Chapter 5
Effective Teaching: Linking Outcomes of Active Citizenship to Learning Environments

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Abstract This chapter discusses the use of a learning environment instrument, the Place-Based Learning and Constructivist Environment Survey (PLACES) in an environmental studies program that operated out of British Columbia, Canada. In order to access information about students' perceptions, the instrument was implemented in an Integrated Environmental Studies program called Experiential Studies 10 (ES 10) as part of a range of evaluation methods. The study was retrospective in nature utilizing a mixed method approach to determine the long-term effects of the program on participants' citizenship activities. Our findings demonstrate that learning environment and citizenship outcomes were linked, and key learning environment features were identified as being important for long term outcomes of active citizenship. This chapter will provide a brief overview of the study and shed light on how paying close attention to the learning environment created within environmental education programming can contribute to long-term outcomes of active citizenship.

Keywords Learning environments · Active citizenship · Place based learning

1 Introduction

Contemporary learning environments research is a diverse field of inquiry and various approaches, studies and instruments have been developed, tested and validated in diverse settings and countries, with particular attention to science education

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contexts (Fraser, 1998, 2014; Zandvliet & Fraser, 2018). This research trajectory has "provided convincing evidence that the quality of the classroom environment in schools is a significant determinant of student learning" (Dorman et al., 2006, p. 2). Further, there is compelling evidence suggesting that classroom environments of various types can have a strong effect on other types of student outcomes including attitudes (Fraser & Butts, 1982; Fisher & Khine, 2006; Fraser, 2007, 2014). In this study, we explore the concept of 'active citizenship' as another type of outcome that is potentially influenced or predicted by the learning environment as co-constructed among teachers and students.

Today, a large amount of school time is spent in classroom environments where students are expected to learn skills to help navigate and achieve success in a global environment. Schools play a key role in shaping students to be successful in society but also prepares them to be a contributing member as an active citizen. Positive learning environments can play a large role in creating experiences that lead to long-term outcomes such as active citizenship. Active citizens can be described as people who care about their local communities and beyond. Active citizens actively embrace social responsibility and take it upon themselves to play a civic role of being informed and maintaining and developing critical perspectives while becoming actively involved in social, political and/or environmental issues (Kincheloe, 2005). Pickett and Fraser (2010) define the classroom learning environment as "the students' and teachers' shared perceptions" (p. 321) within the learning space created. Learning space can be described as the physical setting for learning: the place in which teaching and learning occur, which can happen indoors or outdoors. The psychosocial environment includes all relationships that exist between participants (teacher, student, and other students). The majority of research and evaluation of education includes measures of academic achievement and other learning outcomes without much reference to the educational process (Pickett & Fraser, 2010). More recently, significant progress has been made in the "conceptualization, assessment, and investigation of the learning environments of classrooms and schools" (Pickett & Fraser, 2010, p. 321). Zandvliet (2014) describes research on learning environments "as both descriptive of classroom contexts and predictive of student learning" (p. 18). Therefore, research in learning environments plays a valuable role in the field of education especially if one wants to make connections between long term outcomes. Zandvliet (2012) asserts that research in learning environments plays a valuable role in the field of education, especially the evaluation of new curricula or innovations, which would include innovative programs with citizenship outcomes. This kind of research can provide "the description of a valuable psychological and social component of students' educational experience" (p. 18). There is convincing evidence that links the quality of the classroom environment in schools (which relates to the interpersonal interactions between the teacher and students) toward student learning, which includes achievement, attitude and behaviours (Pickett & Fraser, 2010; Zandvliet, 2014). This chapter describes a long-term study on an integrated curriculum program called *Experiential Studies* 10 that demonstrates that learning environment and citizenship outcomes can be linked, and that key learning environment features can be identified as contributing to the long term outcome of

active citizenship. It begins by providing a brief overview of the study and then investigates how key learning environment features of the programs lead to long-term outcomes of active citizenship.

1.1 The Experiential Studies 10 Program

The Experiential Studies 10 (ES 10) program can be considered as an example of an integrated curriculum program. Integrated curriculum programs (ICPs) are interdisciplinary educational programs that blend content from various sources around a common theme. Typical ICPs combine various courses taught in a holistic manner. The ES 10 program is an ICP that combines Science 10, Earth Science 11, Social Studies 10, and Physical Education 10. Horwood (1994) states, "Integration happens, not so much from putting school subjects together into a shared time and space, but from certain types of general experience which transcends disciplines" (p. 91). ICPs tend to blend complementary subject areas with the intention of creating interdisciplinary investigations of a central theme, topic, or experience (Jacobs as cited in Breunig & Sharpe, 2009). The ES 10 program is an ICP that utilized a multidisciplinary and place-based education approach to foster critical thinking. The program includes a multitude of real-life learning experiences conducted in various locations in Southern British Columbia, Canada. Examples of these experiences include: working in partnership with other integrated curriculum program students, conducting various forest mapping and environmental monitoring for sustainable forest practices on Salt Spring Island and working alongside a University of British Columbia PhD candidate on a study of sea lice and salmon fry.

1.2 Place Based Education

The notion of a place-based education was described by Soble (1993, 1996) and others have expanded these ideas (Gruenewald, 2003; Hutchison, 2004; Orr, 1992, 1994; Thomashow, 1996; Woodhouse & Knapp, 2000). Describing exactly what constitutes a place-based education becomes clouded partly due to the multifaceted and interdisciplinary nature of the literature where this notion seems to reside. Gruenewald (2003) asserts 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 paper relates how learning environment methodologies can be employed effectively in place-based and environmental education studies and relates the development 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, co-operative learning skills, and an increased motivation to learn (Zandvliet, 2012). In addition,

place-based practices have been demonstrated to be an important learning feature towards outcomes of active citizenship (Sturrock, 2017). Keeping this focus in view, this study reports on the use of a learning environment instrument: the Place-based and Constructivist Learning Environment Survey or PLACES (Zandvliet, 2012) as it relates to the development of students' citizenship values.

Through place-based environmental education, learners' cognitive structures may be altered, environmental attitudes modified and the general learning environment that develops around these programmes can enrich and stimulate further learning. These elements are viewed as interconnected and will change as a whole system, not as separate parts (Johnson & Johnson, 2003). This type of research has been described as congruent with an ecological view of education (Zandvliet, 2012). In this chapter, we detail a study of the students learning environment to examine how the types of learning environments developed in place-based environmental education settings as well as its association to student outcomes such as citizenship. We also consider the suitability of the PLACES instrument for environmental education research in this particular learning context.

2 Methodology

This case study uses a mixed methodology that incorporates both qualitative and quantitative research methods. The study context was a grade 10 Integrated Environmental Studies Program called Experiential Studies 10 (ES 10) from a Canadian high school. Three different cohorts from years 2003, 2004, and 2007 were included in the study. Both the 2004 and 2007 cohorts had 24 students of relatively equal number of males and females while the 2004 cohort had 23 students with 16 females and 7 males. Refer to Table 5.1 for a detailed demographic of participants from the 2003/04 cohorts. Data collection protocols included administration of quantitative surveys (PLACES), focus groups, open ended questionnaires, and participant-researcher observations. The study was also longitudinal in nature as one cohort of students were administered a learning environment survey 5 years earlier as part of an earlier study and five years later as part of a follow-up study. The first set of data collection was conducted in 2007 (Koci, 2013) and cross-referenced five years later (Sturrock, 2017). Two other cohorts from 2003 and 2004 were included in the study to provide deeper understanding of the long-term effects of program related to active citizenship. For these cohorts the PLACES survey, active citizenship survey, focus groups, and open-ended questionnaires were retrospective in nature. The core research question for this study was: "What are the perceptions of a group of alumni from a Grade 10 integrated curriculum program (ES 10) with regard to the effects of the program on their citizenship activities?". The four sub questions addressed engagement in communities or beyond, perceived influence of the program relating this engagement, skills that have been developed or fostered having a positive effect towards community participation and aspects of the program that had the greatest general impacts.

Table 5.1 Demographic of participants

Demographic of the 2003/04 ES 10 cohorts		
	2003 Cohort	2004 Cohort
Total number of students	24 students (12 male, 12 female)	23 students (7 male, 16 female)
Ethnicity of students	Majority of the students were born in Canada and were Caucasian. A small percentage (5/24) of students were immigrants, all attaining Canadian Citizenship at the time of the study. Ethnicity of immigrants: (Chinese (2), Korean (1), Russian (1), Chile (1)).	Majority of the students were born in Canada and were Caucasian. A small percentage (4/23) of students were immigrants, all attaining Canadian Citizenship at the time of the study. Ethnicity of immigrants: (Chinese (3), German (1)).
Socio-economic status of students	Most of the students came from middle class families with a small percentage (1–2 in each cohort) from the lower middle class family. **Note**: Majority of people living in Coquitlam, BC (in the Centennial High School area) are considered middle classed (Tri-Cities Chamber of Commerce, 2014).	
Academic profile of students	Although there was an application process for students accepted into ES 10, academic achievement was not a criterion. The students in this cohort represented an average level of academic achievement. However, since this was a unique program and students do apply to be part of it, suggests that it is self-selecting and may attract more self-motivated students. **Note**: Two seats were reserved for students that were identified by counsellors and/or administrators that were having difficulties in regular school usually associated with achievement, and attendance.	

To further augment the active citizenship portion of the study the International Social Survey Program (ISSP) Citizenship 2004 survey was administered to the 2003/04 cohort. The results from the ISSP Citizenship 2004 survey (ISSP, 2012) were utilized to compare values from the ES 10 group to data collected in 2004 on 47 countries, including Canada, as part as the ISSP. Comparisons include the ES 10 results compared to all ages in Canada and more importantly data from the same age group (23–24 years of age). The results from this survey indicate areas where the ES 10 group score higher or lower than the comparison groups. Since the variable list for the ISSP Citizenship 2004 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. These indicators include community participation, political action, empowerment, informed citizen, tolerance, and voice, which is consistent with active citizenship research (Durr, 2004).

2.1 Data Source/Evidence

The questionnaire selected for the study is one that had been tested and proven to be reliable in measuring learning environments in secondary classrooms (Zandvliet, 2012). The Place-based and Constructivist Environment Survey (PLACES) has

been extensively utilized throughout six countries and administered to over 3000 students (Zandvliet, 2007, 2012) showing consistently acceptable measures of internal consistency (Cronbach alpha reliability) and for discriminant validity for its eight constructs. Furthermore, three of the constructs from the tool (critical voice, community relevance and student cohesiveness) are significant learning environment factors that have been linked to long-term active citizenship (Ireland et al., 2006). As the questionnaire is not time or age sensitive, the questionnaire was easily adapted for our use in this study setting. The PLACES questionnaire has eight scales adapted from the previously referenced inventories and were derived from data that emerged from a qualitative study of environmental educators' preferences as such, PLACES can be described as a compendium on constructs viewed by place-based and environmental educators as being most important for their practice (Zandvliet, 2012). Table 5.2 gives sample items from each scale for the PLACES questionnaire (Zandvliet, 2012).

Data collection for our study proceeded in two phases. For the 2007 cohort, each student was asked to complete the Preferred form of PLACES within the first week of the program, and on the last day of course each student was asked to complete the Actual form of PLACES. To complete the questionnaires each statement was responded to using a Likert scale 1–5. Validity and reliability data were calculated for all samples. Five years later the original cohort was contacted again and asked to complete the Actual-PLACES questionnaire once more. Summaries of the results relating to the 2007 cohort can be found in Tables 5.3, 5.4, 5.5, and 5.6 which includes validity and reliability data. These survey results were then augmented by administering the PLACES questionnaire to the 2003 and 2004 cohorts and followed up with a group interview, individual interviews, and an open-ended questionnaire. The class size for the 2003 and 2004 cohorts were 24 and 23 respectively with 36 of these past graduates participating in the study. Refer to Table 5.7 for the summary of the PLACES results for the 2003 and 2004 cohorts. The rational for utilizing the 2003 and 2004 cohorts was to ensure long-term results since these graduates completed the program eight to nine years earlier at the time of the data collection and that many of these students completed their post-secondary studies.

Table 5.2 Sample statements from the selected scales for PLACES questionnaire

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 Cohesion (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.

Table 5.3 2007 Cohort pre-actual results (Perceptions of the traditional classroom)

Scale	Mean	σ	CA	DV
Relevance/Integration	2.6	0.59	0.6	0.29
Critical Voice	3.6	0.82	0.7	0.32
Negotiation	3.2	0.79	0.8	0.32
Cohesiveness	2.8	0.70	0.8	0.39
Involvement	3.2	0.73	0.7	0.27
Control	1.7	0.74	0.8	0.21
Open Endedness	3.0	0.50	0.6	0.32
Environmental Interaction	3.5	0.55	0.7	0.17

Table 5.4 2007 Cohort ES-actual results (Perceptions of the ES 10 Program)

Scale	Mean	σ	CA	DV
Relevance/Integration	4.2	0.64	0.8	0.30
Critical Voice	4.8	0.26	0.8	0.09
Negotiation	4.3	0.53	0.8	0.37
Cohesiveness	4.7	0.53	0.8	0.21
Involvement	4.2	0.50	0.6	0.41
Control	3.7	0.76	0.8	0.24
Open Endedness	4.4	0.52	0.6	0.37
Environmental Interaction	4.4	0.42	0.7	0.17

Table 5.5 2007 Cohort pre-preferred results (Preferred learning perceptions at start of ES 10)

Scale	Mean	σ	CA	DV
Relevance/Integration	4.2	0.42	0.6	0.16
Critical Voice	4.7	0.35	0.7	0.33
Negotiation	4.1	0.57	0.7	0.40
Cohesiveness	4.6	0.41	0.7	0.32
Involvement	4.1	0.60	0.7	0.35
Control	3.8	0.75	0.8	0.47
Open Endedness	4.3	0.56	0.7	0.44
Environmental Interaction	4.0	0.67	0.7	0.37

Table 5.6 2007 Cohort post results (Perceptions of program five years later)

Scale	Mean	σ	CA	DV
Relevance/Integration	4.5	0.42	0.7	0.29
Critical Voice	4.9	0.26	0.8	0.22
Negotiation	4.1	0.48	0.8	0.41
Cohesiveness	4.7	0.43	0.8	0.30
Involvement	4.3	0.49	0.7	0.34
Control	3.9	0.50	0.7	0.21
Open Endedness	4.6	0.32	0.6	0.31
Environmental Interaction	4.6	0.28	0.6	0.34

Table 5.7 2003/04 Cohorts post results (Perceptions of program eight to nine years later)

Scale	Mean	σ	CA	DV
Relevance/Integration	4.4	0.39	0.7	0.3
Critical Voice	4.7	0.33	0.7	0.36
Negotiation	4.3	0.5	0.8	0.37
Cohesiveness	4.7	0.3	0.7	0.32
Involvement	4.4	0.46	0.7	0.3
Control	3.5	0.65	0.9	0.39
Open Endedness	4.5	0.44	0.7	0.31
Environmental Interaction	4.5	0.37	0.7	0.33

The rational for including the 2007 cohort was due to the availability of preprogram and post program data as it relates to the PLACES learning environment tool from Koci's (2013) study. The results from administering the PLACES questionnaire to the 2007 cohort five years later helps determine consistency of the instrument related to long-held perceptions (beliefs) which is significant for learning environment research and for this study since participants were asked to recall their experiences in the program that occurred eight to nine years earlier. We were able to follow up with 18 out of 24 possible students in the 2007 cohort.

3 Results

As in previous studies, the Cronbach alpha (CA) was utilized to measure internal consistency while discriminant validity (DV) was utilized to measure validity for the scales in PLACES. The Chronbach alpha calculates the internal consistency of the items within each scale or construct, which indicates that all the questions within the same construct are responded to similarly. Higher numbers represent better internal consistency with 1.0 indicating a perfect correlation. High consistency indicates the questions within the scale are responded to similarly and so can be aggregated together into one factor. Values of 0.6 or less are considered poor or unreliable (George & Mallery, 2003). The discriminant validity (DV) is used to determine if each of the eight constructs is measuring a unique (or distinct) concept. Constructs that measure something conceptually different than other scales have values of 0.4 or less (Revelle & Zinbarg, 2009). The calculated values from the Cronbach alpha and discriminant validity data from administration of PLACES across the time frame of this study indicated that that the eight constructs included in both forms of the instrument demonstrated acceptable within scale reliabilities but also discriminated validly among the eight constructs measured. This demonstrates that the PLACES instrument is robust and was suitable for use within the context of our study. Tables 5.3, 5.4, 5.5, and 5.6 highlight students' perceptions for the 2007

cohort as described by the PLACES instrument at various times over the course of this longitudinal study which also includes Cronbach alpha and discriminant validity data (all within the acceptable range as described above).

In each setting, the mean responses for each scale of the preferred questionnaire (Table 5.5) are similar to the responses for the actual form of the questionnaire (Table 5.4), thereby confirming the findings of our preliminary case study work. This indicates that students' actual learning environment often met the expectations of their preferred learning environment as measured by the PLACES questionnaire. Overall, these data indicates that students were more satisfied with the learning environments created through the experiential programmes than they were with the learning environments created through more traditional classroom-based programmes.

In general, study results also describe how student participation in this type of programme might change students' expectations for overall learning and for the educational learning environments they encounter in schools and provide rich (more holistic) descriptions of the different learning environments experienced by students. Another key finding was that students' perceptions were very stable over the long timeframe of this study (5 years) and that certain aspects of the learning environment were closely associated with Citizenship outcomes. Table 5.6 demonstrates the PLACES results five years later while Fig. 5.1 displays the ES 10 participants perception results in a graph format five years later to the actual program results. The two graphs are remarkably similar demonstrating how stable student's perceptions using the PLACES inventory was over a five-year time period.

The PLACES survey tool was also utilized for the ES 102003/04 cohorts to assess students' perceptions of their learning environment while in ES 10, administered eight to nine years after being in the program. The PLACES results for the 2003/04 cohorts are shown in Table 5.7 which also includes Cronbach alpha and discriminant validity values (all in the acceptable range). The information from the PLACES survey indicated learning environment features that students feel are important that lead to long-term learning and active citizenship. The overall mean score (sum mean of all data) for the 2003/04 cohort was 4.4, indicating a positive perception of the ES 10 learning environment by the graduates of this program. Comparing the 2007 cohort results from Koci's (2013) study to the same group of students five years later (2007 cohort post 5 years) shows striking similarity in values. The overall mean score for the 2007 cohort from Koci's (2013) study was 4.4 while the overall mean score from the same group of students five years later was 4.5.

The qualitative portion of this study included a focus group and individual interviews for participants not available for the group interview, and an additional open-ended questionnaire. The focus group method utilized an Interview Matrix method (Chartier, 2002). The 2003 and 2004 ES 10 cohorts formed a large focus group of 21 students. The interview matrix is a tool to build dialogue for groups of up to 40 participants. The methodology allows for full engagement in dialogue, equal participation, focused discussion and consensus building. Both cohorts were interviewed at the same time to help limit recall effects associated with a single "familiar"

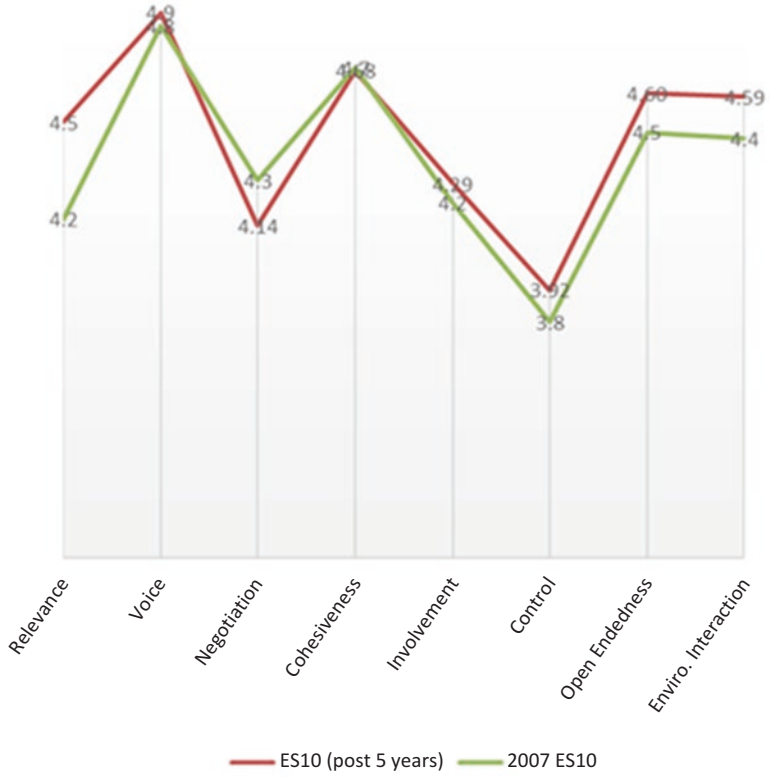

Fig. 5.1 Comparison of ES 102007 perceptions and five years later

group reuniting after several years. The questions for the focus group were designed to provide insight on respondents' long-held perception of ES 10's learning environment factors that they perceived to have affected them most as they relate to active citizenship components. The open-ended questionnaire contained sections related to active citizenship components and professional pathways.

Other questions included demographic information about the level of education completed, employment history, professional memberships or certifications, volunteerism, affiliation, long held beliefs about high school experiences and participatory practices. Qualitative and quantitative methods were used to increase the validity and reliability of the study by triangulating the qualitative results with the quantitative results (Creswell & Plano Clark, 2007). Data collected through the open-ended questionnaire and group interview were systematically analyzed through routine procedures to include traditional procedures using Microsoft excel and later using the qualitative software NVivo. The NVivo program helped organize the data beyond traditional approaches by sorting the coded data and making it easier to provide searches and cross referencing as well as frequency counting. This qualitative methodology was well suited to determine ES 10 graduates' perceptions

Table 5.8 Characteristic event: Volunteerism

Characteristic event	Notes
Volunteerism	All graduates volunteered at the community level or beyond. 33% of graduates coached a sport 67% of graduates' volunteer in the community at various levels (environmental organizations, youth groups, outreach initiatives, church groups, homeless initiatives, poverty initiatives, women's shelters, medical initiatives, Social justice, youth engagement in democracy) 20% of graduates' volunteer in global initiatives (Red Cross, Africa Canada Accountability Coalition, OXFAM, Houses without borders, Global Health Initiatives, International Aid Worker) **Note**: Fifteen graduates reported getting involved with school organizations related to active citizenship in their grade 11, 12 years. Out of these fifteen, fourteen reported actively engaged in social justice, humanitarian, health, or environmental themed initiatives at the time of the study (6–7 years after completion of high school).

toward lasting effects relating to active citizenship and linking these to learning environment features that students perceived as important. Table 5.9 demonstrates how aspects of the learning environment related to the PLACES inventory and how these aligned with outcomes of active citizenship as defined in the literature.

In summary of the ISSP survey results, the graduates 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 graduates scored higher in most of the ISSP Citizenship 2004 survey (ISSP, 2012) categories. Based on a paired *t*-test, the differences in three of the categories were statistically significant. The three categories that were found to be significant were (1) Social and Political Action, (2) Good Citizen (measures community participation) and (3) Voice. Further the 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 a varied level of active citizenship. All of the ES 10 graduates in the study volunteered in their community or beyond. Table 5.8 provides a summary of the various volunteerism reported by the ES 10 graduates.

4 Discussion

One of the sub questions in the study asked whether alumni believed that ES 10 had affected their civic engagements. Exploration of the participant responses was extended by probing to discover which particular activities, experiences or features of the ES 10 experience were seen as being important to the development of their civic engagement. Thus, this question provided a good opportunity to identify key learning environment features that the graduates described as having affected their civic engagement. Table 5.9 is intended to show connections between elements of the PLACES learning environment construct to active citizenship outcomes as

Table 5.9 Comparison of places constructs with active citizenship

Related PLACES scale and description	PLACES construct example from ES 10 participants	Active citizen related outcomes as demonstrated in the review of literature
Relevance/integration: Extent to which lessons are relevant and integrated with environmental and community- based activities	*The program showed us concrete examples of community commitment and activism. In university, I founded the non-profit organization: Africa Canada Accountability Coalition (Sarah)*	An active citizen embraces social responsibilities and takes it upon themselves to play a civic role of being informed, maintaining and developing critical perspectives while becoming actively involved in social, political and/or environmental issues (Kincheloe, 2005).
Critical Voice: Extent to which students have a voice in the classroom procedures or protocols.	*ES allowed me to voice my opinion … coping with ambiguity and decision making in the classroom helped me to work with others in the future. Today I am confident in using my voice and self-advocacy which is important in my field of study* (Marine Biology). *(Lucas)*	Empowerment and "giving people a voice" as well as taking responsibility and leadership. (European Commission Directorate General for Education and Culture (2007).
Student Negotiation: Extent to which students can negotiate activities in their class	*We had a say in our learning which (then) led to cooperation and the acceptance of differences for the benefit of the group. I believe this has helped me with tolerance today when meeting people outside (my) usual crowd (Lily)*	Important skills and attitudes related to active citizenship; Communication skills, debating skills, active listening skills, problem solving skills, coping with ambiguity, working with others and openness to change/ difference of opinion (Hoskins, 2006, p. 7).
Group Cohesiveness: Extent to which the students know, help and are supportive of one another	*We were successful at creating a strong internal community…. This made a very strong impression on how important a support network is in life (Mike)* *ES encouraged a sense of caring for each other and the greater community. (Sharon)*	Linking experience to opportunity; young people made connections between their opportunities and active citizenship experiences in various contexts (Ireland et al., 2006).

(continued)

Table 5.9 (continued)

Related PLACES scale and description	PLACES construct example from ES 10 participants	Active citizen related outcomes as demonstrated in the review of literature
Student Involvement: Extent to which students have attentive interest, participate in discussions, perform additional work and enjoy the class	*To this day, I believe that ES10 was an innovative and engaging program that allowed students to not only learn through activities but also encouraged students to explore their natural curiosities in life and find something to care about. (Alex)*	Linking experience to opportunity; young people made connections between their opportunities and active citizenship experiences in various contexts (Ireland et al., 2006).
Shared control: Extent to which teacher gives control to the students with regard to curriculum/activities	*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… I believe we should have democratic control as to how we learn and work. This is instilled in ES. (David)*	Having a voice; young people believed that they should have a voice on matters that affect them especially at school (Ireland et al., 2006).
Open Endedness: Extent to which the teacher gives freedom to students to think and plan own learning	*Big one for me was the freedom of creativity, the flexible structure allowed the ability for one to expand on one's creative outlet. Coping with ambiguity was difficult but helped in critical thinking and decision making... Being pushed out of our comfort zone, helps in today's challenges. (Celeste)*	Creativity, critical thinking skills, coping with ambiguity and informed decision making (Hoskins, 2006). Providing students opportunities to plan and implement actions that address real environmental problems in local communities is a powerful way of enhancing civic literacy (Orr, Strapp et al. in McClaren & Hammond, 2005).
Environmental interaction: Extent to which students are engaged in field or community-based experiences	*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)*	Student involvement in place-based activities and communities of practice helps foster social and environmental action and responsibility (O'Connor & Sharp, 2013).

described in the literature through illustrated examples how some alumni perceived the effects of particular program features and experiences on their current citizenship and community-related activities. For example, Sarah's comment (Table 5.9, Row 1) aligns with the PLACES construct of relevance and integration is connected to various activities that she recalled as occurring during the extended field experiences. Emily's comment (Table 5.9, Row 8) on the importance of being immersed in outdoor settings as a means to understand environmental issues as a key feature in her willingness to contribute aligns with the PLACES construct of environmental interaction and connects to the ES 10 goal of developing skill and knowledge in a range of field studies and outdoor pursuits. Both examples demonstrate how being immersed in community-based experiences can foster important beliefs and attitudes leading to active citizenship, which is consistent with the literature as illustrated in (Table 5.9, Column 3).

From the perspectives of Sarah and Emily, these two learning environment features were very important contributors to the development of their adult civic engagement. Further exploration into the responses from the graduates indicated the importance of how accepting and open they perceived the ES 10 learning environment to be. Sharon (Table 5.9, Row 4) believed ES 10 "*encouraged a sense of caring for each other and the greater community.*" She later spoke to this point during the consensus gathering part of the group interview, and her comments met with agreement from all other graduates. This group interview method included a consensus portion where common themes or outliers relating to the questions were identified by groups of graduates and then presented for all participants to determine if everyone was in agreement or had other points to add. Sharon's statement was as follows:

> *We were in grade 10 but felt we could have a big impact…. We learned to push ourselves further than ever before, everyone was pushing themselves, so it felt natural to do so. (Sharon)*

Sharon used the term "we" demonstrating that she felt comfortable describing this experience from a collective rather than individual perspective. Interestingly, many other responses from the group interview and questionnaires yielded similar responses referring to this collective experience using words like "*us*" and "*we.*"

Another important piece from Sharon's earlier statement (Table 5.9, Row 4) is the importance of a "*sense of caring for each other and the greater community*," which demonstrates the program fostered personal and social responsibility. Further, Sharon's comments above on how natural it was for students to push themselves in a collective way appear to recognize that although they were only in Grade 10 they were capable of much more than they might have expected from themselves.

It is important to note that a stated goal of the ES10 program was the development of "Friendships and positive peer relationships", and this connects to the PLACES construct of Group Cohesiveness: "Extent to which the students know, help and are supportive of one another." Being part of a strong sense of community where students trust and support each other is supported by the literature as a key feature to foster active citizenship as illustrated (Table 5.9, Row 4). What Sharon is

describing can be termed a community of practice. The concept of community of practice is attributed to the works of Lave and Wenger (Farnsworth et al., 2016). The key premise behind communities of practice is that they reflect fundamentally on the social nature of learning, which is illustrated when a group of people share a common concern or passion for something they do and go through a learning process together. When a community of practice develops, it also enables the social construction of knowledge. This learning takes place through shared experiences and co-participation in multiple learning practices such as those designed in a program such as ES 10. The following statement made by a graduate during the group interview phase of this research demonstrates participants' perception of the shared experience:

> *It was a crucial development point in our youth, we were allowed to experiment in a safe environment. Personal development through exploration grew to have strength in self which lead to sense of responsibility. There were demonstrated tangible benefits to include: communities based on* ***values****, personal growth, and a support network based on mutual trust developed skills leading to higher level of confidence and belief in oneself. Being responsive and taking responsibility was encouraged. We met people in the community which taught us skills and the importance of being involved. Experiencing small communities like on the Vancouver Island trip helped us realize that relationships were based on* ***shared values*** *rather than proximity. Working through real-life problems with community members gave us something to care about. (Peter)*

It was noted that Peter's comments also met with consensus among the participants in the group interview session. What Sharon's and Peter's comments provide is a sense of what they believe to be the elements of ES 10 that may also have been important in fostering their community involvement following completion of the program. James uses the term "value" more than once in his comment. According to Raths et al. (1978), values are attitudes about the worth or importance of people, concepts or things. Values influence behaviour because one uses them to decide between alternatives. Values along with attitudes, behaviors and beliefs are foundational of who individuals are and how they do things (Raths et al., 1978).

Raths (as cited in Raths et al., 1978) focused on the process of valuing rather than values as being something static or fixed, which involved prizing one's beliefs, choosing one's beliefs and behaviours and acting on one's beliefs. The term value was used by many other students as well when describing their ES 10 experiences in relation to their interest and/or belief of making a difference in their communities, which aligns with Raths's valuing process. The influence of program experiences on value development is demonstrated by the following comment: "*The beach surveys (looking at change to our environment) and all the other outdoor experiences created a value and importance for the environment*" (Gerald). From the following graduate's perspective, shared values were prompted by "*the connection between the class and community helped realize your role as a citizen, there was a collective social responsibility here. The beach cleanup activity that we organized outside school time – was 100% initiated by us*" (Kerry). It is possible that shared values prompted by field experiences (attached to real-life problems) ignited a sense of agency in many students as illustrated by Kerry's comment.

A critical element here is that the sense of community that was established through classroom initiatives and to a larger extent through extended field experiences that allowed students to experience real-life phenomena issues and activities in local communities. In this heightened sense of community, students' perceptions of group cohesion were raised, as evident from their responses on the PLACES questionnaire and supporting qualitative data. Group cohesion is high when the "*sense of caring*" (Candice) can develop and when students are involved in experiential learning experiences centered around "*real-life problems with community members*" (Peter). Further, Peter saw high group cohesion as allowing students "*to experiment in a safe environment*," which was believed led to "*personal development*."

In addition, group cohesion translated to "*being responsive and taking responsibility*" because a "*support network based on mutual trust*" was built through experiences such as the one on Vancouver Island as referenced by Peter. The Vancouver Island experience included field experiences that saw the ES 10 students working collectively with community members and professional biologists to engage with a variety of real-life environmental issues. The trip was one week in duration wherein the class visited various communities and got involved in a wide range of activities. Examples of activities on the Vancouver Island trip included wetlands studies, foreshore and intertidal studies, forestry studies and land use studies. These investigations grew out of the concern of local community members. The following statement by Sue which met consensus during the group interview, which referred to these experiences on Vancouver Island, support Peters claim: "*This community involvement opened the idea of social responsibility … we developed an appreciation of place and people developed through community interaction.*" The experiences gave ES 10 students something common to care about and may in turn have led to the community of practice effect seen in the students' descriptions.

ES 10 experiences appeared to have led to a heightened willingness for individual students to make contributions of sorts to their own communities. Emily's comment (Table 5.9, Row 8) supports this claim as she believed, "*ES planted a seed to give to the greater community.*" It is important to note that the activities described on the Vancouver Island trip are consistent with the activities referred to by Sarah, Alex and Emily (Table 5.9, Rows 1, 5 and 8 respectively).

Further, collective groups of students from both the 2003 and 2004 cohorts reported involvement and collective contributions with volunteer organizations such as Stream Keepers and the Salmon Club while still in the ES 10 program and with volunteer organizations such as IMPACT (school group focusing on social justice issues), Juvenile Diabetes Research Foundation, The Salmon Club and Red Cross during their Grade 11 and 12 years. Many of these graduates attributed their experiences in ES 10 as stimulating their direct involvement in these programs, as evident by the following graduates comment:

> *There is no doubt in my mind that my grade 10 ES class allowed me to build a foundation of personal values that are based on a healthy natural environment and vibrant community. Following* ES (while she was still in high school), *I was asked to be the President of the leadership group, IMPACT. This volunteer group also allowed me to synthesize my passion for social justice. These two things encouraged me to find a degree to help influence in social justice. (Kerry)*

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. A major finding of this study was that those students who got involved in volunteering through school opportunities provided while they were in their Grade 11 and 12 years were also more likely to continue volunteering in areas such as those relating to social justice, humanitarian, health or environmental themes after completion of high school. In fact, 14 of the 15 graduates who reported volunteering in school opportunities while in their Grade 11 and 12 years continued volunteering in their adult life in those areas mentioned. Further, 11 of the 15 graduates just mentioned expanded their involvement beyond the local community level to include involvement in global initiatives as well.

A major point to note is that while it appears the student's desires to get involved in active citizenship were ignited by the ES 10 program those who did continue to be involved in their Grade 11 and 12 years for the most part volunteered in school-supported initiatives such as Red Cross, IMPACT and the Salmon Club, and they did this collectively in small groups with fellow ES 10 students. In addition, since these graduates collectively participated with fellow ES 10 students in the mentioned initiatives, this indicates the importance of working with peers of similar interests.

Schools can play a role in the development of citizenship, and school environments can provide safe and supportive stepping stones or scaffolds into citizenship-related activities. These conditions can extend and complement the initiatives begun in programs such as ES 10. An important difference is that in ES 10, citizenship activities were developed as part of the core curriculum of the program, while the citizenship opportunities in Grades 11 and 12 were part of the EXTRA-curriculum. The "regular traditional" academic classes have learning environments that are not as supportive as ES 10 of this sort of active community involvement. If the development of citizenship is a core goal or mission of public schools, it is important to encourage practices and experiences in the regular curriculum that extend or are supportive of that mission rather than leaving it to chance or relegating it to the extra curriculum.

The educational model (Fig. 5.2) represents key learning environment features that can help foster the development of active citizenship. This model represents key learning environment features that can help foster the development of active citizenship indicators leading to long-term participatory action. Cohesive learning environments can be enhanced by team building and trust initiatives as well as integrated curriculum and flexible schedules which encourage prolonged engagement in collaborative learning activities. Learning environments high in group cohesion can be more successful when decisions are shared between the teacher and students around curriculum and schedule. Students that have an opportunity to exercise their voice regularly in open learning environments while participating collaboratively in various experiential learning opportunities that are community based can lead to self-discovery through active reflection while developing various skills, beliefs, attitudes, and values all related to being an active citizen. Those that continue their involvement in volunteering opportunities based on their new beliefs and desires may demonstrate a greater range of involvement in active citizenship.

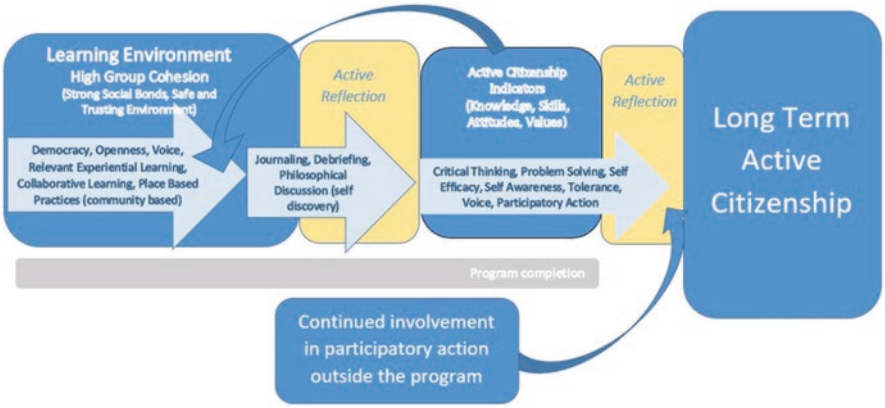

Fig. 5.2 Educational model for active citizenship (important learning environment features)

5 Limitations

This study was designed to investigate long-term effects of an ICP, Experiential Studies 10, on the development of active citizenship and to gain understanding of key learning environment features leading to this. The study is intended to help guide the development and implementation of educational programs with similar intents. With this in mind, several limitations must be acknowledged, and all claims and generalizations should be tempered by this knowledge. Member checking, peer debriefing and triangulation methods were utilized to minimize these concerns. Group interviews, although effective for gathering rich data, can also include the tendency for certain types of socially acceptable opinions to take form and permit certain individuals to dominate the process (Smithson, 2000). To address this limitation, Chartier's (2002) interview matrix method was used, which utilized smaller group interviews around the same questions and a consensus gathering portion. Finally, demonstrating the persistence of the PLACES survey by comparing the 2007 ES cohort's results with Koci's (2013) results helps increase the confidence in the participants' responses around the PLACES survey since this was perception based.

6 Importance of the Study

Research on learning environments, environmental learning and citizenship outcomes is still in its infancy. This study yields some interesting insight into the unique learning environments experienced by students in place-based education settings and has lead to the increasing value of the PLACES instrument in the evaluation of learning environments in integrated programs. In the reported case study, students

noted a closer fit between their actual and preferred environments and often rated these settings more positively on all scales measured. This result also acknowledges the validity of the PLACES questionnaire over longer temporal timeframes, further strengthening its potential use as an evaluative tool for place-based and constructive learning environments. The PLACES questionnaire offers possibilities for studies in place-based environmental education settings, and offers new models for participatory action research by environmental educators. This opens up opportunities for future research to predict and describe other desirable learning outcomes that may prove to be associated with the learning environment facilitated in these programs. This was demonstrated with the ES 10 program where a very important learning feature of the program was how much say they had in everything, an attribute that they believed contributed to self-discovery and to caring about their learning experience. Democracy extended into the classroom can lead to self-determination where a student's voice is equal to that of the teacher's on many levels (Crittenden & Levine, 2016). Through place-based practices environmental programs like the one included in this study have demonstrated long term outcomes of active citizenship (Sturrock, 2017). This is just a small example of how a deeper understanding of learning environments in a place-based context can help environmental educators create more intentional experiences and more robust learning outcomes.

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