

Article

Citizenship Outcomes and Place-Based Learning Environments in an Integrated Environmental Studies Program

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Abstract: This paper discusses the effects of the learning environment on an important and unique 21st century learning outcome—that of active citizenship, in contrast to more conventionally measured cognitive and attitudinal outcomes. In our study, we utilized a learning environment instrument, the Place-Based Learning and Constructivist Environment Survey (PLACES) with an integrated environmental studies program prepared for high school students in the Canadian context. Our research used a retrospective case study design to investigate how aspects of this unique learning environment are related to long-term, active citizenship outcomes as perceived by students from two previous student cohorts (N = 24 and N = 36) who were contacted several years after the culmination of the program. To access information about student perceptions, PLACES was implemented as part of a range of mixed methods which also included focus groups and interviews. This study is important because it links key aspects of the learning environment to long-term citizenship outcomes and is unique in that the data were collected five and eight years later as part of a longitudinal study. Our findings demonstrate that the learning environment and citizenship outcomes were closely linked, and that students' perceptions as measured by the PLACES instrument (past and present) were remarkably stable across all dimensions. These findings further indicate significant and positive implications for future learning environments research.



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1. Introduction

How can 21st century youth become better educated to meet the increasing challenges of work, life, and citizenship? This is a question that education researchers have been trying to address for a long time. This topic has gained even more attention due to the diminished state of the environment, global economic imbalances, and evidence from various studies indicating higher levels of youth disengagement from politics and public life [1]. In the Canadian context, some studies express concern that the youngest cohorts (as they age) are voting in lower numbers than cohorts did in the past [2]. One response to this trend in Canada was the development of the “Being an Active Citizen” project: a program with a prime goal of providing enhancements to British Columbia’s curriculum on law and citizenship to better prepare students to become informed citizens who actively participate in the life of their community [3]. Part of this initiative includes community engagement and social action as desirable outcomes that attempt to promote students in connecting with their local communities and/or environments.

In this scenario, two purposes of education can be seen: they must address both the development of individuals and that of the broader society [4]. With this intention, education can be seen as assisting individuals to become more competent in the pursuit of personal goals while at the same time setting the stage for their social participation. When considering an educational objective that includes environmental sustainability and

personal/social responsibility, the term active citizenship comes to mind. The concept of citizenship is usually associated with voting, legal responsibilities, paying taxes, and obeying the law. Although arguably these are important parts of being a citizen, a much more involved concept is often referred to as active citizenship.

The term active citizenship was first used in a European Community context when proposals were developed for the European Commission's Lisbon Strategy [5], which focused on developing a competitive knowledge society and greater social cohesion. In this context, active citizenship is a term used to describe ways for "citizens to have their voice heard within their communities, a sense of belonging and a stake in the society in which they live, the value of democracy, equality and understanding different cultures and different opinions".

Barr used the term earlier, describing critical citizenship to represent active involvement at the community level [6]. In this conception, active citizens embrace social responsibilities and take on civic roles: they strive to be informed and maintain critical perspectives while also becoming actively involved in social, political and/or environmental issues [7]. In the light of past campaigns by UNESCO for example, it has become increasingly apparent that educated young people need to have skills and knowledge that will enable them to think and act critically while developing long-term responsible environmental and social behaviors [8,9]. In this regard, active citizenship becomes an important educational outcome to be gauged alongside the more traditional cognitive and attitudinal outcomes that are a regular part of educational evaluation.

2. Literature Review

2.1. Learning Environments

In some of the earliest work on human environments, scholars such as Rudolf Moos and Herbert Walberg stated that interest in the physical and social aspects of planning human environments such as towns, and public institutions was still increasing, and this remains true today [10]. Moos saw this concern as being responsive to the technological changes which (still) effect large-scale changes in the broader society. An example of this is the noted decrease in citizens' participation in civil society. He suggested that this created a need for a model to conceptualize and assess these psychosocial factors. Later, Walberg developed the idea that the evaluation of educational environments based on structural and behavioral theories required perceptual measures of what he termed the "feel of the class". It was noted that the analysis of behaviors linked to educational perceptions characterize some important aspects of the social learning environment [10,11]. Learning environment studies now seek to describe educational contexts and to identify empirical relationships among subject matter (curriculum), teaching practices, and educational outcomes [11]. In our study, we were interested to understand how aspects of the learning environment might affect students' long-term perception of citizenship outcomes.

From these early beginnings, the study of learning environments has now grown to become a dynamic field of academic inquiry and although its beginnings were in science education, it has application possibilities in many different areas of inquiry, and we assert that it is particularly applicable to inter- or multi-disciplinary fields of study such as environmental or place-based forms of education. Since its beginnings over 40 years ago, learning environment instruments have been developed, tested, and validated in a variety of settings and in a variety of countries [11]. These instruments have been made up of scales that are used to identify specific constructs in the learning environment. Examples of these include factors such as student cohesiveness, teacher involvement, material environment, cooperation, task orientation and equity. Each scale typically consists of items designed to evaluate a specific aspect of the learning environment. Over the years and in a variety of different countries, various scales have been designed, validated, and tested.

For our work, the concept of a learning environment incorporates ideas and perceptions related to both the physical and psychosocial environment where learning takes place each of which can be influenced by teaching practices [12]. For our study, we studied

a unique, purpose-designed learning environment which included novel course work conducted substantially in both field-based and classroom settings.

2.2. Place-Based Education

The notion of a place-based education was first described by David Soble and Graham Smith, while other scholars have greatly expanded on these ideas [13–15]. Describing exactly what constitutes a place-based education becomes clouded partly due to the multi-faceted and interdisciplinary nature of the literature in which this notion seems to reside. Gruenewald and Smith [15] noted that the idea of place-based learning connects theories of experiential learning, contextual learning, problem-based learning, constructivism, outdoor education, Indigenous education, and environmental education. This study also relates how learning environment methodologies can be employed effectively in place-based and environmental education studies and highlights the continued use of a valid and reliable tool for this purpose. Many benefits can be achieved by engaging students in place-based environmental education programs; these include: improvement in their academic achievement, problem solving, critical thinking, and co-operative learning skills, and an increased motivation to learn [16,17]. Keeping this focus in view, this study further reports on the continued efficacy of a purpose-designed learning environment instrument: the Place-based and Constructivist Learning Environment Survey, or PLACES [17].

Through place-based environmental education, learners' cognitive structures may be altered, attitudes modified and the learning environment that develops around these programs may enrich and stimulate further learning. For some, these elements are viewed as interconnected and will change as a whole system, not as separate parts. This research was hence consistent and congruent with this ecological view of education [18]. As part of this study, an evaluation of the learning environment was conducted at multiple temporal points to examine the types of learning environments developed in place-based, experiential settings and to determine the suitability of the PLACES instrument for long term case study and other environmental education research.

3. Research Objectives

The objectives of the research program were to conduct a longitudinal study using perceptual measures unique to place-based and constructivist oriented environmental education programs; and further to describe the types of learning environments which promote active citizenship outcomes in students. The research design uses a retrospective case study method involving three previous cohorts from a specially designed high school environmental studies program (ES 10) focusing on active citizenship as a key educational outcome.

Retrospective case studies are considered a type of longitudinal case study design in which the data collection is conducted after the fact [19]. Retrospective case studies have three common factors: collection of data occurs after a significant event, researchers have access to first-person accounts and archival data, and final outcomes are available that are presumably influenced by the variables and processes under study [19]. The study required participants to recall experiences that occurred in the program five and eight to nine years earlier and relate these to present day outcomes, therefore making it retrospective in nature.

The selection of a case study design also allowed for a rich collection of data and of greater depth than that of other research designs in our description of a key variable: active citizenship. Our goal was to determine the long-term perceived effects of the program in terms of active citizenship as well as to understand the contributing factors for this in a uniquely designed experiential and place-based learning environment.

3.1. Study Context

The context for this study was an integrated Environmental Studies program for grade ten students (ES 10) at a local high school in British Columbia, Canada. The ES 10 program integrated four high school curriculum courses: Science 10, Earth Science 11,

Social Studies 10, and Physical Education 10. The three cohorts studied in this project all completed programs with the same course structure. These subjects were integrated in such a way as to give purpose to the subject material through experiential learning. Outdoor initiatives were used as vehicles to empower the learning experiences and foster attainment of program goals. Outdoor initiatives included some adventure-based activities, while others included field studies such as ecological monitoring or earth science investigation. The field studies in the program sometimes took place in the local community, while others took place during overnight field experiences. Students were exposed to many learning opportunities, often working with community members, other students, and professionals.

Adventure-based activities aimed to help students gain basic outdoor skills while at the same time developing cooperative skills and more self-confidence. The field studies aimed to engage students with the curriculum while exposing them to real-life problems and phenomena. The experiential component of ES 10 helped create unique opportunities to extend students' knowledge, while reflective practice, which was encouraged regularly through discussions and journaling, allowed students to think outside the extant paradigm and shift into a more comprehensive, integrated, and creative worldview. This was an important goal of ES 10 and led to the concept of active citizenship as an intended educational outcome for the program.

3.2. Methodology

This study used a mixed methodology that incorporates both qualitative and quantitative research methods [20]. Data collection protocols included administration of quantitative surveys to three cohorts at several intervals after the program completion (0 years and 5 years for one cohort, then 8 years and 9 years for the other two cohorts). In addition, qualitative surveys and focus groups were completed for two cohorts after 8 and 9 years. As such, the study was longitudinal in nature as study participants reported on their perceptions of the learning environment many years after the program culminated.

Details of the data collection were as follows: in the first instance, 24 individuals participated in the survey only (at 0 years); in the second instance, 18 individuals participated in the survey; and in the third instance, 17 and 19 participated in the survey, respectively, while fully 24 individuals participated in the focus groups. As such, adopting both qualitative and quantitative methods provided a better understanding of the results and made conclusions more credible while enabling a deeper understanding of the processes occurring in this integrated curriculum program [21]. Further, the use of multiple sources of evidence that converge on similar facts allowed for triangulation to occur, which can lead to greater construct validity [21]. Qualitative methods also consisted of a group interview with past students from two previous cohorts as well as an open-ended questionnaire.

The quantitative methods consisted of two separate one-time surveys: one measured learning environment perceptions while the other measured perceptions of active citizenship. The rationale for utilizing these cohorts was to ensure data on long-term outcomes since these graduates completed the program eight to nine years earlier at the time of the data collection. Further data utilizing only the learning environment survey were collected for a third cohort. The rationale for including this cohort and limiting data collection to the learning environment questionnaire was due to the increased availability of pre-program and post-program data, as it related to the learning environment tool (PLACES). These data help to determine the consistency of the instrument over time relating to long-held perceptions of the learning environment.

3.3. Learning Environment Measures

The questionnaire selected for the learning environment measures used in this study is one that had been tested and proven to be reliable in measuring place-based learning environments [17,18]. As the questionnaire is not time- or age-sensitive, the questionnaire was easily adapted for use in secondary classrooms. The questionnaire is known as the Place-based and Constructivist Environment Survey (PLACES). The eight scales incorporated

into PLACES were adapted from previously referenced inventories and were derived from data that emerged from a series of focus groups with environmental educators. PLACES is a compendium on constructs that were viewed by place-based and environmental educators as being most important for their practice [17]. The survey with all eight scales was used in this study as illustrated in Table 1 below.

Table 1. Sample Statements from all eight Scales for the PLACES instrument.

Relevance/Integration (CI)	I want my lessons to be supported with field experiences and other field-based activities.
Critical Voice (CV)	It would be ok for me to speak up for my rights.
Student Negotiation (SN)	I want to ask other students to explain their ideas and opinions.
Group Cohesiveness (GC)	I want students to get along well as a group.
Student Involvement (SI)	I want to ask the instructor questions when we are learning.
Shared Control (SC)	I want to help instructors plan what I am to learn.
Open-Endedness (OE)	I want opportunities to pursue my own interests.
Environmental Interaction (EI)	I want to spend most of the time during field local trips learning about my environment.

On the last day of each cohort program, participating students were asked to complete an “actual” form of this questionnaire. For the survey items, each statement was coded, using a Likert scale, and validity and reliability data were calculated for each sample (cohort). For the longitudinal part of the study, participating cohorts from the ES 10 program were contacted several years after program completion and asked to complete the same version of the questionnaire as part of a retrospective view of the program. Wordings on the questionnaire were put into the past tenses for this version to highlight that participants were reflecting back on their experiences, years earlier. Further data on the learning environment were collected via focus groups with cohort members after the administration of the follow-up questionnaires.

3.4. Active Citizenship Measures

During the time of data collection, a specific survey for active citizenship was yet to be developed. However, the ISSP Citizenship survey contains many active citizenship indicators as represented in the literature and was therefore used in this study. A summary of sample statements from each of the selected variables used in this survey are provided in Table 2. The ISSP is a continuous program of cross-national collaboration, which runs annual surveys on topics important for the social sciences [22]. Stratified random sampling by province and age was used to collect data in Canada. Normative data from Canada provided a useful comparison to the study groups in question. For this survey, questions relating to six constructs were utilized: (1) community participation, (2) political action, (3) empowerment (self-efficacy for social/political change), (4) informed citizen, (5) tolerance, and (6) voice. These constructs are consistent with research relating to active citizenship [23,24]. This study used a total of 45 items from this survey.

All participants were initially contacted via email and invited to participate in the study. Both the PLACES and ISSP Citizenship surveys were then administered electronically through email to participants that agreed to participate. For each item on the questionnaires, participants responded to each of the statements using a Likert-type response scale (strongly agree, agree, neutral, disagree, and strongly disagree). Fillable PDF forms were used for all surveys and questionnaires and participants emailed back the completed forms to the researchers. Survey data were then summarized, and these data were later complemented by a range of qualitative data after the administration of the survey.

Table 2. Statements from Selected Variables from the ISSP Citizenship Survey.

Variable	Statement
Good citizen	There are different opinions as to what it takes to be a good citizen. As far as you are concerned personally, how important is it to help people in the rest of the world worse off than yourself?
Political action	Here are some different forms of political and social action that people can take. Have you boycotted, or deliberately bought certain products for political, ethical or environmental reasons?
Status of belonging	People sometimes belong to different kinds of groups or associations. For each type of group, please indicate your level of belonging. A trade union, business, or professional association.
Attitude (Self-efficacy toward voice)	To what extent do you agree or disagree with the following statements? People like me don't have any say about what the government does.
Rights in Democracy	There are different opinions about people's rights in a democracy. How important is it: That people be given more opportunity to participate in public decision-making?
Unjust law (willingness to act)	Suppose a law were being considered by Parliament that you considered to be unjust or harmful. If such a case arose, how likely is it that you, acting alone or together with others, would be able to try to do something about it?
Political Interest	How interested would you say you personally are in politics?
Informed citizen	To what extent do you agree or disagree with the following statements? I feel I have a pretty good understanding of the important political issues facing Canada.
International Issues Opinion	If a country seriously violates human rights, the United Nations should intervene? Or even if human rights are seriously violated, the country's sovereignty must be respected, and the United Nations should not intervene.
Tolerance	When you meet people that you strongly disagree with, how important is it to do or say something to show you tolerate them?

3.5. Qualitative Data

An open-ended questionnaire also shared with participants contained sections related to active citizenship components and professional pathways to complement the two surveys used. Another qualitative portion of the study included a focus group interview utilizing the Interview Matrix method [25]. This methodology allows for full engagement in dialogue, equal participation, focused discussion, and consensus building. The goal was to have participants from both cohorts in the focus group portion of the study. Both cohorts were interviewed at the same time to help limit recall effects associated with a single "familiar" group reuniting after several years (Smithson, 2000). Based on Chartier's work [25], an interview matrix was constructed using four basic questions consistent with Ireland et al.'s citizenship education research [26], highlighting the key underlying factors evident in school and daily life necessary to foster and sustain active citizenship. The four

interview matrix questions used included factors such as voice, relevance, community, and skills, specifically:

- Do you believe the ES 10 program helped foster the development of skills related to one's ability and/or desire to make a contribution of sorts to the community or beyond?
- Sense of community and belonging includes the desire to be part of a strong, safe community based on networks and friendships that foster trust, concern for well-being, sense of self-worth and encouragement towards individual and collective social responsibility. Could you comment on the ES 10 program that you were involved with as it relates to sense of community as described above?
- Did the program in any way allow you to have a voice in matters that affected you? If so, how? Do you think this had any effect on the way you think and act today?
- What is it that you remember the most about the program in terms of unique learning environment features? This could also include "specific" experiences that may have affected you in some way. These examples could be positive or negative.

4. Results

4.1. Perceptions on the Learning Environment

The PLACES survey has previously exhibited exceptional reliability and validity in high-school settings [17,18] and this instrument was used to measure perceptions of the learning environment in this study. For the dataset in this research, calculated values from the Cronbach alpha and discriminant validity indicated that all eight constructs were demonstrated to be acceptable within scale reliabilities but also discriminated validly between the eight constructs measured. As a result, we are confident that the measures taken by our survey of ES 10 alumni are a reasonable representation of student perceptions in the program (both initially and long term). Figure 1 is a representation of a 2007 cohort in the program illustrating the perceptual data collected near the end of one ES 10 program versus the same cohort's results obtained five years later. The most significant finding here was how closely the results measured near the end of their program matched perceptions held by student alumni five years later. These results indicate the persistence of participants' long-held beliefs toward the learning environment is ES 10 and for the various constructs measured by the PLACES instrument.

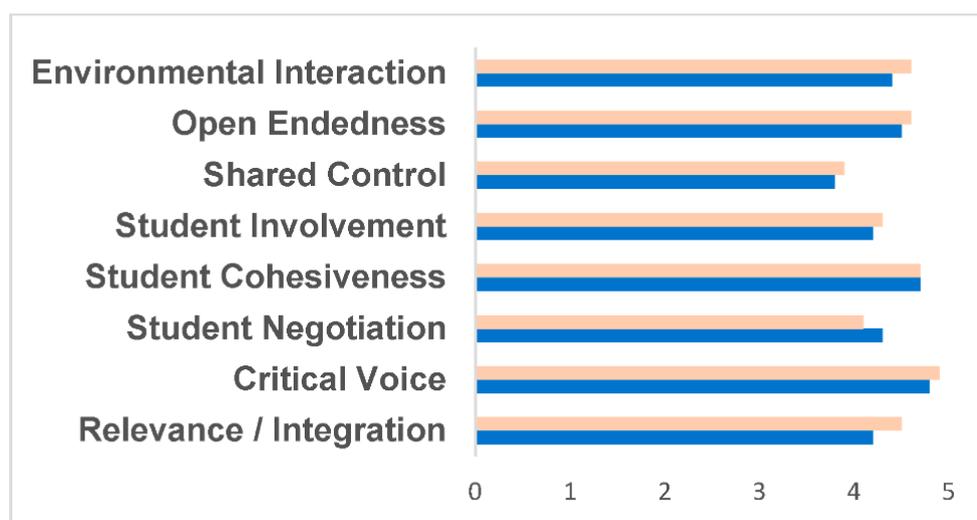


Figure 1. Learning environment data: program end vs. five years later.

Figure 1 also demonstrates that the PLACES instrument was a useful tool for understanding alumni perceptions of the ES 10 learning environment. In the study, the PLACES instrument was viewed as key in describing both the effects and features of the unique ES 10

learning environment and its contributions to participants' perceptions of their citizenship activities. It is important to note that the average mean score for all PLACES constructs was high and considered positive (above 4), with the exception of the "shared control" construct which was rated as between satisfactory and good (with an average rating of 3.5). Nevertheless, a key finding here was that student perceptions were very stable over the longer timeframe of this study and that aspects of the learning environment were closely associated with citizenship outcomes.

The construct of group cohesiveness (and a strong sense of community) emerged as major theme identified by participants in this study. The ES 10 graduates' ratings for this construct on the PLACES survey were the highest of all constructs and indicate the relative importance of this feature for participants. Qualitative data also clearly indicated that the ES 10 graduates believed that overall, the program fostered a cohesive group experience and built a strong sense of community through the strong relationships that developed among class members.

Data presented in Table 3 further illustrate this by outlining the major theme(s) that ES 10 alumni identified as key influences on their current activities and lives between high school and present day. These are also linked to the intended goals of the ES 10 Program and constructs measured by the PLACES instrument. In general, these results describe how student participation in this program can change students' expectations for learning and for the educational learning environments they encounter in school. They also provide us with rich (more holistic) descriptions of the learning environments experienced by students.

Table 3. Alignment of Program Goals, PLACES Constructs and Emergent Themes.

Stated ES 10 Goal	Related PLACES Scale and Description	Theme(s) Identified by ES 10 Alumni
Responsible citizenship	Relevance/integration: Extent to which lessons are relevant and integrated with environmental and community-based activities	Active Citizenship The program showed us concrete examples of community commitment and activism ... (Sarah)
Self-confidence. Leadership skills.	Critical Voice: Extent to which students have a voice in the classroom procedures or protocols.	Confidence using voice ES allowed me to voice my opinion, the teacher cared and listened ... Coping with ambiguity and decision making in the classroom helped me to work with others in the future ... (Lucas)
Friendships and positive peer relationships.	Group Cohesiveness: Extent to which the students know, help and are supportive of one another	Importance of community building ES encouraged a sense of caring for each other and the greater community. (Sharon)
A responsible attitude about learning. Long term interests in different subject areas.	Student Involvement: Extent to which students have attentive interest, participate in discussions, perform the work and enjoy the class	Self-discovery ES10 was an innovative and engaging program that allowed students to learn through activities but also encouraged students to explore ... and find something to care about. ... (Alex)
Decision making skills.	Shared Control: Extent to which teacher gives control to the students with regard to the curriculum and activities	Democracy in the classroom and future expectations I remember appreciating the decision-making powers that our instructor granted us, and feel that the trust he placed within our group allowed us to achieve some things well beyond our years at the time ... (David)
Decision making skills. Critical thinking skills Leadership skills.	Open Endedness: Extent to which the teacher gives freedom to students to think and plan own learning	Flexibility in schedule and curriculum leading to critical thinking and decision making Big one for me was the freedom of creativity, a flexible structure allowed for one to expand on one's creative outlet. Coping with ambiguity was difficult but helped in critical thinking and decision making. ... (Celeste)
Skill and knowledge in a range of field studies and outdoor pursuits. Responsible citizenship	Environmental Interaction: Extent to which students are engaged in field or community-based experiences	Willingness to make a difference ES helped me desire to better the world from an environmental perspective, through all the outdoor experiences and seeing what nature was all about. ES planted a seed to give to the greater community, to think outside yourself. (Emily)

As a mixed methodology case study, we also demonstrate here that outcomes from the focus group and surveys supported one another in triangulating findings about the unique design of the ES 10 learning environment. Table 3 demonstrates that the goals of the program, and the emergent themes from our qualitative findings were closely linked to the eight constructs presented in the PLACES instrument. This in some ways gives us a further qualitative confirmation of the efficacy of the survey instrument in evaluating the learning environment of place-based education programs.

4.2. Active Citizenship Outcomes

Results from the ISSP Citizenship survey [22] were utilized to compare values from the ES 10 group to data collected in 2004 on 47 countries, including Canada (N = 1211), as part as the ISSP. Comparisons include the ES 10 results compared with reported data for all ages in Canada and more importantly data from the same age group (23–24 years of age). The results indicate areas where the ES 10 group score higher or lower than the comparison groups. Since the variable list for the ISSP Citizenship survey includes constructs that can be used as indicators of active citizenship, the comparison provides an indicator of the long-term effects of the ES 10 program relating to active citizenship.

Overall, alumni of the ES 10 program demonstrated a high level of engagement in activities and initiatives that fit within the definition of active citizenship as proposed and conceptualized in this study. When compared to their Canadian counterparts, ES 10 alumni scored higher in most of the ISSP Citizenship survey categories [22]. Based on a paired *t*-test, the differences in three of the categories were statistically significant. These were (1) Social and Political Action, (2) Good Citizen (measuring community participation), and (3) Voice. Further, qualitative data from this study found that the ES 10 graduates indicated various forms of involvement in their communities, a result that was a strong indication that they were currently engaged in varied amounts of active citizenship. Figures 2–4 give a visual representation of these enhanced citizenship outcomes for ES 10 alumni.

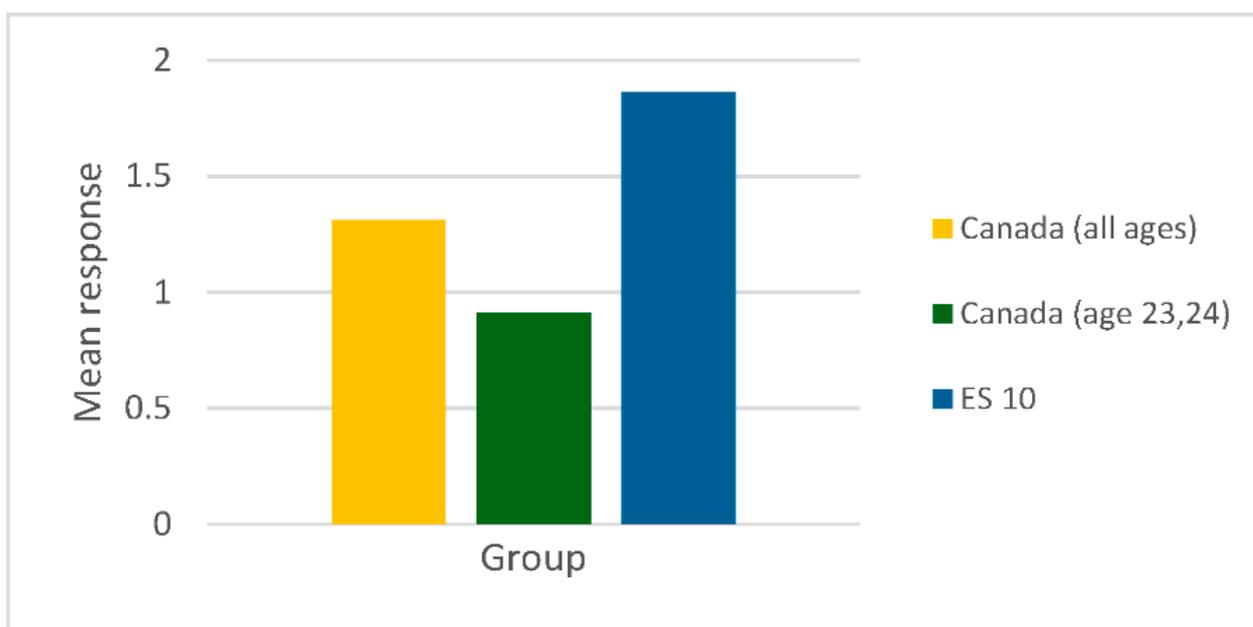


Figure 2. ISSP Citizenship Survey: Political Social Action—Overall mean scores.

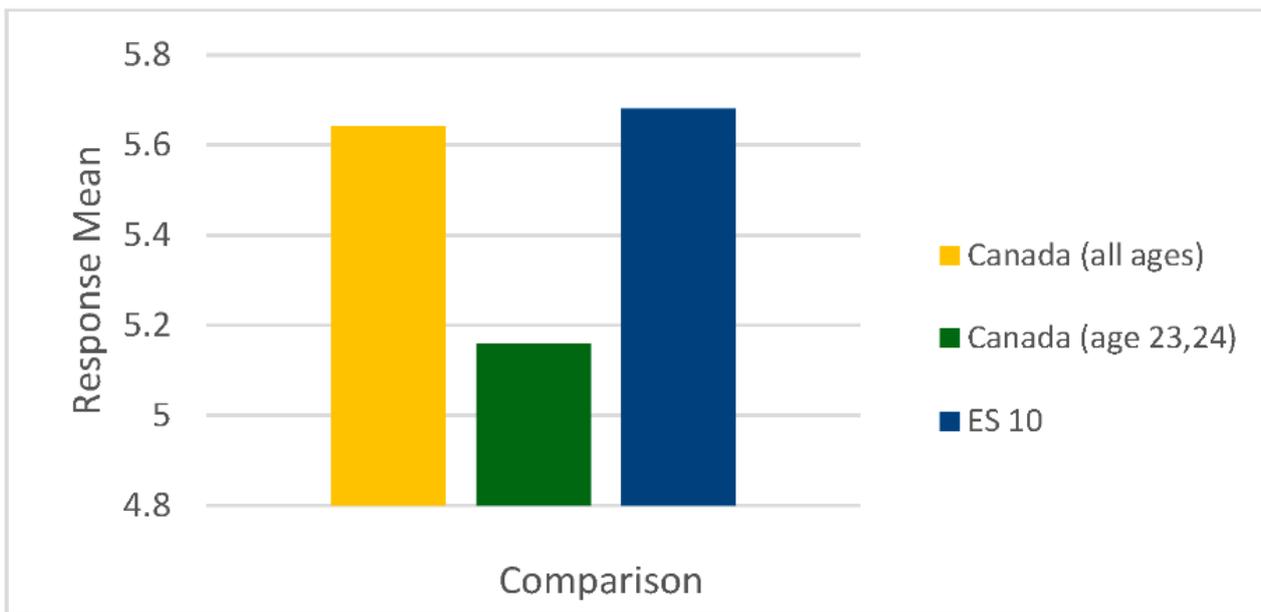


Figure 3. ISSP Citizenship Survey: Good Citizen—overall mean scores.

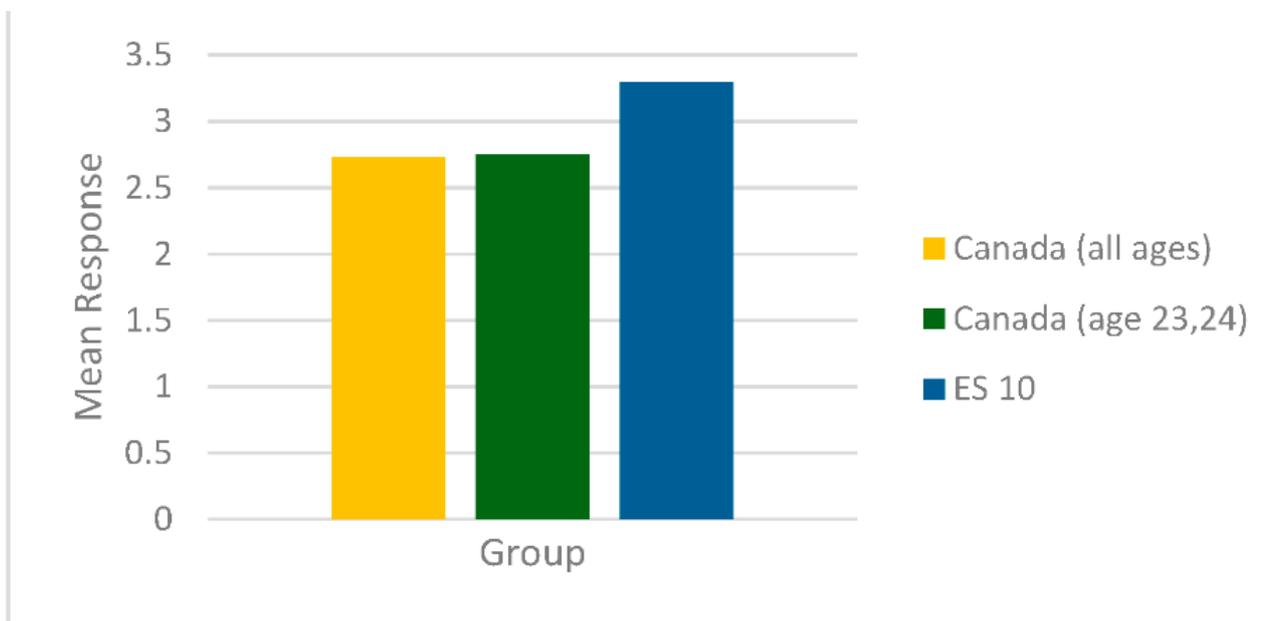


Figure 4. ISSP Citizenship Survey: Voice—overall mean scores as reported in ISSP (2012).

Another common theme from the ES 10 alumni was the idea that the program contributed directly to their desire for and belief that they could make a difference by getting involved in community activities and civil society. A further finding of this study was that those students who got involved in volunteering through school opportunities provided while they were in high school were also more likely to continue volunteering in areas such as those relating to social justice, humanitarian, health, or environmental themes after graduation. In this study, 14 of the 15 alumni who reported volunteering in school opportunities while in their Grade 11 and 12 years continued volunteering in their adult life in those areas mentioned. Furthermore, 11 of 15 alumni expanded their involvement beyond the local community level to include involvement in global initiatives as well. Table 4 gives some examples of the types of volunteerism that emerged from student comments during the focus groups and other forms of inquiry.

Table 4. Examples of Volunteerism (from student alumni comments).

Initiative/Association	Brief Description of Involvement
Red Cross	The Canadian Red Cross is a leading humanitarian organization through which mission is to improve the lives of vulnerable people by mobilizing the power of humanity in Canada and around the world.
Africa Canada Accountability Coalition	An advocacy group founded by an ES 10 graduate that engages Canadians with issues in Africa and why we must be concerned and proactive. Their focus has been on informing ourselves and the public about these issues, bringing them to the attention of media and political officials, and working towards an understanding of our responsibilities as human beings and consumers.
OXFAM	Oxfam Canada is part of a global movement for change made up of 17 Oxfam affiliates working in more than 90 countries to mobilize the power of people against poverty. Women's rights and overcoming inequality are central tenants of this organization.
Houses without borders	A network of ecological builders and other volunteers dedicated to natural building. Their focus is educational and organizational, connecting We a network of professionals and volunteers with those in need especially in poverty-stricken areas.
Global health/environment initiatives	Promotion of sanitation practice and environmental awareness in Africa. Medical outreach in Africa. Sustainable forestry practices advocacy in Brazil.
International Aid work	Reto Juvenil Internacional/Youth Challenge International in Costa Rica
Juvenile Diabetes Research Foundation	Various educational, fund raising, campaigning for juvenile diabetes research.
Environmental Youth Alliance Society	Society's focus is to engage and empower youth to create meaningful, positive action for local communities and environmental health.

4.3. Limitations of the Study

As noted, our research used a case study approach and as such our study has a few limitations which should be noted. First, the selection of participants was based on a "convenience sampling" and may not be representative of the general population participating in place-based programs more generally. Second, the self-selection of students in the focus groups, may lead to positive selection bias as only students with positive perceptions of the program may have wished to participate. Finally, as the study is retrospective in nature our results may also be confounded by "recall bias", in that study participants may have omitted or misclassified some of their perceptions of the program.

5. Conclusions

It is now clear that research on learning environments continues to develop in a diversity of ways [27] however, research linking learning environment factors to citizenship outcomes is still in its infancy [28]. This study yields some interesting insights into the unique learning environments experienced by students in place-based education settings and has led to the increasing value of the PLACES instrument in evaluating learning

environments in curriculum integrated programs. In the reported case study, students rated all scales of the learning environment consistently even 5 years after the culmination of their program and these data were further strengthened by triangulation with qualitative comments from the focus groups.

The results also acknowledge the sensitivity of the PLACES instrument over longer timeframes, strengthening its potential use as an evaluative tool for place-based learning environments. This also creates opportunities for future research using PLACES to predict and describe active citizenship, and other desirable outcomes that may prove to be associated with the learning environment facilitated in these types of programs.

Active citizens are people who care about their local community and beyond. They are motivated to make a positive contribution and have a say in what is happening. They take part, make decisions, and influence a wide variety of factors that lead to more vibrant, sustainable communities from social, political, and environmental perspectives. Some active citizens get involved with matters that are important to them within their community—while others go beyond to participate in national and global initiatives. Finally, most active citizens are motivated by a strong desire to make a positive influence or change in the world. Based on the results of our study, we assert that a large portion of case study participants fell into this broad definition of active citizenship.

A major goal of the program under study was to create and document a learning environment that invites youth to engage in learning experiences with the potential to push them to think critically while fostering environmental and social responsibility. A further practical outcome for this study would be as a tool to enable teachers to conceptualize “active citizenship” differently: not as a curricular outcome to be covered in the syllabus but instead as a key outcome relating to their practice—and the resultant learning environments they foster for their students.

Finally, this study clears the way to consider a broader range of educational outcomes that may be influenced by the learning environment created in innovative educational programs. In this case, the outcome of active citizenship was achieved, and the learning environment created by the program played a critical role in fostering this outcome.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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