building capacity has long-term thinking in mind, beyond the scope of single initiatives. Splitting the question into “Which initiative should come first?” and “How should you start building capacity?” might have provided a more useful response.
**Question D9**

In the following section, I examine results and findings focused on Question D9 (Please list the most important environmental initiatives that your school is working on this year).

This question was posed to the Phase 2 research participants only. The responses are listed below in a summarized format. It should be noted that many of the schools have a range of existing initiatives so the responses here only provide a glimpse of what their focus is this year. The results should be taken as an indication of the scope of projects underway, alluding to the diversity of schools.

- Extending the recycling programme
- Composting
- Moving to zero waste
- Getting rid of bottled water
- Native plant gardens
- Gardening and Farm to School programmes
- Measuring and reducing emissions
- PV solar system
- Renewable energy

**Question D11**

In the following section, I examine results and findings focused on Question D11 (What is the one critical element that has made your school environmental programme successful?).

This question was posed to the Phase 2 research participants to determine if there are consistent critical structures, systems or efforts that affect the success of school environmental programmes. Responses were summarized and grouped into themes when appropriate. The
number of responses is listed in brackets after the theme. Some research participants mentioned a couple of themes within their response, which resulted in there being more responses than research participants.

- District and/or Administrative support (4 responses)
- Modeling (1)
- Persistence (1)
- Sharing and celebrating success (1)
- Whole community engagement (1)
- Involving youth in the design and implementation of the programme (1)
- Successful environmental club initiatives (1)

The relative importance of District and/or Administrative support is noteworthy. In four of eight responses this was considered a critical element. Interestingly, even though the sample size was relatively small, the list includes many of the elements mentioned in Basic Steps for Schools section of the literature review.

**Interview Results and Findings: Relating to Research Objective 1 (Individuals)**

In the following section, I examine results and findings from Phase 1 and Phase 2 interviews focused on Research Objective 1: *Explore how individual characteristics and experiences affect the success of sustainability initiatives within a school community.*

Within the area of individuals, a number of topics emerged from both Phase 1 and 2 interviews. The topics were grouped into two larger themes for the purposes of analysis: Significant Life Experiences and Situational Factors. Obviously, there is not actually a division between the two categories within our lives but the division is useful for analysis purposes.
Significant Life Experiences

The four sub-themes within the theme of significant life experiences are discussed further in this section.

The value of time spent outdoors connecting with nature

Many of the Phase 1 research participants indicated that spending significant amounts of their childhood outdoors was important to them or that the experiences of their childhood spent outdoors allowed them to remain grounded. Although the relative amount of time in each case was not quantified, the sentiment was relatively consistent. The research participants that mentioned they had lived in small towns or rural areas tended to speak more about the outdoors than those from larger cities, however this was not explored or discussed with all research participants. For some research participants the experience of exploration and discovery was most significant while others felt the resulting strong connection to place was important.

I had a very free small-town upbringing...Lots of time on the water. Lots of time roaming free, playing in the bushes, picking blackberries (P1-9).

You go for a walk through the woods down to the red banks, the red banks by the river, a walk through the woods. There are old railway tracks that are now jogging trails. These are the places where I always went... I think connection to the land is important. I think it shapes who we are and when we become detached from that we lose a sense of ourselves (P1-8).

These things are totally connected and they are not simple solutions. I think in order to get at that you need to have people having meaningful experiences within the environment, whether it is wilderness or not. Meaningful experiences with their local environments whatever those are, that’s the emotional component. The intellectual component is you have to do study this and you have to get beyond biases and stereotypes. (P1-8)

Phase 2 research participants echoed the preceding sentiments in their comments. When
speaking about the generation of students that they are teaching, one research participant lamented that this group will ultimately be responsible for looking after the planet and that they have no connection to the natural world.

*This is the generation that is least connected to the outdoors.* (P2-7)

*If you don’t care... you’ve got to care before you are going to do it. It’s got to be important to you before you are doing to do it. It’s about making connections.* (P2-7)

Accordingly, for that teacher it is critically important to help students make connections with the natural world. This sentiment is embedded in many of the programmes run by other Phase 2 research participants who strive to bring students outdoors hoping that it will foster a stronger connection. This echoes the perspective of author and journalist Richard Louv (2008), that there is growing recognition of the importance for children of time spent outdoors.

**Awareness of differences in lifestyle and behaviour**

Both Phase 1 and 2 research participants noted the importance of being aware of diversity in social backgrounds and behavior, both across cultures and generations. For example, several interviewees noted the difference between our current lifestyles and those of our parents or grandparents. They noted grandparents lived simpler, more conservation-minded lives although generally not for environmental reasons. For most, that lifestyle was borne out of the necessity of thrift, the legacy of living through much more challenging times such as the Depression or the World Wars.

...*if you’ve been brought up in the wealthy Western cultures, which includes the wealthy Asian cultures...there is no problem with starvation, there’s no problem with lack of quantity. Any amount of anything is available to them and it makes them, just like it makes all the adults, exceptionally careless.* (P1-3)

*We always had a compost but I think my Dad did that because he was a big gardener and it made for healthier soil material to grow from.* (P1-2)
The variation in behaviour and practice by region or country was also noted as significant. As the Phase 1 study school is an international boarding school with students from around the world, this is doubly important. A number of research participants shared personal experiences of working or living with people of different perspectives on sustainability.

My Mom’s pretty into the environment. My Dad’s going more towards it I guess. She lived in the park so she was used to the whole ‘no waste thing’. My Dad lived in [the city] so a lot of contrast. (P1-1)

[At home] you can recycle bottles and cans but that’s basically it. There’s not really a huge focus on environmentally friendly practices. (P1-5)

I guess there are a few people in my [boarding] house that don’t recycle. They just don’t do it in [Developing Country] – there’s one bin and you put everything in it. That’s a garbage can. So, they just don’t understand why we do it, why it’s important and they still don’t really do it... If you come from another country or place you just don’t have that knowledge so it’s kind of hard when you put them in a boarding school setting. (P1-1)

So, we didn’t want the [students] to go back to all their homes in the US and think that everybody needs to get a solar hot water heater because if you are living in [X] it’s not necessarily the best choice. It’s an awesome choice for [Y] but there may be better ways to be sustainable than solar hot water in [X]. So to be able to transfer your ideas and logically think about them in a new setting was something that we thought was really important towards the end. (P2-2)

These experiences were seen both as a challenge in terms of providing appropriate educating to help people participate in initiatives and also as an opportunity to learn about initiatives that exist in another region.

Regional differences may affect the opportunity for and success of a specific initiative, for example, the Phase 2 school which was located in a country with no recycling options. Accordingly, they have focused their efforts on zero waste rather than recycling.
The variation in individual experience also requires that education programmes, especially within an international school setting, consider a wider range of perspectives and experience. It was encouraging to hear the Phase 1 research participants talking about differences in practices within and between schools, not so much in terms of who did or did not do something but in terms of awareness and opportunity.

**Personal experiences with environmental loss or damage**

When asked where their motivation to work on environmental or sustainability issues comes from, a number of research participants spoke about significant personal experiences with environmental degradation or loss.

*Where I used to play is now a street with houses on it – the forest is gone. For me, the places being destroyed that I used to like when I was little. [For] my neighbors there has only been a street there for them. They have never seen it as a forest so I guess conservation is really important to me.* (P1-1)

*When we travel we see other countries and you see other places that don’t have recycling or don’t clean up and it really shakes you. In Tanzania there are these ubiquitous blue plastic bags, just like our grocery bags but they are blue, they are all blue... Well you see these blue bags everywhere, every street you drive down there’s blue plastic bags, in the ditch at the side of the road and there are millions of them... And you look at [the bags everywhere] and it just makes you really think more about recycling and so on.* (P1-7)

*You hear about global warming and climate change. It doesn’t really mean much to you personally but then when I guess the disasters that result from that it does. At home this year we haven’t had real rain since October, which is our dry season, but that’s really unusual.* (P1-5)

The preceding quotes exemplify the sentiments of many of the research participants. Almost across the board, the research participants identified an experience of environmental damage or habitat loss that resonated with them. These experiences are also a reminder of the
fragility of nature or the delicate balance. Touchstone experiences apparently provide a reminder, a motivation to continue to work on sustainability initiatives.

A number of the schools involved in this research project provide experiences with environmental damage or habitat loss for students and staff. One relatively simple example is the clean-up of a creek near a Phase 2 school. While cleaning up the creek, students became more aware of the impact of litter on waterways. Students and staff also had a sense of accomplishment as a result of cleaning up a section of the creek and subsequently sharing the results with the rest of the school. In this case the collected garbage was displayed in the school lobby as a reminder to others.

**Ethical development**

The combination of the preceding sub-themes (time spent in nature, awareness of lifestyle and behaviour differences and personal experiences with environmental damage or loss) are linked to the development of an environmental or sustainability ethic, the nurturing of which many of the research participants believed important.

*I just think we are destroying so much natural habitat.* (P1-7)

*Well I think it’s just the right thing to do. It’s like a moral compass or something like that.* (P1-2)

*First is the ideological part - just recognizing that we are a very wasteful as a species. I don’t think it is right and so when I don’t think something is right I generally work against it.* (P1-3)

Each research participant was observed to have strong core values, be it for habitat preservation, behavioural change or environmental protection or social issues. In many cases the strong ethical stance appears linked to their own upbringing, parental influences and learned values.
My mother in particular taught us to love and appreciate all life. She would freak out if we pulled up random plants or if we would squash bugs. (P1-10)

When we had our kids we showed them how important it was to us, and how each individual person and family has to make a change to make a difference. We’ve always tried to encourage them to do that. It has to come from the adults. It has to come from the parents. (P1-12)

I was raised from the cradle to think that I could, if I wanted to, have an impact on my life. I was also raised with the belief that if I saw something that needed changing I should change it and that my interventions would be successful if I did it right (P1-11).

As noted earlier, the development of an environmental ethic was mentioned within the survey responses of both Phase 1 and 2 research participants.

**Situational Factors**

The four themes within the broad category of Situational Factors are discussed further in this section.

**Knowledge and awareness of the issues**

It was readily apparent during the interviews with the Phase 1 research participants that they all have a solid understanding of environmental issues and that most have a grasp of the concept of sustainability. When asked what courses or workshops they had taken, the three students indicated that they were taking an Environmental Science course and had completed other courses such as Earth Science. Two of the adults, both young teachers, had taken undergraduate-level science or environmental science courses relatively recently. Another had attended a conference on sustainability. The remaining group stated that they had no formal education in this area. The research participants are generally what Rogers describes as *early adopters* (2003).

As the staff and faculty in schools are generally included in school environmental
initiatives such as lights out days, information campaigns and other educational initiatives they likely receive more information about sustainability than their peers in other occupations.

*I think that general awareness should be encouraged as well because though many people know about environmental issues, but they do not necessarily understand them or think about them during everyday life.* (P1-5)

*I just think that most decisions that I make I consider the impact that it will have. I know lots of people don’t do that and they just kind of do things or leave their lights on or they don’t really think about the bigger picture.* (P1-5)

*Even in the newsletters. Sometimes you see some information about what’s the school has done for this. All of that is just bringing awareness and I think that’s the key. Making people aware on a daily basis, Even if it’s just a little bit, you just stop to think.* (P1-12)

My general perception was that each of the research participants was actively seeking a deeper understanding and greater wisdom about sustainability as well as new opportunities to make changes within the school and their own lives. The preceding quotes indicate that the research participants would like to see increased awareness and consideration in many of their peers. The research participants feel the rest of the community does not understand or is not aware of the issues and that lack of information is the root cause of inaction. As noted in the literature review however, knowledge is not necessarily a good predictor of behaviour. This means that the research participants are focusing on a mechanism that may not be overly effective in inspiring action across the greater community.

**Motivation**

As discussed in the literature review, understanding motivation is one of the most important keys to motivating staff and students and removing obstacles or barriers that reduce or impede them.
I guess I’m kind of angry that things are disappearing. Things that I liked are disappearing. Even if I can’t get back what I lost I’d like to be able to keep other areas the way they are. So recycling keeps the landfills smaller, keeps more forests. Our landfill has expended by four kilometers. That’s four kilometers of forest gone for garbage. (P1-1)

I appreciate our outdoors and I don’t like seeing change to our environment. (P1-4)

Fear. I just think the data is shocking and my son is going to grow up in a carbon-constrained world... That was my wake-up call. (P1-11)

I am motivated because I think it’s the right thing to do and I think we have a huge responsibility educating this particulate demographic of kids. I feel a lot of pressure with that actually. (P1-9)

I just felt something needed to be done and that was more of a personal decision. I had just watched the Inconvenient Truth and that was very much in our consciousness and I felt more stuff needed to happen. (P2-3)

I like the environment and I want to preserve it for as long as possible. I’m quite scared of the impacts of climate change like rising sea levels, melting glaciers, temperatures going up because I think it could have a serious impact on the world later on. (P1-6)

As mentioned above, the research participants’ stated motivations for taking part in environmental initiatives range from a sense of fear and loss, to a sense of duty and responsibility. The variation in responses requires more research before anything conclusive can be stated. From the early adopters we can learn which experiences are pivotal in the development of motivation, and then design appropriate experiences and education for the larger population.

**Current level of activity**

While the Phase 1 research participants were originally selected as a result of their actions— they had each participated in some manner in sustainability initiatives at the school—
there is a notable difference between what they are actually doing and what they think they should be doing. On average they ranked themselves in the survey as more motivated than their peers but individually they felt they were not doing enough. When asked what initiative they have been most involved in, some had a clear answer while others equivocated.

“Well I guess I was responsible for getting the compost and the recycling set up in the [student run coffee shop].” (P1-6)

“Oh boy. I can’t say I’ve been terribly involved in most green initiatives at the school. Wow – I don’t have a good answer for that at all.” (P1-10)

“I’m a poser. I don’t know I’ve been most involved hands on.” (P1-9)

“Environmental initiative… I don’t know if I’ve been involved in anything that I would call an initiative. You know we’ve changed the photocopy paper, we sell green friendly things in the campus shop that we didn’t sell before.” (P1-2)

“My involvement is minimal actually. I just set it up and we made a duty schedule and the Grade 10s’ sort it every Monday night…” (P1-5)

“I haven’t done tons but I’ve done a few little duties.” (P1-4)

It is possible that the wording of the question about involvement in initiatives did not elicit the intended response. It is also possible that the individuals simply did not recognize or see their actions as ‘initiatives’. However, there is still a disparity between how the research participants see their work and how others see it.

Vision and planning for the future

Within the sub-theme of vision and planning are two elements; long term thinking and seeking or holding positions of influence.

Long term thinking

A number of research participants mentioned within the interviews the importance of long-term thinking.
We have to think long term here. Otherwise thinking of our generation or two generations seems very short-sighted... To really think about the people you have to think in a bigger time picture and if you take care of this land [thinking in] centuries then you are taking care of billions and billions of people instead of the person in the moment of crisis. (P1-10)

I feel like the only way I can be here is to on a daily basis acknowledge that we are such a privileged group of people and so with everything that we do I just really feel this responsibility to make sure we are doing are best to make sure we are launching these socially, environmentally responsible people that aren’t just that fortunate 1% of the population that can go out and consume and drive their Hummers. (P1-9)

According to the research participants, we need to think well beyond this class or this school year. This consideration of long-term impacts is one of the tenets of sustainability. Incorporating longer time horizons into our decision-making processes, curriculum and school operations was considered to be critical to the respondents.

**Seeking or holding positions of influence**

As Meadows (1990) notes in *Leverage Points*, there are a number of important positions within in any organization that may be more instrumental in affecting change. The people who occupy these positions or who manage those systems are instrumental in determining the course of the organization and also the rate of change.

* I guess because I have a little more control over some of these departments than [others] so I have more opportunity to be involved...Maybe I just have a little more control over influencing people to do things. (P1-7)

* At the moment I don’t have [a role] because I feel not included in the solution. (P1-11)

* I don’t know if I have a job yet but I got into the programme so I’ll send my resume to other places. I thought that was pretty cool as I get an opportunity to work and learn more about it. (P1-1)

The individuals in the Phase 1 group hold a number of key roles at SMUS and so their
success with sustainability initiatives may have had a larger impact than if they were in less influential roles.

**Interview Results and Findings: Relating to Research Objective 2 (Institutions)**

In the following section, I examine Phase 1 and Phase 2 interviews results and findings focused on Research Objective 2: *Explore how organizational characteristics, structures and systems affect the success of sustainability initiatives in educational institutions.*

Within organizational characteristics, research participants discussed a number of topics, which I have divided into four main themes; modeling sustainability, teaching sustainability, roles within sustainability and sustainable school communities. In the section below, the themes and sub-themes relating to organizations are discussed.

**Modeling Sustainability**

Over time I came to understand some of the complexities represented by the boy who preferred electrical outlets and the poet who had lost her special spot in the woods. I also learned this: Parents, educators, other adults, institutions – the culture itself – may say one thing to children about nature’s gifts, but so many of our actions and messages – especially the ones we cannot hear ourselves deliver – are different. And children hear very well. (Louv, 2008, p. 14)

Louv’s sentiments are appropriate here as one of the key organizational characteristics noted by the research participants is modeling, be it modeling sustainability or modeling sustainable behaviour. For sustainability to really take off in a school, participants felt that sustainability initiatives need be visible, transparent, genuine and broad.

*[It’s] really important for the school to take a position of public support and to be proud to stand up and say we are trying these things and we know it’s valuable to do this.* (P1-3)
I think that schools that aren’t making sustainability a big, big deal are really… I couldn’t send my own child to a school like that so that’s another motivation. (P1-9)

Within the theme of modeling sustainability, the following sub-themes emerged: cross-community modeling and perception of support, adult involvement and role models, and practice supported with school commitments.

**Cross-community modeling and the perception of support**

As noted by Shriberg (2002b), Director or Principal behaviour can have a significant impact on sustainability within school community. Their efforts can truly bring staff or a school together under a common cause or theme. Thoughtful leadership in sustainability provides a clear, public statement of school values, a backstop to teachers and helps provide students with an understanding of what their educational trajectory will be. Perhaps most importantly, it can also provide a sense that everyone is involved in sustainability, not just the students.

*Administrative support would make a huge difference. If a Principal said to the staff, this is what we are going to do, rather than a teacher having to convince the other staff members.* (P2-6)

While the actions of the Director are important, as noted above, the support should come from other directions as well. An individual that perceives support and enthusiasm for a project from individuals that they like or respect is far more likely to participate (Jackson, 2005).

*I have found [my boss] to be incredible supportive of anything that makes sense, that is practical or environmental. He has been very supportive of ideas. I can’t think of a time when he’s cut down an idea that would be beneficial either environmentally or economically or something like that. So, I don’t know if that’s the question but I get the support from [my boss] so I feel encouraged to make the initiatives [happen] and to push people in various directions.* (P1-7)

*This is the kind of school that could do it. It could be a small project at first, we may be talking about five to ten years but this school could do it. Other schools couldn’t – this*
one can. (P1-3)

I know [the Director] is interested in trying to make things greener because I know [them] pretty well and I kind of figure [they] would be into that... So I feel like it’s pretty accepting if we do have ideas they might actually try them. (P1-1)

Well – I have a lot of autonomy so I think from [my boss] there is a big trust factor. So I just do what I do and if I feel like say dollar-wise it will be significant then I’ll have a conversation with them and at the end of the day they are usually supportive of that because it all makes sense. (P1-2)

The synergistic effect of cross-community modeling is powerful, creating a situation where individuals across the community feel empowered to work towards broad community goals in their own individual way.

**Role models and adult involvement**

Connected closely to the theme of cross-community modeling is the importance of role models in the development of socially appropriate practices. As noted by Jackson (2005), we typically choose to model the behaviour of people we like and or want to associate with. For example, parents typically support and maintain relationships with people that they feel are good for their own children’s development. A number of research participants noted the need for continuing support and adult role models that encourages children to develop a sustainability-focused ethic.

*If it becomes part of the school’s life, being involved and conscious of environmental issues, trying to recycle, trying to cut down on emissions, electricity all of that... and they make it part of their everyday life, it’s just going to be part of our kids.* (P1-12)

*In order to have our kids graduate and feel confident that they are doing their part for the environment, the school has to be the model and I think you guys are doing an amazing job.* (P1-12)

*I think we also have a [Director] who is aware of all the philosophical implications of*
these things for the lives of young people in how they grow and develop so he’s supportive. I mean, somebody has to sign that budget line. And obviously we have Board members who are supportive because we wouldn’t be able to do the things we are doing unless the board was saying ‘yes, this is good’. (P1-3)

I said I’d just like to know what we are doing. Nobody would tell me. There was no way I could get any information about that and I wasn’t prepared to make a big fuss to get information about a project that was already accomplished. If felt very un-transparent to me... But now I’m told it’s quite an environmentally sensible building but still nobody has given me any details. I don’t understand why we wouldn’t be transparent about that – I just don’t get it. (P1-11)

I think role modeling is really important. So if we are talking about these things in the classroom, if we are talking about service or talking about sustainability, we, at the school, have to be doing that stuff. (P1-8)

Building on the concept of role models, the importance of adult involvement should not be underestimated.

When we had our kids we showed them how important it was to us, and how each individual person and family has to make a change to make a difference. We’ve always tried to encourage them to do that. It has to come from the adults. It has to come from the parents. So we’ve always been involved. (P1-12)

But I really believe that teachers teach by example and it doesn’t stop in the classroom whether you want it to or not. (P1-10)

Adults are able to ensure the experience is appropriate and likely, with a reasonable amount of effort from the student, to have a positive outcome. The key is the direct involvement rather than just permission or encouragement-type support from adults. Students noted that they appreciated the involvement and hands-on participation of adults. Moreover, they seemed to enjoy the process more when adults, or in the boarding school case, when boarding staff, worked with them on initiatives.
Also the [boarding staff] helping you because you don’t have funds and you don’t have transportation to bring things back. It makes it hard to do anything because you can’t get there. It’s not easy. I guess having adult support and help was really helpful. (P1-1)

There has to be passionate teachers that drive [initiatives]. (P2-1)

The participation of adults also shifts the activity from a student experience into a community experience that is much more in keeping with the cross-community modeling practice noted earlier. Rachel Carson echoes the need for and benefit of adult involvement in activities:

If a child is to keep alive his inborn sense of wonder … he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in. (Carson, 1956)

School sustainability policies and missions

While many of the larger institutions, such as colleges and universities have official sustainability visions and policies, this is not generally the case for most grade schools, whether they are public or private.

Most schools don’t have environmental policies. My background is not in policy but now I’m seeing how important policy can be. It shifts people’s mindsets and sometimes you are forced to make changes and then it becomes part of the norm. (P2-6)

I also think that having a [broad] policy would make everybody more aware [that] the school is trying to make this shift. Because right now probably parents, because there is no policy, those parents who aren’t as involved, it’s not even in their head. But if they get something saying that SMUS has now adopted this sustainability policy or environmental policy and we are trying to you know..., then it just becomes more part of the school… (P1-12)

... having those policies in place means that it becomes unacceptable. So, it does change attitudes. But for those who it doesn’t change, it doesn’t matter because there’s a policy
in place so it’s happening anyways. (P1-8)

[Policy] provides that framework that allows a clear indication of institutional commitment. Sustainability has been important here for 10-15 years. We’ve had people doing good things relating to sustainability along the way, some of it through their own initiative but [policy] provides the institutional backing. (P2-4)

One Phase 2 research participant felt policy was a more effective way of starting the sustainability process than through non-integrated projects or initiatives. In their case, they developed the mission/vision and then began working on initiatives that supported the mission/vision. Most schools, however, begin with student or staff-promoted initiatives that build momentum and interest. This research does not explore the benefits of one trajectory over another, other than to suggest that at some point the development of policy appears to be a sensible process to clarify and solidify the goals of the programme.

Teaching Sustainability

There was significant discussion, especially among the Phase 2 participants, about pedagogical approaches and curricular opportunities designed to support education in sustainability. The following sub-themes emerged as the recommended mechanisms or opportunities to teach sustainability.

I would hope that by the time they have graduated and they are adults and they are looking after a family and venturing into their world that everything they’ve learned from SMUS about the environment and such, it’s just become part of their life, they don’t even think about it. That’s just what they do. I know that can’t just come from the school, it has to come from the family as well. (P1-12)

We have it incorporated into our curriculum where every teacher has to put outdoor education and environmental sustainability into their curriculum guidelines, so I guess it’s part of everyone’s job. (P2-1)

At the end of the day wouldn’t it be nice if a graduate of our school wasn’t just concerned
about AP course but they are concerned about: What do I know about sustainability? What do I know about outdoor education? How much did I learn in Service Learning projects? (P2-1)

**Successful, age-appropriate experiences**

A number of responses focused on initiative choice and the need to make experiences age-appropriate.

*You’ve created such interesting initiatives for our kids with your E-team and your greenhouse. The kids just love that and I think the more that they are exposed and the more that we are exposed because it’s all, I mean, I’m learning so much about what you are doing out there because it’s just wonderful.* (P1-4)

As with all curricula it is important to consider the age and ability of students when selecting educational experiences. This ensures that students have experiences with success rather than floundering with an experience that is beyond their ability.

At a younger age, relatively small, simple steps are the key. This should ideally include play and could take the form of recycling, planting trees or a participating in a litter free lunch programme. At the Middle School level, there is increasingly more opportunity for engagement. Students of this age might be responsible for supporting and maintaining a recycling system or participating in programmes such as Eco-Rowing, which was revered by a number of Victoria-based Phase 2 research participants. A school garden project has been successful in the Phase 1 study school for providing hands-on opportunities that involve planning and responsibility.

The high school level can be more challenging as students are more aware of complex issues, such as climate change or facilities level but they are not in positions where they can manage it or affect change. While they may want to make changes on a facilities level, they may not appreciate the institutional process or timeframes for change on a facilities level.

As noted earlier, participants noted that it is not reasonable to expect students to be
ultimately responsible for critically important projects that they may not be able to manage effectively.

*We did not expect our teenagers to lead us into World War 2. There was no expectation that they would do that and we don’t have the right to expect them to lead us into this one either [dealing with climate change]. We made this mess. We have to take leadership cleaning it up. But there is this expectation that if you are going to change something it has to be student led and I think that is a serious flaw.* (P1-11)

*Having an environment, where our children are being educated, that is environmentally responsible ensures and teaches them what is necessary to make this world last for generations to come.* (P1-11)

The mantle of responsibility for dealing with CO₂ emissions on a school level should remain on the shoulders of the adults. It is however incumbent upon the school to share with the students the efforts being made at that level, thereby fostering a connection between students and the process of emissions reductions.

*Provide hands-on powerful experiences that generate touchstones and reminders*

As noted in the interviewees’ comments about factors relating to *individuals*, there can be an enduring legacy of personal experiences with environmental loss or destruction. For some participants, these experiences appear to become a touchstone or guiding reminder that stays with them for years.

The Eco-Rowing programme based at Royal Roads University is an example of this and the format of that programme has been borrowed and incorporated into a range of outdoor programmes at other schools, including SMUS. The activity is effective simply because it provides multi-modal contact with a specific location. Within the day-long activity, students learn to row or paddle, they explore the site through scientific observation (measuring salinity, pH, viewing organisms under microscopes…) and do the same through art, drawing or sketching.
The experience causes the participants to consider the location in a number of ways, allowing them (primarily Middle School students) to connect in a more comprehensive manner than they ever could in the classroom.

*I think experiential learning, if done properly, is where meaning really is. It’s what it’s all about. It’s not just about the school – it’s about – this is what living is. So experiential learning for me is ‘How do kids really learn?’ and ‘How do they really experience the world and learn from that?’ It seems to me it’s important to get out of the classroom and actually have real world experiences.* (P1-9)

*When I hear 300 tons of CO₂ - I don’t know what that means. I work much better with a model or an image or even acting it out – what are the molecules doing. How much is it helping? What does the quantity mean? We are not making things relevant at all. It’s so abstract.* (P2-6)

*I think connection to land is important. I think it shapes who we are and when we become detached from that we lose a sense of ourselves.* (P1-8)

*If you don’t take time to stop and talk about it and sit calmly and reflect about what you just experienced then it’s just, I don’t think it’s ever not worth still doing but the level of meaning is just not as deep because you are just exposing the kids to something and then they have nowhere to package it.* (P1-9)

The ability to create powerful experiences for students that foster personal connections on a personal, physical, emotional and intellectual level is the overarching goal. To do so, however, takes well-supported and passionate teachers as it falls outside the realm of traditional classroom teaching and is more challenging to organize and support.

*Teaching an ethic of sustainability*

One of the goals of education for sustainability identified in my literature review was “to help students develop an ethic of sustainability”. Many of the leadership curricula mentioned by Phase 2 research participants stress the importance of developing an ethic. In the case of SMUS,
their Leadership Programme was established to provide students with authentic experiences in leadership for all students: “Leadership is a process of engagement which moves people to understanding and action in an environment inspired by trust” (St. Michaels University School, 2010).

Having an environment, where our children are being educated, that is environmentally responsible ensures and teaches them what is necessary to make this world last for generations to come. (P1-11)

Although we have a course in AP Environmental Science, we also need a course in applied environmental science, which would revolve around credit for action, not credit for study. (P1-3)

The work of a school is to partner with parents and the greater community to bring young people into full, responsible adulthood. A fully responsible adult understands and values the environment and wishes to protect it. Schools must do all they can to help students see the importance of protecting the environment. One way to do that is to model environmental responsibility. (P1-3)

Leadership as an ethic; leading by example both of myself and then to students and then to the world; Give students an experiential model of being in a place where this is an ethic. (P1-11)

It doesn’t make good people who can just destroy things whether it’s a friend or whether it’s… I’ve always been a loyal person so I think that’s kind of continued on in wanting my children to be loyal to the earth. (P1-9)

**Sustainable School Communities**

This section on sustainable school communities discusses efforts that can be made to bring a school community together around sustainability. This collaboration and cooperation can break down silos that may have developed and connect staff, students and parents in a common goal.
Synergy and collaboration

Key to the development of synergy and growth of sustainability across the community is the need for open and clear communication. As shown below, this was a major discussion topic in the interviews.

*It was something that came up in our conversation. We were just talking about it and at first we thought it would never fly because the schools wouldn’t want [to share bus services] with their competitors but we never felt like competitors… So I said let’s float the initiative to our respective heads about combining services… and they were all for it so he and I put the deal together.* (P1-7)

*The more people learn things, the more they pass on the knowledge then it spreads and I think there is a movement going where people are saying we can’t just sit anymore and not do anything.* (P1-4)

*First of all it’s fun to share projects with friends whether the project is your baby or not. It doesn’t really matter. The cool thing with most volunteer initiatives, you are working with people who are like-minded which is an important part. They have like-minded people gaining enthusiasm and the whole thing gains momentum because of people’s interest and their relationships and that’s a powerful thing. If it’s just up to the individuals, the ball rolls while that individual has a head of steam and then it peters out after a while. I like the community of it.* (P1-10)

*I feel like grade 10 was probably better because there were more grade 12s involved because it was a leadership thing. But this year I’m the only grade 12 person – it’s hard to have a bigger influence when there is only one of you.* (P1-1)

*I just can’t believe that a bunch of like-minded people exploring ideas together and actually having experiences in the outdoors cannot change how you think about the environment.* (P1-8)

An example of positive change from SMUS identified by one of the participants was the trend at the Parents Auxiliary’s staff appreciation luncheon (held in June 2010). Unlike previous years, the dishes made this year by the parents used local or organic ingredients.
**Sustainability as a bridge**

Among the research participants there was concern that a division could develop between environmental and social initiatives. A classic example mentioned by a Phase 1 research participant is the tension that exists in a community needing jobs and economic development but also worried about the impacts of that development on their land, water and air. The following comment from an early interview exemplifies the potential for division within a school.

[Certain cultural groups] don’t care particularly for the environment. I think they don’t really know what the consequences are. It’s not to say they aren’t socially minded. They are passionate about starving children and war and stuff but they don’t really know much about environmental issues and what the impact is, I feel. (P1-6)

The comment was discussed in subsequent interviews and elicited a wide range of responses, some of them quite passionate.

You are putting it into an either or. That’s false. It’s not like you save the bear or you save the person. No it’s not like that... (P1-8)

How do you make people see and understand that our environment is us and that what we do to it is going to have ramifications? (P1-8)

The environmental movement has historically been a pretty white, middle-class movement and that needs to change. The social movement is about people but the environment serves people. Without our environment we don’t exist. We are nothing. They have to be connected. We are, and I think we forget this, are natural, we are part of nature. (P2-6)

You can’t look after the environment without a concept of sustainability. You can’t separate the two. You can’t deal with poverty in the world if you are not dealing with climate change.... They are absolutely all connected. I think the importance is sustainability. To me that is the most critical piece. (P2-5)

There also needs to be a balance in communities. Some people put their energy into social, some people put their energy into a health economy, some people put their energy...
The preceding comment illustrates the potential for discord that can develop without the umbrella of sustainability. Within a school setting, the challenge to incorporate sustainability is really about a school’s ability to encourage a holistic and comprehensive understanding of issues. Using sustainability as the umbrella term reduces the chance of marginalization or isolation of any one of three elements (social, environmental and economic). The connections between the three elements are critical. There is no entirely environmental initiative, nor is there an initiative that is entirely social. There is always a connection and that connection is actually what will bring both the social and environmental facets into greater harmony and balance with economic pressures.

Sustainability also allows the entire community to participate in a type of initiative that appeals to them personally as ultimately they are all working on the same big puzzle, but from slightly different angles. It allows one person to work on homelessness and another to work on habitat preservation and both feel like they are not competing.

Roles Within Sustainability

The types of roles within the sustainability initiative in an educational institution were discussed at length with many of the research participants.

Official responsibility

The research participants were asked the following question: Is sustainability or environmental education officially part of your role or position at the school? The question was modified in some cases to ask whether there was mention of sustainability in their job description anywhere. For most, the answer was negative, and so the follow-up question was: What about unofficially? Both questions yielded varied and informative responses.

Unofficially it’s part of everyone’s job and nobody’s job which is part of the problem. In
a way we are all responsible for it and in a place like this our job is to educate which to me includes things like educating kids on things like sustainability and living a life that can be supported along with billions of others. But for others their job is simply to teach the subject that they are here to teach and it does not extend further. (P1-10)

We chose as a school to put the bins in every classroom so that every kid, every teacher is partially responsible. They are part of the solution and I think we did get really good buy-in through that. (P2-3)

It’s not written in the job description so if that’s what official means it’s not officially a part but essentially if you look at the Ministry of Education documents they do require that officially all teachers be environmentally aware and be in support of examination of ecological and environmental ideas and theories. (P1-3)

Only a small segment of the Phase 1 research participants had any official responsibility or role in the promotion or support of sustainability at SMUS. Each of the students indicated they had an official role such as managing the recycling system within their boarding residence. Of the adults, only one had an official capacity, which was to generally support and promote the sustainability initiative within the school. The remaining group indicated that they had no official responsibility.

Most research participants indicated that they had an unofficial responsibility, typically grounded in a personal interpretation of Ministry of Education practices, general school best-practices, a sense of duty or responsibility or a perceived role from the school or boss. This finding is potentially significant in the support and design of sustainability initiatives as it indicates that keen individuals are seeking ways to legitimize their actions.

**The role of a point person**

What appears initially to be in contradiction to the request for a collective responsibility was the importance that the Phase 1 research participants placed in having a *point person* driving initiatives and being a spokesperson for the sustainability initiative.
And you have to have a champion that knows about kids and it's probably more important to know about kids than it is to know about management or budgets or organizational things because the bloodstream of the school is its students. (P1-3)

Kind of because I am the head of sustainability in my house so I guess I think it’s really important that people really understand recycling or environmental reasons why you turn the lights off or why you do certain things. Explain to them so they know and making sure people know what we are trying to do and to encourage more environmentally friendly practices - take the bus and that sort of thing. (P1-1)

I think a lot of information you’ve given us in our assemblies and things that you’ve talked to us in our staff meetings...That’s probably why it’s more awareness because you’ve brought things to the school and said this is our plan and you’ve made really easy steps for us so I think as a group we all work together so that’s more my feeling on that. (P1-4)

Research participants felt this role was key as it provided a clear message to the community. The point person is also a consistent conduit of information about the larger initiative and the go-to person for other individuals with questions or ideas. In terms of effectiveness, the point person should be connected to all areas of the school community.

The current model in many schools has a point person as the spokesperson as well as doing a large portion of the work supporting various initiatives – a generally unsustainable role.

Need for a staff sustainability committee

A number of Phase 2 research participants noted the importance and usefulness of having a Staff Sustainability Committee.

I’ve been the lead person on a lot of this. I think every initiative takes one person to spearhead things but I think I need to, it would be a good thing to create a team of people to support one another and no one gets burned out. People to bounce ideas off one another. A staff green team. (P2-3)

What we have is a Staff sustainability committee that’s outside of our jobs. That staff
sustainability committee does operations, our facilities people are on it, our Directors, teachers are there. (P2-1)

We created a sustainability advisory committee. A committee made up of students, faculty and staff that advises [administration]. (P2-4)

Increasing the number of people involved in steering sustainability initiatives allows for more collaborative decision making processes and shifts the responsibility from one individual to a more diverse group. This may also result in the selection and implementation of initiatives that are better match for the school and ensures there is more diverse support for an initiative from the outset.

Providing support to the point person and key individuals

In keeping with the discussion about burn-out and official responsibilities, the Phase 2 research participants stressed that some manner of support be provided to key individuals.

You need some money attached to these things. Whether it is through release time for your teachers to get together and learn things, whether it is through professional development workshops for your teachers to go to, whether it is money to start up your composting project. Again that comes from centralizing it. If you centralize it then everyone owns it as opposed to ‘It’s our project in the back room that we’ve been doing for the last 5 years’. (P2-1)

If it’s up to individuals, the ball rolls while that individual has a head of steam and then it peters out after a while. (P1-10)

[Administration] have been supportive of me and my students [in the school green team]. They really want to see this happen so they are willing to give me release time. They are willing to facilitate assemblies or whatever else. (P2-3)

As noted, this could be in the form of teacher cover, spares, additional compensation, professional development, official recognition, a lighter teaching load or freedom from other responsibilities such as supervision or coaching. Without some sort of mechanism to balance the
load for staff (and students for that matter), the sustainability programme will always be fleeting and secondary to official responsibilities. Individual passion can only be maintained for so long.

**Interview Results and Findings: Relating to Research Objective 3 (Initiatives)**

In the following section, I examine Phase 1 and Phase 2 interview results and findings focused on Research Objective 3: *Explore the success and effectiveness of specific sustainability initiatives within educational institutions in terms of significance and complexity to implement.*

As noted earlier, Research Objective 3 explores sustainability initiatives in terms of significance and complexity to implement. The intent is to help educational institutions prioritize initiatives, making the most effective use of resources by targeting the low-hanging fruit and avoiding initiatives that have low success rates or limited effectiveness. Within the surveys, Phase 1 and Phase 2 research participants were asked to prioritize a list of common sustainability initiatives based on two variables: significance and complexity (see Research Objective 3 in the introduction for explanation of these terms).

The interview results, which are discussed in this section, provide a rich perspective on sustainability initiatives. Phase 1 research participants were typically involved in a small number of initiatives. The Phase 2 research participants were, for the most part, familiar with a wider range of initiative and as such generally had a broader perspective. As discussed earlier, the results of survey questions B14/B15, D7/D8 should not be interpreted as the route for a school but rather as a travel guide. Difference between schools may mean that a specific initiative is well-suited to one and best avoided at another. The two main themes that emerged from the interviews are selecting initiatives and supporting initiatives.

**Selecting Initiatives**

One of the two main themes that emerged from the interviews is the thoughtful and
considerate selection of initiatives. Within this theme a number of sub-themes emerged.

**Fostering connections**

Participants identified *fostering connections* as a key factor in increasing participation in sustainability initiatives.

*How do you make people see and understand that our environment is us and that what we do to it is going to have ramifications? For those of us that life in a lot of privilege, a lot of affluence, it’s really difficult and if we live in an urban environment we are separated from it. It’s really difficult because it becomes fairly intellectual versus emotional.* (P1-8)

*The environmental movement has historically been a pretty white, middle-class movement and that needs to change. The social movement is about people but the environment serves people. Without our environment we don’t exist. We are nothing. They have to be connected. We are, and I think we forget this, are natural, we are part of nature.* (P2-6)

*So the emerging wisdom is that we have to start where people are at. It’s a fundamental rule of popular education, education for social change that you start where people are at, not where you want them to be. I don’t want to worry about one frigging bird or a park. I want to worry about the planet but if you are into recycling I’ll meet you there.* (P1-11)

As noted earlier, strictly environmental initiatives may appeal only to a small segment of the population. For those who feel environmental initiatives are just about “trees, bugs and bears”, explaining how environmental degradation or habitat loss can impact human health or their own wellbeing may motivate them to participate.

**Planning and designing initiatives**

Planning and design were identified by several participants as being critical to the success of sustainability initiatives. The key areas suggested are below.

*Cost/Benefit analysis using triple-bottom line process*
Research participant P1-2 brought up sustainability accounting. In the interview we discussed the three pillar model of sustainability as the commonly used definition (Adams, 2006). This model is generally combined with a cost-benefit analysis which considers the financial, social and environmental costs and benefits of a decision.

*I think you have to do a bit of a cost benefit analysis like you’ve done with your things. Like with the paper – it’s not so much but here’s the payback time and here’s the reason why it’s so environmentally friendly and here’s why the school should do it. You can’t be hypocritical.* (P1-2)

In that case, the participant’s school was looking to switch to 100% post-consumer waste paper. Calculating the financial costs of making the switch was balanced with the expected environmental benefits. While economic costs are often easier to calculate than the social and environmental costs and benefits, the cost-benefit analysis mechanism is relatively simple and easily understood by the entire school community.

*Building simple, resilient, stable systems*

A number of research participants noted the importance of designing simple, stable systems.

*If the structure is in place then I think everyone is on board but we are so... kids here are so busy that given the easy way on something like that, that they have no personal passion with or a connection they are always going to make that easy choice. Just turf it. Someone will pick it up.* (P1-10)

*I think the recycling was quite successful but the composting wasn’t really successful because people kept putting all sorts of stuff, they basically treated it like a second garbage can and then I put up a few signs and it didn’t really help. Well, it became more less like a garbage can and more like a second recycling can but that wasn’t the purpose of the compost bins.* (P1-6)

Using the example of recycling, the ideal situation is for a recycling station to be clearly
labeled, easily cleaned and appropriately sized. If there are multiple stations, they should ideally be identical to reduce confusion. If the signs are not clear or the system changes people will struggle to participate correctly resulting in frustration for them and for the people responsible for sorting the recycling.

Additionally, the system itself needs to be enduring and resilient. If the work falls to a single individual who is overworked and underappreciated, the system will fall apart.

*I think it would [continue]. People are pretty into routine. I guess if no one made the recycling schedule then that would be bad as no one would take it out but I think it would work. If I leave next year I think there are people who will.* (P1-1)

Although specific to recycling and organic waste collection, the element of cleanliness and cleaning is worth considering thoroughly.

*I feel like I don’t compost nearly as much as I should and it’s a daily irritation of mine that I don’t. But I hate fruit flies so I am balancing those two.* (P1-9)

Careful planning of cleaning rotations or education programmes will help avoid strong negative reactions to odors or fruit flies.

*Remaining flexible while not losing sight of the goal*

Careful planning of initiatives is critical to their success. In doing so barriers can be navigated, areas of support identified and so on. It is also important to design in an element of flexibility.

*We had a guy here yesterday for the printer audit and he was quite surprised without saying it that we were using 100% recycled paper and right away he wanted to know if we had any issues with the printers or copiers. We did. When we started the change quite a few years ago there were quite a few issues. You remember it was off colour. And then the way the copiers and printers work then was different than now so we had some heat issues so I think the paper quality has gotten better... I think it went really well from my end anyway. We went to 60% content, I think there may have been one in*
between, and then when the 100% content became available at a reasonable price because it was out there but it was astronomical we just started to bring it in, tested it in different machines and away we went. (P1-2)

The things that I would have liked to have seen when we started are still things that I think are important. As we’ve gone through it I realize to fit into this particular institution there are compromises that have to be made as there would be anywhere. (P1-8)

You can’t just wake up and change them but like the store, you feel sort of bad about it but I’ve got to sell the old inventory, you can’t just throw it all out. You’ve got to go through it and there’s a bit of education. This pen may now cost fifty cents more or whatever it is. You know the change is gradual. (P1-2)

When an initiative is being implemented it should be thought of as a process of implementation, a journey. While there is a goal or destination, there are generally tweaks and changes that need to happen along the way. A rigid system may not allow for a natural fit where a fluid or more dynamic approach will be more resilient in the long run.

Thinking long term

Participants brought up the importance of considering the long-term costs and benefits of initiatives. While some initiatives may be one-offs, or simple switches in practice, many have the potential to continue running for years. Examples of continuing projects include recycling systems, ongoing facilities upgrades and stewardship projects such as adopting a local stream or park.

Buildings and grounds

Participants suggested that buildings and grounds are critically important examples of sustainability within a school community as they involve each of the three pillars of sustainability. Socially, building design which includes well-lit, well-ventilated spaces positively impacts our health and wellbeing (US Green Building Council, 2010). The environmental impact
of a building is connected not only in the selection of construction or renovation material but also
to emissions resulting from heating and cooling. Financially, buildings represent a major capital
investment and ongoing operational costs.

*I think that with a lot of schools there’s budgetary constraints so it’s difficult to
sometimes do major retrofits or so and so. I always think when you are doing something
new or when you are buying something new, when repairing something, when you are
doing something that you have to do anyway then think about how you can do it in an
environmentally friendly way. If you look at the science building, to retrofit a green roof
on the science building is cost prohibitive but if you are going to build a new building,
hey, built it in.* (P1-7)

*I think the school has come a long way environmentally in the last two years. I think
there’s a lot further to go…. Whenever we start building again I hope that takes more
prominence. I think that with [building X] we sort of dropped the ball there but that’s
easy to say because you know it all costs money. But there are some paybacks anyways.
Hopefully that next building, it would be great to see something like that. Off the grid
sort of thing, the next building that being a priority, after the use of course. Because
eventually you’ve got to back it up.* (P1-2)

*And it’s just a way for an institution to walk the walk. I get frustrated. I can be critical
of [building Y] and if I was a kid I would be ‘wow, we are sticking bricks in our toilets to
try to reduce water consumption or we are trying to reduce energy consumption” but you
guys didn’t put the proper windows in.* (P1-9)

As noted by the participants, building and construction are a very important part of the
sustainability plan of an educational institution. A poorly designed building may result in
inefficiencies that increase the operating costs over the life of the building. Retrofits are more
costly and generally less effective than designing it right the first time. Perhaps most
importantly, the impacts of shortsighted decisions remain for the life of the building.

*Consider legacy or enduring projects*
The participants encouraged enduring projects that extend beyond the timeframe of a class or a semester. One Phase 2 research participant explained that their school has specific support for legacy projects, allowing one class to leave something for the next cohort. Students at SMUS have also participated in ongoing initiatives including becoming stewards of a local park. Similarly, the graduating class gift to SMUS this past year was to plant fruit trees on campus.

The general feeling of the participants is that initiatives are more powerful if they last longer than a single class, a term or a school year. Through legacy projects and enduring initiatives we are teaching students and staff to think differently about time, to think long term, to think about what we will leave behind.

Supporting Initiatives

Within the theme of supporting initiatives, three themes emerged: building capacity, providing incentives and support, and education. Each is discussed further in this section.

Building capacity

Research participants identified a number of important steps that need to take place to build capacity and generate support for a specific initiative. Some of this has been discussed earlier in terms of synergy. This is especially important with initiatives that have high visibility or ones requiring a behavioral change from a large group.

There is much to be gained from highlighting or sharing existing examples of sustainability within schools. Whether it is a recycling programme, a bike to school programme or a facilities feature, the public reminder or presentation of successes can provide support for further initiatives or an incentive to push forward with new initiatives. Similar to the perception of support that an individual can feel from a coworker or Director, the visible presence of
sustainability initiatives provides a springboard for further initiatives.

*What I’ve seen is if you hook someone in with something... Let’s say it takes years for recycling, if you’ve hooked them in with that and it’s taken years the next thing should go faster because you’ve changed a mindset.* (P2-5)

In the case of SMUS, the first recycling station in Middle School was then used as an example for the rest of the school, leading to the duplication of the system in all three schools and in the boarding houses. Similarly, collecting organic waste in cafeteria led to another initiative, getting rid of trays in the cafeteria and then to a focus on local and organic food.

The study school’s participation in the Green Schools Alliance’s *Green Cup Challenge*, although unsuccessful in terms of electricity reductions, was tremendously successful as a mechanism to talk to students and staff about their own behaviour as well as new initiatives. The participation in that programme led directly to the installation of meters on each of the buildings allowing for further isolation of energy use in each building.

**Provide incentives and support for staff**

Research participants noted a benefit in providing extrinsic rewards to staff, faculty and students who participate in initiatives. Ideas of this sort included providing food for staff participating in sustainability meetings and prizes during Bike to Work Week. One of the Phase 2 participants works at an institution that provides a more comprehensive reward system. Staff and faculty who choose to bike, walk, carpool or take public transit to school receive rewards such as outdoor store gift certificates, luncheons, bus passes and gas subsidies. The reward system has a community-building element to it. The luncheons bring together a group of like-minded people while gas subsidies for people who carpool encourages continued participation.

One of the Phase 1 research participants mentioned a similar example from SMUS. Over the past few years SMUS has supported a local, organic food day in the cafeteria during Earth
Week. Although challenging due to the time of year, increased cost and complexity to run, there is tremendous value and goodwill derived from the event. Again, this is a visible demonstration of participation by the school, and in this case from the food services provider.

Communication: before, during and after

Nearly all research participants mentioned a need for some sort of education process or communication about initiatives or sustainability in general.

Early education

Two research participants were responsible for new recycling systems in their boarding houses and noted the importance of clear, well-orchestrated tutorials for participants so participants know how to participate correctly.

_I think I would set the whole thing up in the common room first and at a house meeting demonstrate everything first because there are still times when people put cans where the plastic goes which is labeled but they just don’t pay attention so it would be kind of nice to make people know what they are doing... More education would have been better._ (P1-1)

_I would probably do a kind of instruction workshop I guess for each grade where they learn about what goes in each bin because there are always people who put their cotton buds and things in the recycling and you are like, “No – this is nasty, this cannot be recycled”._ (P1-5)

The clarity and format of the training process at the beginning of an initiative is very important. Participants noted that a well-planned communication effort is expected to reduce the challenges faced later on and ultimately improve the success rate of the initiative.

On a similar note, an intense and focused communications campaign at the beginning of an initiative was also suggested as a key to success. Similar to developing a critical mass of participants, a significant push at the start will help get people on board quickly.
We’ve done an assembly and training in classrooms and now we are working out the kinks but there are no more garbage cans in classrooms or in hallways or in bathrooms. (P2-3)

[People establishing systems] have to be really keen [at] the beginning because once people get into the habit of recycling it’s not a big deal. (P1-5)

Start at the beginning of the year when the new kids think that it’s a usual practice and they don’t have anything to compare it against. (P1-5)

Once the system is running well it can be modified as needed, but the communication effort at the start needs to be significant. In conjunction with sharing information on how to participate, research participants noted the importance of making people aware of why they should participate.

I think there’s nothing really physical I can do. I mean, there’s a garbage can a few steps away so it all comes down to, I can’t really make it any easier so it all comes down to motivation. Any extra progress that I would want to make in terms of sustainability I would have to work in the heads of the people. (P1-6)

I think maybe meeting with the teachers first to say to them, ‘How can we kind of buy into this’, ‘How do you feel about it?’, ‘How best can I help you?’ which is exactly what you have done for us. To start something and start small and work with the staff first and then you work with the kids because unless the staff buy in you aren’t going to get the same enthusiasm and reinforcement with the staff helping kids in terms of the recycling and actually staff helping each other. (P1-4)

Early communication efforts should be designed to help people rationalize the change in behaviour as well as motivate them. An increased awareness of the issues surrounding the initiative is a critical step to increased participation.

**Ongoing communication**

Once the initiative or programme is running, research participants noted the importance of continuing the momentum by sharing successes, sending out reminders and updates, and
providing experiences and opportunities for reflection.

*If you don’t take time to stop and talk about it and sit calmly and reflect about what you just experienced then it’s just, I don’t think it’s ever not worth still doing, but the level of meaning is just not as deep because you are just exposing the kids to something and they have nowhere to package it.* (P1-9)

*I think it’s really important to recognize the accomplishments.... To say this is fantastic, this is where we are doing really well and this is where we are a little weak and maybe we need to work on this.* (P1-4)

Reminders and updates, designed to help people stay on track, reduce frustration, solidify habits and re-inspire people. As the level of participation increases and momentum grows there is a synergistic effect.

**Types of participation**

There was significant discussion in the interviews about what constitutes adequate participation levels for various sustainability initiatives. Participants also discussed the value of making initiatives mandatory, and the value of making them optional.

*I actually believe there are some things that should be mandatory, that we should be pushed beyond our comfort zones and sometimes even asked to do something we don’t like to do and maybe even realize later on [that] there was a point to that.* (P1-8)

*If [the student environmental team] is somehow structured so it’s mandated then I think it’s somewhat less powerful than if it’s put out there as an option and kids choose to do it. I think that’s a powerful thing. It’s just sort of a bit of a balance there because sometimes only one kid chooses to do it.* (P1-10)

Understanding and appreciating the different levels of participation with each initiative is understood to be critical to the success of it. Mandating participation may increase the level of participation but may also undermine pre-existing intrinsic motivation.
Chapter 5: Discussion and Conclusions

The Discussions section is divided into four sections, based on the four research objectives. For each of the first three research objectives, key points are presented and implications on the success of sustainability initiatives within educational institutions are discussed. In the fourth sub-section, a synthesis framework is introduced.

Research Objective 1: Individuals: *Explore how individual characteristics and experiences affect the success of sustainability initiatives within a school community.*

As noted within Chapter 4, two main themes emerged that relate to individuals: Significant Life Experiences and Situational Factors.

**Significant Life Experiences**

As shown in Figure 8, there were four sub-themes identified within the theme of Significant Life Experiences.
The value of time spent outdoors connecting with nature

Key Points

- Spending significant amounts of time outdoors helps people develop a bond or connection with nature
- The experience of exploration and discovery outdoors is significant as is the resulting connection to place

Implications

How and where we spend our days, especially as children, develops our perception of the world and determines what is most important to us (Louv, 2008). Research participants are concerned that others around them have little connection to the natural world and as a result have little reason to care about or participate in sustainability initiatives. To foster a stronger connection with nature, educational institutions should encourage all segments of the school
community, especially children, to spend time outside exploring and learning in nature.

_Awareness of differences in lifestyle and behaviour_

**Key Points**

- There is significant variation in behavior and awareness of sustainability within a school community.
- There is significant variation in the sustainability opportunities and practices by region or country.

**Implications**

The variation in behaviour, awareness and practice of sustainability by individuals is a major challenge to sustainability initiatives within educational institutions. This variation requires that education programmes and initiatives, especially within a boarding school with international students, are designed to connect with and include a wide range of perspectives and experience. Diversity may be a barrier at times, but can also be an opportunity: individuals learn about initiatives and practices that exist in other regions or communities.

_Personal experiences with environmental loss or damage_

**Key Points**

- Advocates for sustainability generally have had personal experiences with environmental degradation or loss.
- These experiences are a reminder of the fragility of nature or the delicate balance and can be a powerful reminder and motivator.

**Implications**

Experiences with environmental loss or damage are powerful motivators, energizing sustainability advocates/leaders and sustainability learners. Facilitating similar experiences for
individuals and groups within the school community is expected to generate increased
collection. Participation in and support for sustainability initiatives.

**Ethical development**

**Key Points**

- In many cases a strong ethical stance appears linked to an individual’s upbringing
  and parental influences.
- The development of an ethic of sustainability is one of the tenets of education for
  sustainability.

**Implications**

The preceding sub-themes of significant life experiences are all linked to the
development of an ethic of sustainability. Educational institutions should work to provide
experiences that lead to establishing and exercising a sustainability ethic in the entire
community. A key part of this is educating parents about the value of the sustainability
movement and initiatives, with the hope that they will role model sustainability at home.

**Situational Factors**

As shown in Figure 9, there were four sub-themes identified within the theme of
Situational Factors.
Figure 9. Sub-themes within the theme of Situational Factors

Knowledge and awareness of the issues

Key Points

- The search for deeper understanding about sustainability crosses all roles, from students to alumni.
- People attracted to sustainability initiatives are generally interested in the application of knowledge.
- A common concern is that peers do not have enough knowledge or awareness about sustainability.

Implications

There is no single trajectory for education for sustainability, as illustrated by the research participants’ diverse educational and ‘sustainability journey’ backgrounds. Differing educational needs and areas of interest across the school community necessitates diverse educational
programming. Schools that provide support for applied projects are more likely to engage the keen advocates for sustainability.

**Motivation**

*Key Points*

- Motivations driving initiation of and participation in sustainability initiatives ranged from a sense of fear and loss, to a sense of duty and responsibility.
- Many individuals are strongly motivated to make their educational institution more sustainable.
- Individuals involved in initiatives believe they are more motivated than their peers.
- Understanding and leveraging diverse motivational factors is a key tool for sustainability programmers.

**Implications**

The reasons for an individual’s motivation are complex and unique. Educational institutions should work to engage and support motivated individuals, as they are integral to the success of sustainability initiatives. Lack of support by the institution and lack of progress overall can lead to frustration and bitterness for motivated individuals. Supporting their positive engagement is mutually beneficial. The sustainability initiative should also provide and support experiences and education that increases the motivation of other individuals within the community.

**Current level of involvement**

*Key Points*

- Most individuals actively involved in sustainability initiatives feel they should be
doing more.

- This may be a sign that they are overwhelmed by the enormity of the challenge.

**Implications**

Keen individuals often feel they are not doing enough to support sustainability initiatives within their school. The school should work to ensure the sustainability initiative is hopeful and positive, rather than one that is based on negativity and fear of not doing enough. Successes, even the small ones, should be shared with the entire community. Initiatives and goals should be carefully selected and well supported to increase the likelihood of a positive outcome within a timely fashion.

The progress of sustainability within a school relies heavily on the participation and support of a number of key individuals within a school (e.g., Directors, Financial departments, Facilities…). Encouraging and educating those individuals about the benefits of sustainability increases the likelihood of progress and success.

**Vision and planning for the future**

**Key Points**

- Individuals recognize the importance of long-term thinking.

- This consideration of long-term impacts is one of the tenets of sustainability.

**Implications**

Incorporating longer time horizons into decision-making processes, curriculum and school operations is critical to the success of sustainability initiatives and education for sustainability. Short-term thinking is a significant source of frustration among advocates for sustainability.

The pace of a school can also have an impact on sustainability. Schools that operate at a
frenetic pace, with overly-busy students and staff, may negatively-impact the potential for long-term thinking. Educational institutions should work to facilitate an environment of long-term thinking, potentially including the use of policy.

**Research Objective 1 Conclusion (Individuals)**

Significant life experiences and situational factors have a tremendous impact on the involvement of individuals within educational institution. Schools should seek to connect with the individuals who are keen advocates for sustainability as they have existing motivation and passion to further the sustainability initiative. Concurrently, schools should work to duplicate the types of experiences that the keen advocates identified as instrumental in their own development of an ethic of sustainability.

**Discussion of Research Objective 2 Results (Institutions)**

Research objective 2: Organizations: *Explore how organizational characteristics, structures and systems affect the success of sustainability initiatives in educational institutions.*

Moving beyond the effects of individual on sustainability initiatives, this research objective pertains to the effects institutions have on the success of sustainability initiatives. Critical structures and systems needed to effectively develop and support sustainability initiatives are discussed further in this section.

**Modeling Sustainability**

As shown in Figure 10, there were three sub-themes identified within the theme of Modeling Sustainability.
Figure 10. Sub-themes within the theme of Modeling Sustainability

**Cross-community modeling and the perception of support**

*Key Points*

- For sustainability to succeed, initiatives need be visible, transparent and genuine.
- Director or Principal behaviour can have a significant impact on the success of sustainability initiatives.
- Support for initiatives should come from many areas of the school community.
- Cross-community modeling can have a powerful synergistic effect.

*Implications*

Modeling sustainable behaviour *across the community* is a critically important component of sustainability. Imbalanced support or compartmentalization can negatively impact the overall initiative. Therefore, institutional support for sustainability should be provided to all areas of the community, creating broad participation. Working to foster collaboration and
participation across the community has a synergistic effect, an important goal of the sustainability initiative.

**Role models and adult involvement**

**Key Points**

- Individuals copy the behaviour of people they like and or want to associate with
- Role modeling sustainability encourages children to develop an ethic of sustainability.
- Actual *participation* by adults/role models is encouraged over simple observation.
- Adult involvement ensures that experiences are age-appropriate and likely to have a positive outcome.

**Implications**

The importance of role models and adult involvement in sustainability initiatives cannot be overstated. Individuals perceived to be positive role models within the community should be provided with opportunities to share their experiences and perspectives with the rest of the community. Participation by adults in initiatives *with* students is strongly recommended as it shifts the activity from a student-centered experience to a community experience. To ensure that sustainability programming is age-appropriate and most importantly, likely to have a positive outcome, adults/educator should be involved in planning initiatives and activities.

**School sustainability policies and missions**

**Key points**

- Larger institutions tend to have sustainability visions and policies. This is generally not the case for most grade schools.
- The development of policy is useful in clarifying the goals of the programme.
• The development of policy should be a collaborative, inclusive and engaging process bringing together a diverse group of people.

Implications

Development of a sustainability vision and policies is an important component of a sustainability programme within an educational institution as it formalizes the position of sustainability within the school. To make the development of policy inclusive and effective, diverse groups from across the community should be engaged in policy development process.

Teaching Sustainability

As shown in Figure 11, there were three sub-themes identified within the theme of Teaching Sustainability.

![Figure 11. Sub-themes within the theme of Teaching Sustainability](image)

Successful, age-appropriate experiences

Teaching an ethic of sustainability

Provide hands-on experiences that generate touchstones and reminders

Successful, age-appropriate experiences

Key Points
• As with all curricula, it is important to consider the age and ability of students when selecting educational experiences.

• It is not reasonable to expect students to be ultimately responsible for critically important initiatives that they are not able to manage effectively.

*Implications*

Careful and thoughtful programming that considers the age and ability of participants will ensure that experiences are generally successful and/or positive. Support, perhaps in the form of professional development opportunities, should be provided to educators planning sustainability initiatives for the school.

The high school level presents a unique challenge as students are very aware of complex issues (such as CO₂ emissions and climate change) but may not have the organizational experience to effectively change institutional operations. The responsibility for addressing CO₂ emissions on a school level should remain with adults but efforts should be made to encourage the participation of students whenever feasible. Sharing and communicating with students (and the larger community) about the efforts being made, especially in terms of complex issues, such as emissions, is very important.

*Provide hands-on, powerful experiences that generate touchstones and reminders*

*Key Points*

• Hands-on experiences and site visits can be powerful educational opportunities.

• Experiences that foster connections on a physical, emotional and intellectual level have a more enduring effect.

• Creating such experiences relies on teachers being passionate and well supported.

*Implications*
Educational experiences that encourage participants to reflect on a situation from a range of perspectives generates a more holistic and comprehensive understanding of that situation. Similar to personal experiences with environmental loss or destruction, experiences that include a physical and personal connection should be strongly encouraged. Schools should support educators in their efforts to develop or participate in such programs.

**Teaching an ethic of sustainability**

*Key Points*

- One of the goals of education for sustainability is to help students develop an ethic of sustainability.
- Providing authentic experiences may facilitate this process.
- Individuals generally appreciate and enjoy having some kind of ownership and/or responsibility over an initiative

*Implications*

As mentioned earlier, the development of an ethic of sustainability of one of the tenets of education for sustainability. Developing and providing educational experiences that foster an ethic of sustainability should encouraged and supported by the institution. Connecting students to real problems with practical solutions can be an effective mechanism to support this effort. Some individuals and groups will also benefit from and appreciate the opportunity to take ownership or responsibility for an initiative.

**Sustainable School Communities**

As shown in Figure 12, there were two sub-themes identified within the theme of Sustainable School Communities.
Figure 12. Sub-themes within the theme of Sustainable School Communities

**Synergy and collaboration**

**Key Points**

- Collaboration and cooperation can break down silos within communities.
- Open and clear communication is key to the development of synergy and growth of sustainability across the community.
- Encouraging sharing within and beyond the community increases the success of programmes.

**Implications**

Working to bring the school community together is an important element of sustainability. Examples of positive efforts and change from all areas of the community should be shared and celebrated, connecting the entire school community (staff, faculty, students and parents) to a common goal. Divisive structures and behaviours should be eliminated and
replaced with collaborative ones.

**Sustainability as a bridge**

*Key Points*

- It is important to encourage a holistic and comprehensive understanding of issues.
- Using sustainability as the umbrella term reduces the likelihood of marginalization or isolation of any one of three pillars of (social, environmental and economic).
- Sustainability allows individuals across the community to participate in initiatives that appeal to them personally, but which are also part of the broader community goal.

*Implications*

Fostering and encouraging connections between the three pillars of sustainability reduces the potential for discord between groups. Under the umbrella of sustainability one person can work on homelessness and another to work on habitat preservation and given the right organization and messaging, can be working together. The tenets and definition of sustainability should be communicated to the community.

**Roles Within Sustainability**

As shown in Figure 13, there were four sub-themes identified within the theme of Roles within Sustainability.
Figure 13. Sub-themes within the theme of Roles within Sustainability

**Official responsibility**

*Key Points*

- Few people have any official responsibility for sustainability although many feel they have an unofficial responsibility

- Unofficial responsibility is legitimized by an individuals’ interpretation of support from an organization, boss or peer

*Implications*

It is important for educational institutions to recognize and celebrate the efforts of volunteers working on sustainability initiatives and develop systems to support them. Institutions may also choose to formalize some roles within sustainability. Developing a community sustainability vision or plan that is inclusive of everyone is strongly encouraged.
The role of a point person

Key Points

• A point person can provide a clear message to the community and is a consistent conduit of information about the larger initiative.

• The point person should be connected to all areas of the school community.

• The current model in many schools has a point person as the spokesperson as well as doing a large portion of the work supporting various initiatives – a generally unsustainable role.

Implications

Although it appears initially to be in contradiction to the request for a collective or community responsibility for sustainability, a point person can be a powerful advocate for sustainability within a school community and so should be encouraged and well supported by the school. The responsibilities and duties should be carefully established to avoid burn-out.

Need for a staff sustainability committee

Key Points

• Staff sustainability committees allow for collaborative decision-making.

• A committee shifts responsibility from a few individuals to a larger and more diverse and representative group.

• The focus or mission of the committee should be appropriate for all of the members within the group.

Implications

The multi-stakeholder committee model is highly recommended as a mechanism to vet proposals, generate support and develop procedures and policies around sustainability. Schools
should work to support the development of a staff sustainability committee and provide support or coverage equivalent to the increased workload on those individuals. Individuals from diverse positions across the school community should be encouraged to participate, representing a range of community values and interests.

Providing support to the point person and key individuals

Key Points

- Support should be provided to individuals working on sustainability initiatives as individual passion can only be maintained for so long.

- Without some sort of mechanism to balance the load on staff the sustainability programme will always be fleeting and secondary to other responsibilities.

Implication

Schools need to support individuals working on sustainability initiatives. This could be in the form of making available substitute teachers, prep time, additional compensation, professional development, official recognition, a lighter teaching load or relief from other responsibilities. Schools that do not actively support individuals working on sustainability initiatives rely solely on individual passion, and this path usually results in fatigue, resentment and burn-out.

Research Objective 2 Conclusion (Institutions)

The success of sustainability initiatives within an educational institution is ultimately tied to the support ascribed to sustainability by the institution. The passion of individuals will only carry initiatives so far, and rarely translate into system-wide achievement of sustainability goals. Institutions committed to providing an education with sustainability in mind should provide support in a number of key areas including the following: public displays of commitment to
sustainability by Director and Principals; financial support for program coordinators and teachers to develop and implement initiatives; professional development opportunities for teachers; encouragement and support to all levels to get students outside connecting with nature.

Engagement is the key to education for sustainability. By supporting the design of insightful, hands-on experiences, encouraging role modeling across the community and fostering an ethic of sustainability, the initiative can become a bridge that connects disparate groups within the community under a common cause.

**Discussion of Research Objective 3 Results (Initiatives)**

Research Objective 3: *Explore the success and effectiveness of specific sustainability initiatives within educational institutions in terms of significance and complexity to implement.*

**Selecting Initiatives**

As shown in Figure 14, there were three sub-themes identified within the theme of Selecting Initiatives.
Figure 14. Sub-themes within the theme of Selecting Initiatives

Fostering connections

Key Points

- If there is no perceived or actual need for an initiative within an educational institution the initiative is unlikely to succeed, no matter how well planned it is.

- Fostering a personal connection for participants can be significant in the development of a need.

- Education which presents impacts and benefits in a manner that reaches people on a personal level can increase the likelihood of them making a connection to the initiative.

Implications

If prospective participants do not feel a personal connection to the initiative, their motivation to participate will be limited. Working to foster personal connections is a key factor for success. Core groups planning initiatives should work to ensure that education campaigns connect personally to target population, thereby developing a need.

Planning and designing initiatives

Key Points

- Systems need to be simple, stable, enduring and resilient.

- Initiatives that require ongoing support should be carefully planned. If significant work falls to a single or a small group, the system will fall apart.

- A rigid system may not allow for a natural fit where a fluid or more dynamic approach will be more resilient in the long run.

- Cost benefit analyses are practical mechanisms to assist in the selection of
initiatives

Implications

System design is critically important to the success of an initiative and accordingly significant effort should be directed towards it. Planners need to ensure systems are simple, stable, enduring and resilient. Extra consideration should be given to continuing initiatives and ones that have longer life-spans. External site visits to parallel programs at other institutions can be very educational should be encouraged.

The three pillar model of sustainability can be an effective mechanism for the selection of initiatives as it forces the consideration of financial, social and environmental costs and benefits of a decision.

Thinking long term

Key Points

- Through legacy projects and enduring initiatives we are teaching students and staff to think differently about time, to think long term, to think about what we will leave behind.
- Buildings and grounds are critically important elements of sustainability within a school community.
- Poorly designed building result in inefficiencies that may increase the operating costs over the life of the building. Retrofits are more costly and generally less effective than designing it right the first time.

Implications

Enduring projects that extend beyond the time-frame of a class or a semester should be strongly encouraged by administrators and well supported. Similarly, building design is a critical
component of sustainability as buildings represent a major capital investment and have a significant lifespan with ongoing operational costs. Rushed projects or short-term thinking can have negative implications for the sustainability of the building and is also a major source of frustration for advocates of sustainability within the community.

**Supporting Initiatives**

As noted in Figure 15, there were four sub-themes identified within the theme of Supporting Initiatives.

![Figure 15. Sub-themes within the theme of Supporting Initiatives](image)

**Building capacity**

**Key Points**

- Building capacity is especially important with initiatives that have high visibility or require a behavioral change from a large group.
- Highlighting or sharing existing examples of sustainability within the school
builds momentum and can lead to further initiatives.

Implications

When planning and preparing initiatives, organizers should carefully consider how they are going to generate support for the initiative. Using existing momentum from other successful projects can be an effective springboard for new initiatives. Additional resources need to be allocated to initiatives that require a behavioural change from a large population.

Provide incentives and support for staff

Key Points

- Support and encouragement should be provided to individuals who are involved in sustainability initiatives.
- Reward systems can be used to develop community around an initiative.
- Significant goodwill is derived from community events.

Implications

Some manner of support and/or encouragement should be provided to individuals working on or participating in sustainability initiatives. This can be in the form of luncheons, meals, prizes, awards or public thanks. Events such as luncheons are recommended as they bring together groups of like-minded individuals and encourage further participation. Although seemingly obvious, educational institutions should remember to say “thank you” to participants and volunteers for their efforts to make the school more sustainable.

Communication: before, during and after

Key Points

- Communication and education are critical components of effective sustainability initiatives.
• It is important to communicate how the community should participate as well as why they should participate.

• Well-planned communication efforts reduce the challenges faced later on and improve the success rate of the initiative.

• An intense and focused communication campaign at the beginning of an initiative is key increasing participation and building momentum.

• Reminders and updates help people stay on track, reduce frustration and solidify habits.

**Implications**

Education is a vital component of sustainability initiatives and is truly instrumental in determining of success or failure of an initiative. Individuals planning or coordinating initiatives should direct a significant portion of their time and effort to education. The format of the education may vary but the goals should include the following: telling people how they can participate and why they should participate. Once the initiative or programme is running, sharing successes and tips will help correct problems and build momentum.

**Types of participation**

**Key Points**

• The type of participation required for initiatives varies depending on the initiative.

• Understanding and appreciating the different levels of participation with each initiative is critical to the success of it.

• Mandating participation may increase the level of participation but may also undermine pre-existing intrinsic motivation.

**Implications**
An important element of planning initiatives is consideration of the type and level of participation required for the initiative. The level and type of participation is directly connected to the type and format of the education campaign as well as the support needed to allow the initiative to succeed.

**Research Objective 3 Conclusion (Initiatives)**

While the support of individuals and the institution are critical to the success of the larger sustainability initiative, without careful selection and appropriate support initiatives will not be successful. Success is much more likely when those planning initiatives have worked to build capacity, foster connections and design a simple, efficient and durable system. Additionally, education is instrumental to show the community why they should participate and how they should participate.

**Discussion of Research Objective 4 (Framework)**

Research Objective 4: *Develop a framework which 1) guides and supports individuals in their efforts to implement, manage or improve sustainability initiatives within educational institutions and 2) helps educational institutions better support individuals and increase the success rate of sustainability initiatives?*

Research Objective 4 combines the results of the preceding objectives in the development of a framework designed to help support and guide individual and institutional efforts in sustainability.

When an initiative is being considered, the framework described in Table 6 can assist in determining how challenging the initiative is going to be to implement and in identifying key areas of concern. The rubric can be used to identify and contrast features of initiatives that make them simpler or more complex to implement.
To evaluate the complexity of a proposed initiative, the sustainability coordinator or committee should reflect on ten guiding factors (Table 6, Column 1). If the assessments of each factor are all green, then the project will likely be a good fit for the specific school, and will likely prove relatively easy to implement. If there is a mixture of green and yellow, the identification of barriers would suggest that diligent work in a few focal areas will be required for the initiative to succeed. And if the initiative’s factor assessment returns results predominantly in the yellow and red columns, it may not be a suitable fit, or it will require diverse and considerable support for the initiative to be successful.

Table 6. Assessment framework for sustainability initiatives

<table>
<thead>
<tr>
<th>GENERAL FACTOR</th>
<th>SIMPLE</th>
<th>MODERATE</th>
<th>COMPLEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>This is a single occurrence or one-time event</td>
<td>Initiative will occur a number of times</td>
<td>This is a regular and/or continuing event</td>
</tr>
<tr>
<td>Ongoing support or maintenance</td>
<td>Little ongoing support required past start up</td>
<td>Occasional ongoing support required after start-up</td>
<td>Regular ongoing support will be required for the duration of the initiative</td>
</tr>
<tr>
<td>Community awareness of the initiative</td>
<td>The community is familiar with this type of initiative</td>
<td>Some members of the community are familiar with this type of initiative</td>
<td>Few members of the community have heard of this type of initiative</td>
</tr>
<tr>
<td>Enthusiasm of the community</td>
<td>The community has been hoping to work on this type of initiative for some time</td>
<td>Community is reasonably interested in the initiative</td>
<td>Community is not currently interested in working on this type of initiative</td>
</tr>
<tr>
<td>Number of decision makers involved</td>
<td>Only a few people need to be involved in the decision-making, consultation and implementation</td>
<td>A number of different people or groups are involved in the decision-making, consultation and implementation</td>
<td>Many different people or groups are involved in the decision-making, consultation and implementation</td>
</tr>
<tr>
<td>Complexity of the initiative</td>
<td>The initiative is basically very simple</td>
<td>The initiative is slightly complicated</td>
<td>The initiative is complex and complicated</td>
</tr>
<tr>
<td>Number of workers needed to support the initiative</td>
<td>Few regular active helpers are required to set up or maintain the initiative</td>
<td>A fair number of regular active helpers are required to set up or maintain the initiative</td>
<td>A large group of regular active helpers are required to set up or maintain the initiative</td>
</tr>
<tr>
<td>Amount of participation or behaviour change required of the community</td>
<td>Participation or behaviour change required of the community is very small</td>
<td>A moderate amount of participation or behaviour change is required of the community</td>
<td>A significant amount of participation and behaviour change is required of the community</td>
</tr>
</tbody>
</table>
Financial support required
Few startup costs and little ongoing financial support required
Moderate startup costs and moderate ongoing financial support required
Significant startup costs and significant ongoing financial support required
Scope and Extent
Initiative focuses on one area of the school
Initiative involves a large portion of the school
Initiative involves the entire school and/or external groups

Research Objective 4 Conclusion (Framework)

The framework is intended to aid in the selection of sustainability initiatives within educational institutions by identifying themes that are worth consideration when planning initiatives. These factors, which are based on the responses from my study participants, should be seen as a broad but not comprehensive list that may affect a sustainability initiative’s success. They should be used as guiding questions rather than as an over-simplified pass/fail test. Situational or institution-specific circumstances, resources and subtleties will make a specific initiative more or less likely to succeed.

Potential for Future Research

The limited scope and scale of this research project unfortunately precludes any definitive statement guaranteeing the success of sustainability initiative within educational institutions. Nor is there a definitive ‘road map’ of initiatives through which an institution should progress. That being said, the results do, I believe, represent a starting point for research especially in the area of grade schools. While there has been a strong emphasis on sustainability in universities and colleges and significant research on sustainability in those institutions, the application of that research in grade schools may not be entirely appropriate considering the differences in populations, structures and opportunities at the grade school level, and at independent boarding schools in particular.

The tremendous growth in interest in sustainability within grade schools is currently driven by a common set of opportunities and hampered by institutional barriers, many of which
are outlined in this research project. Further research at other schools would identify additional barriers and opportunities within grade schools seeking to strengthen their sustainability programmes.
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Appendix 1 – Research Participant Consent Form

I, Craig Farish, am part of the 2007 cohort of the Masters in Environmental Education and Communication program at Royal Roads University, and this research project, the assessment of the implementation of environmental initiatives in schools, is part of the requirement for a MAEEC at Royal Roads University. My credentials with Royal Roads University can be established by contacting my program director, Dr. Milt McClaren.

We are inviting you to participate in this research project. Specifically, the research will consist of a survey and an interview. The survey is expected to take approximately 15 minutes. The interview will last approximately 30 minutes. The survey and interview both contain questions about your ecological worldview and your experiences working on environmental initiatives at your school.

The information you provide will be recorded and then summarized, in anonymous format, in the body of the final report. At no time will any specific comments be attributed to any individual unless specific agreement has been obtained beforehand. All documentation will be kept strictly confidential. As the survey is hosted by a US-based company, it is important to know that there is the possibility that any information could be reviewed by US Department of Homeland Security.

In addition to submitting the final report to Royal Roads University in partial fulfillment for a MAEEC, I will also be sharing research findings with participating schools in order to facilitate their respective sustainability initiatives. A copy of the final report will be housed at Royal Roads University, available online through UMI/Proquest and the Theses Canada portal and will be publicly accessible. Access and distribution will be unrestricted.

You are not compelled to participate in this research project. If you do choose to participate, you are free to withdraw at any time. Similarly, if you choose not to participate in this research project, this information will also be maintained in confidence. Your completion of this form will constitute your informed consent.

By signing this letter, I give free and informed consent to participate in this project.

Participant Name: (Please Print): _____________________________
Signed: _____________________________ Date: ____________

If the research participant is under the age of 18, a parent/guardian must consent to their participation in the project. As legal parent/guardian of ___________________________, I give free and informed consent for my son/daughter to participate in this project.

Parent/Guardian Name: (Please Print): _____________________________
Signed: _____________________________ Date: _______

Craig Farish MAEEC 2007 Cohort -Royal Roads University
Appendix 2 – Phase 1 Survey Questions

A.1 We are approaching the limit of the number of people that the Earth can sustain. (Strongly agree, agree, not sure, disagree, strongly disagree)
A.2 Humans have the right to modify the natural environment to suit their needs.
A.3 When humans interfere with nature, it often produces disastrous consequences.
A.4 Human ingenuity will insure that we do NOT make the Earth unlivable.
A.5 Humans are severely abusing the environment.
A.6 The Earth has plenty of natural resources; we just need to learn how to develop them.
A.7 Plants and animals have as much right as humans to exist.
A.8 The balance of nature is strong enough to cope with the impacts of modern industrial nations.
A.9 Despite our special abilities humans are still subject to the laws of nature.
A.10 The so-called “ecological crisis” facing humankind has been greatly exaggerated.
A.11 The Earth is like a spaceship with very limited room and resources.
A.12 Humans were meant to rule over the rest of nature.
A.13 The balance of nature is very delicate and easily upset.
A.14 Humans will eventually learn enough about how nature works to be able to control it.
A.15 If things continue on their present course, we will soon experience a major ecological catastrophe.

B1. Which of the following are you? (select all that are appropriate)(List of groups: Alumni (graduate), Current boarding student, Current day student, Director/Principal, Parent of a SMUS student or graduate, School Environmental team member, Staff/Administration, Student Council member, Teacher/Faculty)
B2. How important is it that you try to make your school greener/more environmentally responsible? (1 is not important. 7 is extremely important)
B3. Why do you want to make your school greener/more environmentally responsible? (short answer)
B4a. How hard have you worked to make your school greener/more environmentally responsible? (1 is not worked hard. 7 is worked extremely hard)
B.4b Relative to your peers at school how motivated are you to make the school greener/more environmentally responsible? (1 is less motivated than your peers. 7 is much more motivated than your peers)
B5. How effective do you feel in your efforts to make your school greener/more environmentally responsible? (1 is not effective, 7 is extremely effective)
B6. Which of the following would make the biggest difference to help you make your school more environmentally responsible? (I need more experience implementing initiatives, I need more knowledge about environmental issues, I need more opportunities to promote ideas and share information, I need more support from friends/peers, I need more time to work on initiatives)
B7. How interested do you think each of the following groups are in making the school greener/more environmentally responsible? (1 is not interested, 7 is extremely interested) (List of groups: Students Alumni (Graduates), Parents, Student Council, Teachers, Staff (Administration), Directors/Principals)

B8. Of the following environmental initiatives, which one do you think is most important to each group? (List of initiatives: Carbon emissions, Habitat protection, Recycling, Water conservation, Composting/Organic waste collection, Energy conservation, Renewable energy, Sustainable transportation) (List of groups: Students Alumni (Graduates), Parents, Student Council, Teachers, Staff (Administration), Directors/Principals)

B9. How important are each of the following to you? (1 is not important, 7 is extremely important) (List of initiatives: Carbon emissions, Habitat protection, Recycling, Water conservation, Composting/Organic waste collection, Energy conservation, Renewable energy, Sustainable transportation)

B10. How important do you think each of the following are to the School? (1 is not important, 7 is extremely important) (List of initiatives: Carbon emissions, Habitat protection, Recycling, Water conservation, Composting/Organic waste collection, Energy conservation, Renewable energy, Sustainable transportation)

B11. Pick the top three areas that you would like to work on at your school. (List of areas: Carbon emissions, Habitat protection, Recycling, Water conservation, Composting/Organic waste collection, Energy conservation, Renewable energy, Sustainable transportation)

B12. What areas are missing in question B11 above?

B13. How prepared (informed/experienced/knowledgeable) do you feel you are to be working on environmental initiatives at your school? (1 is not prepared. 7 is very prepared)

B14. How hard do you think each of the following initiatives would be to implement. (1 is easy to implement. 7 is extremely hard to implement) (List of initiatives: Collecting organic waste for composting, Conserving electricity on Campus, Conserving water on campus, Garbage free lunches, Going trayless in the cafeteria, Paper recycling, Pop bottles and can recycling, Setting up a carpool system, Soft plastic recycling)

B15. How hard do you think each of the following initiatives would be to implement. (1 is easy to implement. 7 is extremely hard to implement) (List of initiatives: Arranging a guest speaker, Cleaning up a local stream, Collecting dead batteries for recycling, Organizing bike to school days, Planting a school garden, Planting native plants on Campus, Putting up bird houses on campus, Switching to non-toxic cleaners, Worm composting on campus)

B16. If there was no environmental program at the school, what would be the first thing you would do to make the school greener/more environmentally responsible? (short answer)
Appendix 3 – Phase 1 Interview – Draft Questions

Section C: General Demographic Questions:
C.1 How do you fit into your school community? (student/teacher/position)
C.2 Is environmental education or sustainability officially part of your position/job/role at the school? If yes, how? What courses or workshops have you taken that relate to your work as an environmental program coordinator/sustainability initiative coordinator?

Details of the Initiative
C.3 Describe the environmental initiative that you have been most involved in?
C.4 Why did you choose to work on this initiative? (Where did the idea come from?)
C.5 What triggered you to work on the initiative when you did? (Did something change or happen that caused you to act?)
C.6 Was the initiative successful? Why or why not?

Motivation and Experiences
C.7 Where do you think your motivation to work on this type of thing comes from? (family, friends…)
C.8 Have you always been working on environmental initiatives?
C.9 Why you? (What do you think is different about yourself that motivates you to act?)

Institutional Factors affecting implementation
C.10 When you were trying to implement the initiative, what did your friends/peers/co-workers think? (supportive, unsupportive, questioning…)
C.11 How did the school make it easier for you to implement the initiative?
C.12 How did the school make it more difficult for you to implement the initiative? If you were trying to implement the same initiative again, what would you do differently?
C.13 What tips do you have for someone looking to do the same initiative at another school?
Appendix 4 – Phase 2 Survey - Questions

D1. How interested do you think each of the following groups are in making the school greener/more environmentally responsible? (1 is not interested, 7 is extremely interested) (List of groups: Students, Alumni (Graduates), Parents, Student Council, Teachers, Staff (Administration), Directors/Principals)

D2. Of the following environmental initiatives, which one do you think is most important to each group? (List of initiatives: Carbon emissions, Habitat protection, Recycling, Water conservation, Composting/Organic waste collection, Energy conservation, Renewable energy, Sustainable transportation) (List of groups: Students, Alumni (Graduates), Parents, Student Council, Teachers, Staff (Administration), Directors/Principals)

D3. How important are each of the following to you personally? (1 is not important, 7 is extremely important) (List of initiatives: Carbon emissions, Habitat protection, Recycling, Water conservation, Composting/Organic waste collection, Energy conservation, Renewable energy, Sustainable transportation)

D4. How important do you think each of the following are to the School? (1 is not important, 7 is extremely important) (List of initiatives: Carbon emissions, Habitat protection, Recycling, Water conservation, Composting/Organic waste collection, Energy conservation, Renewable energy, Sustainable transportation)

D5. Pick the top three areas that you would like to work on at your school. (List of areas: Carbon emissions, Habitat protection, Recycling, Water conservation, Composting/Organic waste collection, Energy conservation, Renewable energy, Sustainable transportation)

D6. What areas are missing in question D5 above?

D7. How hard do you think each of the following initiatives would be to implement. (1 is easy to implement, 7 is extremely hard to implement) (List of initiatives: Collecting organic waste for composting, Conserving electricity on Campus, Conserving water on campus, Garbage free lunches, Going trayless in the cafeteria, Paper recycling, Pop bottles and can recycling, Setting up a carpool system, Soft plastic recycling)

D8. How hard do you think each of the following initiatives would be to implement. (1 is easy to implement, 7 is extremely hard to implement) (List of initiatives: Arranging a guest speaker, Cleaning up a local stream, Collecting dead batteries for recycling, Organizing bike to school days, Planting a school garden, Planting native plants on Campus, Putting up bird houses on campus, Switching to non-toxic cleaners, Worm composting on campus)

D9. Please list the most important environmental initiatives that your school is working on this year.

D10. If there was no environmental program at the school, what would be the first thing you would do to make the school greener/more environmentally responsible? (short answer)

D11. What is the one critical element that has made your school environmental program successful?
Appendix 5 – Phase 2 Interview -Draft Questions

Section E: Questions about the program coordinator:

E.1 Is environmental education or sustainability officially part of your position/job/role at the school? If yes, how?
E.2 How do you fit into your school community? (student/teacher/position)
E.3 What courses or workshops have you taken that relate to your work as an environmental program coordinator/sustainability initiative coordinator?

Questions about individual characteristics:

E.4 In your experience, what makes one individual more likely to want to implement environmental initiatives at your school?
E.5 What makes them more or less successful in their efforts?

Organization

E.6 How effective is your educational institution at implementing and supporting environmental initiatives? Why?
E.7 What are the key features of your educational institution that make it a better supporter of environmental initiatives?
E.8 How long has your institution been seriously considering environmental initiatives? Why did it start? What did it start with?
E.9 As an organization, if you were starting at the beginning again what would you do first to support the effective development of an environmental program?
E.10 What are your top tips for someone working on environmental initiatives at another school?

Choosing initiatives

E.11 In the survey you ranked initiatives in terms of complexity. What is it about the top 3 that made them easier to implement at your educational institution?
E.12 What about the bottom 3? Why are they harder?