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Outdoor Education Integrated Curriculum Program Impact on
Adolescent Self-Authorship

by

Amanda L. McGowan

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Science
In
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Outdoor Education Integrated Curriculum Program Impact on Adolescent Self-
Authorship

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This thesis has been examined and approved by the following members of the student's
committee.

Dr. Julie Carlson, Advisor

Dr. Joseph Flood, Committee Member

Dr. Jasper Hunt, Committee Member

Abstract

One of the challenges currently faced by secondary schools is to teach 21st century skills, such as self-authorship. Self-authorship is the command of one's life, or the capacity to invent one's beliefs, identity, and relationships with others. This study investigated the impact a one-semester outdoor education program has on adolescents' perceived self-authorship development, as measured by the 27-item self-report Self-Authorship Questionnaire (SAQ). The sample population ($n=26$) for this study was made up of 10th and 12th grade students from two classes of one-semester outdoor education programs at a public secondary school in Ontario, Canada. Analysis of paired t -tests of the treatment phase (pretest and posttest) showed significant differences in participant scores for three of the four SAQ dimensions: situational coping, interpersonal leadership, and self-efficacy. Independent t -test analysis of the pretest and posttest (treatment phase) SAQ scores indicated no significant differences between males and females within the grade level or between 10th and 12th graders on all SAQ dimensions. Moreover, participants perceived confounding variables (i.e., instructor, teaching experiences, winter camping, canoeing, and solo experiences) substantially impacted their self-authorship development. Participants reported large positive (1.10 to 1.39) effect size scores, demonstrating that a one-semester outdoor education program can have a significant impact on adolescents' perceived self-authorship development.

Keywords: adolescence, outdoor education, self-authorship, self-efficacy

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Dedication

I dedicate this thesis to my parents for their unconditional love. They encouraged me to seize every opportunity and to pursue my dreams. Mom and Dad, you gave me the independence and spark to achieve anything I set my mind to.

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Chapter I

Introduction

Background of the Problem

Outdoor education is broadly defined as “education *in, about, and for* the outdoors” (Ford, 1986, p. 2). Outdoor educators maintain that their programs have a positive impact on participants; however, evidence is primarily anecdotal and lacks high quality research that easily summarizes participant outcomes for educators (Neill, 2002). In their meta-analysis, Hattie, Marsh, Neill and Richards (1997) highlighted the most frequently documented participant outcomes of outdoor education programs: leadership, academics, independence, assertiveness, and emotional stability (Hattie et al., 1997).

Several studies have documented outdoor education participant outcomes in the areas of life-effectiveness, locus of control, and self-concept (Hattie et al., 1997). However, little to no research has examined self-authorship as an outcome of outdoor education programs. Despite the importance of self-authorship to success in adulthood as outlined by Baxter Magolda (1999) and Kegan (1994), there remains a paucity of evidence on the impact outdoor education has on participants’ self-authorship (FERENCEVYCH, 2004; GASS, GARVEY & SUGERMAN, 2003).

Baxter Magolda (2002) described Kegan’s (1994) concept of self-authorship as “the capacity to author, or invent, one’s own beliefs, values, sense of self, and relationships with others” (p. 3). Self-authorship has been explored as an outcome of post-secondary education, and it is integral for success after graduation (Baxter Magolda, Creamer, & Meszaros, 2010). Kegan (1994) first coined the term self-authorship (SA)

to describe the shift in students' meaning-making capacity from sources external to the self to sources from within the self. Building on Kegan's work, Baxter Magolda (2008) offered that self-authorship is "the internal capacity to define one's beliefs, identity, and social relations" (p. 269). The works of Kegan (1994) and Baxter Magolda (1999, 2002, 2008) have asserted that students graduating from college are ill-prepared for the demands of professional life, yet post-secondary institutions see it as their role to prepare students for life after college. Nonetheless, the development of self-authorship has roots in adolescence, and secondary schools play an influential role in fostering its early stages of development in students (Meszaros & Lane, 2010).

One of the challenges currently faced by secondary schools is to prepare learners for a 21st century global community. Self-managed learning is highlighted as one of the most important 21st century skills learners will find valuable across many future jobs (National Research Council, 2010). Self-management or self-development is defined as the ability to work with others, learn autonomously, be self-motivating, and have self-direction in learning situations; all skills that are closely related to self-authorship. The National Research Council (2010) found that teaching students 21st century skills prepares them for the demands of adulthood.

Employers contend that high school graduates lack critical thinking and problem-solving skills, identifying these dimensions as integral to entry-level professions (Lotto, 2006). Researchers argue that students are not prepared for the demands of life after graduation because current educational paradigms do not provide learners the opportunity to develop the necessary skills to self-author their lives (Kegan, 1994). As a result,

students in teacher-centered classrooms become dependent on the teacher to tell them how to act and make meaning of their learning, as if it is the only acceptable approach (McLaren & Leonard, 1992). Proponents of self-authorship have proposed constructive-developmental pedagogy as a practice that best facilitates the development of students' self-authorship (Baxter Magolda et al., 2010).

Constructive-developmental pedagogy builds on the human development work of Jean Piaget (Baxter Magolda, 1998). Piaget (1950) described intelligence as different structures through which individuals make meaning of their experiences (as cited in Baxter Magolda, 1998). Baxter Magolda et al. (2010) found that constructive-developmental pedagogy is grounded in three assumptions of constructivism. First, individuals create knowledge through interpreting their own experiences. Second, individuals develop a meaning-making capacity that helps them understand how they construct knowledge. Third, the active participation of the individual is necessary for their growth and development.

According to Kegan (1994), there are three critical components of constructive-developmental pedagogy: acknowledging the student as knower, basing education on student experience, and including the student in creating the learning experience. Similarly, the Association of Experiential Education (AEE) (n.d.) defines experiential education as “many methodologies in which educators purposefully engage with learners in direct experience” (para. 2). For example, outdoor education employs some of the principles of experiential education outlined by the AEE (n.d.): requiring the learner to take initiative and responsibility in the learning process, designing learning outcomes that

are unique and individualized to the learner, and engaging the active learner in direct experience. A parallel exists between the principles of constructive-developmental pedagogy and the principles of outdoor education, thus suggesting that self-authorship may be a participant outcome.

Recently, the Council of Outdoor Educators of Ontario (COEO) (2014) highlighted that there were about 20 outdoor education integrated curriculum programs (ICPs) offered at Ontario secondary schools. ICPs are educational programs taught at the secondary school level in which students spend a full day with one group of peers and one or two teachers for a semester to earn a package of credits, consisting of four to five subjects grouped together (Russell & Burton, 2000). In several of the vignettes published by COEO (2014), the authors argued for the positive impact these semester-long programs have on student development. Nevertheless, there has been little quantitative analysis of the outcomes of ICPs. Instead, most research has studied residential and one-day outdoor education experiences. As a former participant and teacher of ICPs, I hold a special interest in objectively measuring the impact these programs have on participants.

Until recently, outdoor education lacked a tool to measure self-authorship as an outcome. Ferencevych (2004) designed and developed a self-authorship measurement tool for use in outdoor education settings called the Self-Authorship Questionnaire (SAQ). While the author took an important first step in creating a reliable and valid tool to measure self-authorship in outdoor education programs, the instrument has not been psychometrically tested (Ferencevych, 2004). He recommended further studies involving different types of outdoor education programs to increase the validity of the SAQ in

measuring self-authorship development.

At present, outdoor education researchers lack the ability to examine self-authorship as a participant outcome of outdoor education integrated curriculum programs. This study attempted to provide evidence for the connection between outdoor education and self-authorship as an important area of research in examining the impact of outdoor education ICPs on participants. This study further examined self-authorship as an outcome of outdoor education integrated curriculum programs, extending empirical evidence that supports the rationale for semester-long outdoor experiences at the high school level.

Purpose Statement

The purpose of this study was to investigate changes in self-authorship levels, as measured by the Self-Authorship Questionnaire (SAQ), among participants in 10th and 12th grade outdoor education integrated curriculum programs at Centennial Collegiate Vocational Institute (CCVI) in Guelph, Ontario, Canada.

Research Questions

The following research questions guided this quasi-experimental design:

1. To what extent did self-authorship levels of 10th and 12th grade high school students differ *before* and *after* participation in a one-semester outdoor education integrated curriculum program?
2. To what extent did self-authorship levels within the grade level differ based upon gender?

3. To what extent did self-authorship levels differ between 10th and 12th grade students?
4. To what extent were changes in self-authorship levels evident three months after completion of the outdoor education integrated curriculum program? More specifically, what dimensions of self-authorship increased following participation in one-semester outdoor education integrated curriculum programs and maintained similar levels three months following the experience?

Hypotheses

This investigator proposed the following null hypotheses for this research:

H₀ 1: Self-authorship levels of 10th and 12th grade high school students as measured by the SAQ will not differ between pretest and posttest scores.

H₀ 2: Self-authorship levels as measured by the SAQ will not differ between females and males within the grade level.

H₀ 3: Self-authorship levels as measured by the SAQ will not differ between 10th and 12th grade students.

H₀ 4: Gains in self-authorship levels as measured by the SAQ will not be retained over time and the same pretest levels will be evident three months following completion of the course.

Definition of Key Terms

Community Environmental Leadership Program (CELP). A 10th grade four-credit outdoor education integrated curriculum program focusing on environmental

leadership. Students receive credits in English, Civics, Career Studies, Outdoor Activities, and Interdisciplinary Studies. The course takes place at the Guelph Arboretum and is coordinated through CCVI, a secondary school in Guelph, Ontario. Students teach fifth graders environmental education programs, spend a majority of their daily activities outdoors, and participate in a five-day canoe or winter camping trip. Students also participate in frequent day trips around the Guelph area to learn about local environmental issues and sustainable living practices.

Constructive-developmental pedagogy. A pedagogical approach founded on the assumptions of acknowledging the student as knower, situating learning within students' experiences, and mutually creating learning with the student. A process through which students construct knowledge by making meaning of their experiences, resulting in self-authorship (Baxter Magolda, 1999).

Headwaters. A 12th grade four-credit outdoor education integrated curriculum program focusing on environmental leadership. Students receive credits in English, Environment and Resource Management, Outdoor Activities, and Interdisciplinary Studies. The course takes place at the Unitarian Congregation of Guelph and is coordinated through CCVI, a secondary school in Guelph, Ontario. Students teach elementary students environmental education programs, spend a majority of their daily activities outdoors, and participate in six-night winter camping and canoe trips. Students also participate in frequent bike trips around the Guelph area to learn about local environmental issues and sustainable living practices.

Integrated curriculum program (ICP). An educational program taught at the secondary school level in which students spend a full day with one group of peers and one or more teachers for a semester to earn a package of credits that may include four to five subjects grouped together (Russell & Burton, 2000). Programs include a significant amount of wilderness experience in the capacity of two to three extended trips in the following areas: canoeing, winter camping, backcountry camping and hiking/backpacking.

Interpersonal leadership. A subscale on the SAQ v. 2 defined as the relationship between leader and follower (Zander, 1997).

Knowledge creation. A subscale on the SAQ v. 2 describing what and how we know (Baxter Magolda et al., 2010).

Life effectiveness skills. According to Neill (2003), it is broadly defined as “the extent to which a person believes that they are effective in various major tasks of life” (as cited in Sibthorp & Arthur-Banning, 2004, p. 33).

Locus of control (LOC). For the purpose of this study, LOC is defined as the degree to which one believes his/her actions influence the results of those actions (Rotter, 1966). Rotter further defines that an internal LOC suggests the individual believes that his/her own actions, decisions, or efforts determine the outcomes of those actions; whereas an external LOC suggests that the individual believes that fate, luck, or other circumstances are responsible for determining the outcome of his/her actions.

Outdoor education (OE). For the purposes of this study, OE is defined as an experiential method of learning that takes place primarily in the outdoors. OE is a

medium to extend and enrich curriculum through outdoor experiences learning in, for, and about the outdoors (Ford, 1986; Hammerman, 1980).

Self-authorship (SA). For the purpose of this study, SA is defined as a “holistic meaning-making capacity...characterized by internally generating and coordinating one’s beliefs, values, and internal loyalties” (Baxter Magolda, Creamer & Meszaros, 2010, p. 4).

Self-Authorship Questionnaire (SAQ v. 2). A self-report instrument developed by Ferencevych (2004) to measure self-perceptions of self-authorship in participants of outdoor education programs.

Self-concept. An individual’s perceptions of his/her beliefs, attitudes, feelings, and personal expectations (Ewert, 1986 as cited in Powers, 2004).

Self-efficacy. A subscale on the SAQ v. 2 that describes an individual’s belief in their capacity to accomplish a desired outcome that will have an impact on their lives (Bandura, 1997).

Situational coping. A subscale on the SAQ v. 2 that describes how individuals cope with difficult or stressful situations in their lives (Carver & Scheier, 1994).

Chapter II

Review of the Literature

This study investigated the changes in self-authorship levels among participants in one-semester outdoor education integrated curriculum programs at the 10th and 12th grade high school levels. The following chapter provides a definition of outdoor education and reviews the history and evolution of outdoor education in Canada. Furthermore, this section provides an overview of integrated curriculum programs in Ontario. Next, the literature review introduces constructive-developmental pedagogy and reviews outdoor education research focusing on outcomes related to self-authorship: self-concept, self-efficacy, locus of control, life effectiveness, and self-actualization. Finally, this chapter gives evidence of reasoned links relating outdoor education and self-authorship through comparing constructive-developmental pedagogy with outdoor, adventure, and experiential education pedagogies.

Definition of Outdoor Education

Knapp (2000) suggested that Lloyd Burgess Sharp first coined the term outdoor education in a 1943 publication (as cited in Carlson, 2002). However, Donaldson and Donaldson (1958) gave the universally accepted definition of outdoor education: “education *in, about, and for* the outdoors” (as cited in Priest, 1986, p. 13). This definition has received much criticism from educators because the use of outdoor experiences for educational purposes has increased in frequency and complexity (Priest, 1986): While some educators believe certain aspects of outdoor education can be replicated indoors, others contend that the curriculum of outdoor education is farther

reaching than the environment. Outdoor education's purpose extends beyond sensible stewardship to fostering "independent learning, free thinking, and self-reliant problem solving" (p. 13). Although the 1958 definition has offered a solid foundation for outdoor education, it requires a redefinition to portray more accurately the comprehensive present-day outdoor education approaches.

Priest (1986) offered a redefinition of outdoor education, stating it is "an experiential process of learning by doing, which takes place primarily through exposure to the out-of-doors. In outdoor education, the emphasis for the subject of learning is placed on...relationships concerning people and natural resources" (p. 13). His definition draws upon Smith's (1955) description of outdoor education as a learning environment for subject matter that can best be learned outside the classroom. His redefinition expanded the concept that outdoor education is an experiential learning process by drawing upon the work of early educational philosophers such as Rousseau, Pestalozzi, Comenius, and Dewey. This redefinition recognized the complexity of methodologies used in outdoor education and the holistic nature of its pedagogy.

In 1986, Priest stated that learning in outdoor education occurs principally, but not entirely, in the natural environment and involves the use of all senses by integrating the three learning domains (cognitive, affective, and motor). He argued that outdoor education draws upon an interdisciplinary curriculum that is not exclusively school-based. Most importantly, he highlighted important relationships that OE fosters: interpersonal, intrapersonal, ecosystemic, and ekistic. This comprehensive and updated definition of outdoor education has continued to be widely accepted today. The complexity of defining outdoor education can be traced to its multifaceted and varied

historical background when examined in the local context in which outdoor education takes place.

Historical Background of Outdoor Education in Canada

Little doubt exists that Canadian teachers who pioneered the outdoor education movement based their pedagogy on the teachings of Plato, Comenius, Rousseau, Huxley, and Dewey (Passmore, 1972). First, Plato praised the qualities of outdoor experiences for the development of healthy bodies, which would lead to healthy souls (Hattie et al., 1997). Hattie et al. (1997) suggested that Plato considered the moral value of physical education to outweigh its physical value. Second, Comenius argued that education should study and follow nature: proceeding from easiest to most difficult, general to more specific, and known to the unknown (Cubberley, 1920). He viewed the role of the teacher as a guide: imparting knowledge instead of pouring knowledge into the student's memory. Third, Rousseau saw the role of education to be the refinement of an individual's human side, revealing the innate aptitudes of every student, and developing an individual capable of reasoning and self-directing his or her life in the world (Cubberley, 1920). Fourth, Huxley advocated for the outcome of education to be an individual respectful of all learning and knowledgeable of and in harmony with nature (Cubberley, 1920). Lastly, Dewey viewed education as a means of involving play, construction, contact with nature, and experience in the educative process (Cubberley, 1920). Dewey extolled learning by doing, the use of the senses, and the engagement of energy, creativity, and initiative in learning. The historical works of these philosophers have largely influenced present-day perspectives on outdoor education and offered outdoor educators rationale and support for their pedagogy.

In the early days of outdoor education in Canada, a great deal of inspiration and assistance was received from outdoor education and recreation leaders in the United States (Passmore, 1972). The establishment of the first Outward Bound School in Wales at Aberdovey in 1941 is documented as a catalyst for bringing experiential education concepts into being (Freeman, 2011; Miner, 1990). The school drew upon Kurt Hahn's philosophy of education, which addressed the six declines of society: the decline of fitness, the decline of initiative and enterprise, the decline of memory and imagination, the decline of skill and care, the decline of self-discipline, and the decline of compassion (Richards, 1990). Although not every outdoor education program has their roots in Outward Bound philosophy, most programs have goals and objectives that are consistent with Hahn's notion of character development.

Passmore (1972) recognized the contributions to outdoor education in Canada by organizations such as Boy Scouts, Girl Guides, and YM(W)CAs. Still, he highlighted that it was the emerging public concern regarding the destruction of natural resources prior to World War II that prompted the greatest developments in Canadian outdoor education. As a result, Charles Wilkinson implemented one of the most successful voluntary youth training conservation programs through the Canadian Forestry Association: the Junior Forest Wardens Association. By 1931, over 12,000 Junior Forest Wardens were trained and many more adults and young people were made aware of the importance of conservation. While in office, the first Commissioner of National Parks, Harkin (n.d.) stated his support for outdoor education: "I look forward to a time when our national parks will be recognized schools for the study of nature, history and geology...places where children can get to know all sorts of living things at first hand"

(as cited in Passmore, 1972, p. 9). One of the first university educators to argue for relating what was taught in the classroom to what was happening in the natural world was Dr. E. G. Pleva of the University of Western Ontario. Another influential advocate was Mr. F. H. Kortright, a reputable Ontario conservationist who raised many thousands of dollars to support conservation education through his Canadian National Sportsman's Show initiative. The post-war period brought into action more youth training programs implemented by the provincial government relating to natural resources and conservation education, such as the Ontario Athletic Commission Camp and a specialized summer school program in select Ontario school boards.

Robin Dennis for the Toronto Board of Education on Toronto Island (Passmore, 1972) initiated the first residential outdoor education programs in Canada. These early residential outdoor education programs took the form of natural science schools. Blanche Snell, a Toronto teacher, was one of the early pioneers who acknowledged the social and educational values inherent in residential camping experiences. Her efforts established the Albion Hills Conservation Field Centre in 1962, which remains in operation today by the Toronto Region Conservation Authority. The success of both the Toronto Island and Albion Hills schools influenced similar developments in the rest of Canada.

The most significant advance for outdoor education in Ontario was the amendment of the Schools Administration Act (1965), which permitted school boards with an enrollment of more than 10,000 students to purchase land for the operation of natural science schools (Passmore, 1972). A further amendment to the same Act in 1972 saw the ability of school boards to make similar agreements with conservation authorities to co-purchase land and conduct programs in cooperation with one another. The Ontario

government demonstrated strong support for outdoor and environmental education programs, prompting similar movements in other provinces. In 1970, Alberta legislated the encouragement of out-of-school excursions in The School Act. Historically, Canadian educators have recognized the importance of out-of-classroom experiences in education. The historical and present-day outdoor education movements in Canada were, and continue to be “grass-roots” advancements (Passmore, 1972). Individual schools and teachers, largely supported by their communities, took and continue to take the most initiative (with little support from administration).

One such example of individual teachers taking initiative to advance outdoor education in Ontario is the creation of integrated curriculum programs (ICPs). The first province-wide conference of teachers interested in ICPs was held at Bark Lake Outdoor Leadership Centre in August 1994 (Horwood, 1995). Pioneers of ICPs include Ontario teachers like Paul Tamblyn at Acton High School, and John McKillop and Doug Jacques of the Bronte Creek Project. There are six general features of ICPs as outlined by Horwood (1995): “experiential learning, whole process, authenticity, challenge, responsibility, and community” (p. 15). Given that ICPs are common to Canadian schooling, it is important to highlight how outdoor education is unique in Canada.

Integral understandings of Canadian outdoor education include “travel heritage, pioneer lifestyle, and indigenous peoples’ material culture and spiritual view [that] are all part of storytelling, craft, and skill understanding” (Henderson & Potter, 2001, p. 228). Canadian indigenous peoples have provided many ways to travel through the Canadian landscape: canoeing, snowshoeing, and dogsledding. Moreover, they have greatly influenced Canadian heritage through shelter building, clothing, storytelling, and

connecting place names to historical events. As a result, Canadian outdoor educators tend to blend heritage interpretation with environmental and adventure education in camp, school-based, residential, and commercial outdoor education programs.

Canadian outdoor education emphasizes personal and group skill development as integral characteristics of the holistic learning process (Henderson & Potter, 2001). Most outdoor education activities are enjoyable, encourage a sense of well-being, and are more educational than recreational. Henderson and Potter (2001) argued that well-being, camping skills, team skills, personal savvy, character skills, maturation, and life skills are given more attention in Canadian outdoor education than low and high ropes courses (although these courses may be used in combination with other program characteristics). They asserted that “because the land is such a visceral reality-based arena” for students (p. 232), Canadian outdoor educators make less use of the American adventure programming metaphor and group simulation imitative tasks to facilitate the transfer of adventure to daily realities. Outdoor education is present in many settings within Canada including camps, schools, community programs, and commercial programs. For the purpose of the present study, the ICPs offered at Ontario schools are further examined.

Integrated Curriculum Programs in Ontario

Integrated curriculum programs are an example of grass-roots initiatives that implement interdisciplinary education using outdoor experiential education methodologies. Lieberman and Hoody (1998) found that ICPs often break down barriers between disciplines; provide hands-on learning experiences using problem-solving; rely on team teaching; are student-centered; and develop knowledge and appreciation for the environment, community, and natural surroundings. They contended that ICPs use the

environment as a broad focus and framework for learning specific skills including subject knowledge, problem-solving, critical thinking, cooperation, interpersonal communication, and environmental awareness. Russell and Burton (2000) posited that ICPs are “an experiential, community-based, interdisciplinary approach with the environment as the central integrating concept” (p. 290).

Russell and Burton (2000) stated that the first ICP in Ontario was created in 1981. In 2000, there were approximately 30 ICPs operating in Ontario. Although curriculum may vary, several characteristics of ICPs remain consistent across programs: (1) Students spend the full day with one group of peers and one or more teachers for an entire semester; (2) Programs involve the integration of four to five subjects; and (3) Part of the curriculum includes a co-operative education component (in which students teach elementary students what they have learned) or an internship (with an environmental focus) (Russell & Burton, 2000). Over the years, several factors have affected the sustainability and survival of ICPs. Namely, changes to the curriculum, budget cuts, and the reduction of the completion of the Ontario Secondary School Diploma to four years from five years. ICPs stress outdoor experiential learning; consequently, a majority of the school day is spent outdoors.

While little research has been conducted on Ontario ICPs, Lieberman and Hoody's (1998) U.S. study of 40 schools following the Environment as an Integrating Context for learning (EIC) model found what many teachers have anecdotally argued about ICPs. First, pedagogy is based on authentic real world learning experiences. Second, links between subject areas are demonstrated. Third, responsibility, collaboration, and community are nurtured through learning. Fourth, student-teacher

relationships are enhanced. Finally, relationships between students are improved as a result of integrated curriculum learning.

Russell and Burton's (2000) study of student perspectives of ICPs used a pretest/posttest questionnaire methodology. Students identified three major themes in ICPs: experiential learning, interpersonal skills development, and personal growth. Students understood course material more easily by learning experientially outdoors than in an indoor classroom setting. Many students posited that the teaching of elementary students was an influential experiential learning activity that made learning more practical and meaningful. Students appreciated the many opportunities to hone their interpersonal and teamwork skills, which they identified as helpful for personal and professional life. A third theme raised by students was personal growth. Students discussed their increased self-awareness, self-confidence, and knowledge about the environment: outcomes that they had not ever previously experienced in their other courses.

Russell and Burton (2000) highlighted that ICPs have common characteristics that contribute to their pedagogical success: experiential learning, authenticity, connections to human and natural communities, and holism. First, ICPs emphasize experiential learning in a variety of settings as a means to meet the diverse learning styles of students. Students expressed surprise in how much they learned over the course of the semester as well as how much of that knowledge they retained. Second, students engage in authentic real-world projects that give authenticity and purpose to their learning. These projects allowed students to make a difference and connect what they learned in the course with the world around them. Next, ICPs give special attention to the relationships among

humans as well as between humans and the environment. Students interact regularly with one another, elementary students, community members, and the natural communities in which they live. Fourth, ICPs take a holistic approach to learning, ensuring that cognitive learning is not the sole focus. Instead, kinesthetic, affective, and sensory learning are inherent in the interdisciplinary approach to these programs, thus permitting spiritual growth and exploration.

However, ICPs are not without their limitations (Russell and Burton, 2000). For example, many of these programs focus on the sciences, geography, and physical education, often omitting the arts. Further, programs are limited to the expertise of the teachers who are willing to put in the additional time and effort required to teach ICPs. There is an incredible amount of time and work placed on the responsibility of one teacher. Substantial time is put into the preparation of such programs, and teachers work more hours in the day than traditional classroom teachers because they supervise overnight camping trips and are with students all day (with fewer breaks). Although these programs are meant to be team-taught, they are often initiated and led by one sole teacher and lack support from other school staff.

Another perpetual barrier to advancing these programs is funding. Students often incur most of the costs (paying a course fee), which is sometimes subsidized by fundraising efforts and government programs. However, due to numerous overnight field trips (approximately 10-20 nights over the semester), a commitment is required beyond what many teachers and even students can offer. Another limitation to these programs is their reputation as a “bird course”, garnering resistance from teachers and administrators who ridicule the idea that students can learn outdoors while having fun. Although

Lieberman and Hoody's (1998) study documented significant gains in student performance in EIC programs, similar research is needed for Canadian ICPs to put skeptics to rest.

Finally, the time-sensitive nature of these programs is a concern for unconvinced administrators who see more benefit to discontinuing these expensive programs that lack longitudinal evidence. Research examining the longitudinal power of these programs over time is severely lacking (Russell & Burton, 2000). Students often refer to the semester as a "vacation" and when they return to the traditional classroom, few continue to be active in environmental issues and little evidence exists demonstrating to what degree these programs have a lasting impact on students (Hobson, 1996). In light of the current era of trimming budgets and providing evidence to justify all educational endeavors, longitudinal research examining the outcomes of these programs is necessary if ICPs wish to endure.

Self-Authorship and Constructive-Developmental Pedagogy

Kegan's seminal works (1982; 1994) introduced his theory of meaning-making and evolution of consciousness through an examination of the demands of contemporary adulthood. He acknowledged the influence of the works of Erik Erikson and Jean Piaget on his constructive-developmental theory (Love & Guthrie, 1999). Integral to grasping Kegan's (1994) theory is an understanding of subject-object distinction: "we *have* object; we *are* subject" (p. 32). He offered the following definitions:

"Object" refers to those elements of our knowing or organizing that we can reflect on, handle, look at, be responsible for, relate to each other, take control of, internalize, assimilate, or otherwise operate upon. "Subject" refers to those

elements of our knowing or organizing that we are identified with, tied to, fused with, or embedded in. (p. 32)

In simple terms, Love and Guthrie (1999) noted that object is “that which meaning making has made separate and distinct from us” and “subject is that which we cannot see because it comprises us” (p. 66). The understanding of subject-object relation is important in comprehending Kegan’s (1994) orders of consciousness.

Five orders of consciousness comprise the principles of mental organization that affect one’s thinking, feeling, and relating to the self and others (Love & Guthrie, 1999). Each successive order subsumes the preceding ones, incorporating the meaning-making abilities characteristic of the earlier orders. For the purpose of this study, the first four orders are discussed as they pertain to self-authorship development in adolescents, and the last order is not achieved until late adulthood (around 40 years old).

The first order of consciousness develops from birth to age eight. In this order, children are not capable of abstract thought, and meaning-making occurs from a self-centered, fantasy perspective. Children can distinguish objects as separate from the self, but if their perception of an object changes, they understand it as the object itself changing. The second order of consciousness occurs from late childhood until sometime in adolescence or early adulthood in which meaning-making occurs from the construction of “durable categories” (Kegan, 1994, p. 32).

These categories are a way to classify people, objects, and desires as a means to distinguish these items from the self. For example, children are able to identify some animals in the dog category, while omitting others that have fins or wings (Love & Guthrie, 1999). As a result, individuals construct a self-concept because they recognize

themselves as individuals with unique characteristics. In the interpersonal domain, individuals are able to distinguish between family, friends, and strangers. This shift from fantasy to reality means individuals begin to develop self-sufficiency and the ability to understand others' perspectives.

In this stage, children's interests transition from temporary to enduring (Kegan, 1994); in other words, individuals classify themselves as people who like to read, play sports, or dislike eating meat. However, this order is still egocentric because individuals are concerned with their own interests, thus unable to participate in relationships outside of peer groups with shared interests, to engage in abstract thinking, or to separate their feelings from how others react to their actions.

Transition from the second to third order occurs between the ages of 12 to 20. This transition is a very individual process, occurring for some during adolescence and others during college. Kegan (1994) described the third order of consciousness as one in which individuals can:

Think abstractly, identify a complex internal psychological life, orient to the welfare of a human relationship, construct values and ideals self-consciously known as such, and subordinate one's own interests on behalf of one's greater loyalty to maintaining bonds of friendship, or team or group participation. It is the culmination of "adolescence" (etymologically, "becoming grown up")...we become truly a part of society (rather than its ward or charge) when society has become truly a part of us. (p. 75)

For example, people begin to reflect on the type of friend they are, consider what will happen to them and their relationships later in life, and shared interests with peers

become more important than meeting their own needs. There is a transition from “I am my point of view” to “I have a point of view” in addition to the construction of ideals, values, and beliefs (Love & Guthrie, 1999). However, at this stage individuals *are* their relationship (subject), rather than *have* it (object).

Finally, the transition from third to fourth order comprises the development of self-authorship. This order is characteristic of students developing independence with their own ideology and insisting upon being taken seriously as an equal. Although this stage is described as occurring in early adulthood, Frauman and Waryold (2009) argued that adolescence shares many of the same characteristics as the struggles of early adulthood:

Adolescents tend to be unsure and awkward as they search for their identity, come to terms with their sexuality, and seek to find a place within social relationships. This is akin to the first year student as they search for a sense of self within the context of the newness of the college environment (p. 192).

Baxter Magolda’s works (e.g., 1998; 1999; 2004) build upon the earlier works of Kegan (1982; 1994) in constructive-developmental pedagogy and self-authorship. The structure of constructive-developmental pedagogy outlined by Baxter Magolda (1999) is based upon a 20-year longitudinal study examining the epistemological development of college students using open-ended qualitative interviews. In her study, three principles describing constructive-developmental pedagogy emerged: “validating students as knowers, situating learning in students’ own experience, and defining learning as mutually constructing meaning” (Baxter Magolda, 1999, p. 27). She explained the three assumptions upon which the structure of constructive-developmental pedagogy is

founded:

Validating students as knowers means acknowledging their capacity to hold a point of view, recognizing their current understandings, and supporting them in explaining their current views. *Situating learning in students' own experience* means using students' experience, lives, and current knowledge as a starting point for learning. *Defining learning as mutually constructing meaning* makes both teacher and student active players in learning. It suggests that the teacher and students put their understandings together by exploring students' experiences and views in the context of knowledge the teacher introduces. (pp. 27-28)

The three above-mentioned principles form the foundation of constructive-developmental pedagogy; a structure that continuously integrates students' lived experience and the meaning students have made (of those experiences) into instruction. As a result, this pedagogical structure allows educators to help students develop more complex epistemic assumptions, facilitate effective learning environments for diverse students, and establish students as integral parts of the learning process.

Self-authorship is comprised of three dimensions that are a collective mental capacity rather than three separate entities: cognitive, intrapersonal, and interpersonal (Baxter Magolda, 1999). First, the cognitive dimension involves a shift from assuming knowledge is certain and possessed by authorities to the assumption that knowledge is uncertain and oneself is a constructor of knowledge. Second, the intrapersonal domain encompasses the capacity to develop a sense of self and personal beliefs. Third, the interpersonal dimension includes the capacity to uphold one's identity while developing

important relationships with others.

Baxter Magolda (2004) outlined the four phases through which students move when developing self-authorship: (1) following of external formulas, (2) the crossroads, (3) becoming the author of one's own life, and (4) internal foundations. First, following external formulas is the phase in which students follow guidance from others and primarily do what authorities suggest in order to be successful. Second, the crossroads is a phase in which students are dissatisfied with following others' suggestions because they have found that following external formulas is not always successful. However, students at this stage are not yet able to act on the desire to be more autonomous. Third, becoming the author of one's life involves developing the capacity to identify personal beliefs and live them out. This capacity requires the renegotiation of relationships by weighing personal needs against the needs of others. Lastly, internal foundations involves becoming grounded in one's sense of self, creating compassionate relationships, and recognizing that ambiguity and external influences exist. However, life decisions are made based on strong internally defined beliefs and a cogent self-concept.

Outdoor Education Program Outcomes

Although the history of outdoor education programming can be traced back as early as Plato, outdoor education research remains in its infancy, having only begun in the 1950s (Laidlaw, 2000). Early research by James (1957) and Smith (1957) was largely anecdotal in nature, described programs such as Outward Bound, discussed the value of these types of programs, and advocated for the use of outdoor education in the curriculum of public schools. Later, Laidlaw (2000) outlined the shift in focusing research from these early efforts to examining how outdoor education programs affect participants.

Self-confidence. Fletcher (1970) investigated the effects of Outward Bound programs on participants. This study was fundamental to shifting the research focus towards participant outcomes of outdoor education programs. He interviewed more than 3,000 graduates of various Outward Bound schools in Great Britain between the years of 1962 and 1968. Findings indicated that 86% of students reported increased self-confidence, 78% of students reported increased maturity, 64% of students reported improved interpersonal skills, and 72% of students believed the impact on their development would persist for life. However, Fletcher noted that conducting interviews was a limitation to his study and that future quantitative research examining measurable changes in participants would prove beneficial.

Self-concept. One such quantitative study by Kelly and Baer (1969) examined changes in self-concept for delinquent youth before and after participation in an Outward Bound course. The study administered the Jesness Inventory (assessing 10 concept measures) to 60 male delinquents before and after participation in an Outward Bound course. Findings suggested Outward Bound was “a desirable means of promoting positive change in social attitude and self-concept of male delinquents” due to significant changes in 6 of 10 scales relating to more favorable social attitudes and evaluation of feelings (p. 719). Investigations by Fletcher (1970) as well as Kelly and Baer (1969) highlighted the effect of outdoor education programs on self-concept (an outcome which continues to be extensively studied today). These studies paved the way for future quantitative research examining the outcomes of outdoor education programs.

Attitude. Several empirical studies examined the effects of Outward Bound courses on participants using a single group pretest/posttest design. For example, Gillette

(1972) examined the attitude changes of 34 participants using a 106-item self-report survey. His findings indicated that nine of 60 measured variables significantly changed after participation in the program, and four of the nine significant variables demonstrated a positive change. These variables expressed three dimensions: personal values, social and political issues, and physical stress. Since only nine of 60 variables changed between pretest and posttest, Gillette (1972) concluded that participation in an Outward Bound course effects positive attitudinal change in participants; however, attitudinal change is personal and does not typically occur in 21 days (since attitudes remained relatively stable over the study period). Moreover, individuals' attitudes influence their self-concept, which became a variable researchers were interested in measuring.

Anxiety and self-concept. For instance, Koepke (1973) measured the changes in anxiety and self-concept for participants of a 22-day Outward Bound course (as cited in Laidlaw, 2000). Almost a decade later, Doyle (1981) studied the effects of a 110-day Appalachian Trail expedition on changes in self-concept, locus of control, and benevolence of participants (as cited in Laidlaw, 2000). Further, Gillet, Thomas, Skok, and McLaughlin (1991) measured the changes in self-concept and knowledge of and attitude towards the environment of 12th graders participating in a six-day wilderness experience. The study implemented a pretest/posttest design with experimental and control groups. Data indicated that changes in self-concept and environmental knowledge occurred because of participation in short-term wilderness experiences. Since many early studies focused on adult participants, research investigating the effects of OE programs on youth was necessary.

Self-esteem and locus of control. Consequently, Plas (1994) examined the effects of a wilderness experience program on self-esteem and locus of control in eighth grade students. She used a pretest/posttest design with a follow-up posttest three months after the intervention. The wilderness experience program had a significant effect on the self-esteem of male students for a short period following participation; however, original levels of self-esteem prior to the intervention were exhibited three months later. Both males and females demonstrated a significant increase in social self-esteem several months after the intervention. Females reported an increased internal locus of control immediately following the intervention, but these gains were short-term and began to decrease after completion of the experience. Although these works proved to be influential in advancing quantitative outdoor education research, they lacked an examination of participant outcomes beyond self-concept and a description of the long-term effects of outdoor education programs on participant gains.

Self-concept and leadership. In their meta-analysis of adventure education programs, Hattie et al. (1997) identified 40 participant outcomes in six dimensions: academic, leadership, self-concept, personality, interpersonal, and adventuresome. They described adventure education programs as having common features: occur in wilderness/backcountry settings, involve a small group (usually less than 16), assign a variety of mentally and/or physically challenging objectives, have a nonintrusive and trained facilitator, encourage frequent and intense interactions involving group problem-solving and decision-making, and run for a duration of two to four weeks. Outdoor education ICPs share many of these same characteristics. Thus, this chapter uses meta-analyses examining adventure education programs.

Hattie et al. (1997) suggested that leadership requires strong interpersonal skills. Many adventure education programs aim to enhance teamwork and cooperation, stimulating the development of leadership competencies such as interpersonal skills. In their meta-analysis, they highlighted that most leadership dimensions incurred high effects and “it can be concluded that most adventure programs impact leadership competencies” (p. 66). They highlighted evidence suggesting that survival training positively enhances an individual’s self-concept. In their meta-analysis, the greatest effects in the self-concept domain were in the enhancement of independence, confidence, self-efficacy, and self-understanding; all concepts that were further improved at follow-up testing. Self-concept and leadership are skills related to the interpersonal and intrapersonal dimensions of self-authorship. Self-authored individuals trust their internal voice, which is shaped by their self-concept. Listening to the internal voice means “knowing [one]self deeply enough to determine when to make things happen versus when to let them happen to live life on [one’s] own terms” (Baxter Magolda, 2008, p. 274). Interpersonal relationships are integral to attaining self-authorship: Individuals’ worldviews, self-perceptions, and social relations become “second nature” (p. 277) when they become self-authored.

Academics and problem-solving. Hattie et al. (1997) recognized that some adventure programs have focused on gains in the cognitive domain through remedial teaching and integrated curricula. They noted that academic gains could not be generalized across all adventure programs, as enhanced academic performance has been largely studied using programs that clearly articulate it as an outcome and objective. However, Ewert (1989) acknowledged the benefits of an adventure experience at a

general academic level, which he defined as problem-solving. He claimed that outdoor situations lend themselves to facilitating the identification of a problem; the review, selection, and implementation of a solution; and the evaluation of the resolution.

Findings indicated that adventure education programs enhanced general problem-solving capabilities. Hattie et. al (1997) maintained that the effects of OE programs on both general (problem-solving) and academic gains (mathematics scores) are most remarkable.

Personality. In their meta-analysis, Hattie et al. (1997) found that the highest effects on personality were for enhanced assertiveness, emotional stability, achievement, motivation, internal locus of control, and maturity. Additionally, a reduction of aggression and neurosis was observed in participants. Gains were larger for male participants versus female participants, yet minimal long-term enhancement was observed across genders. In the interpersonal domain, they found noticeable increases in social competence, cooperation, and interpersonal communication following participation in adventure programs. They highlighted a clear difference between adventure programs and other education programs: the use of adventure. As a result, they noted that the effects of adventure programs on challenge and flexibility were higher than other programs.

In general, Hattie et al. (1997) asserted that the average effect of attending adventure programs is similar to the effect of many classroom interventions. However, the effects of OE on self-esteem surpass those of other educational programs, painting a comforting picture for adventure educators. For all programs with school-aged participants lasting less than 20 days, the effect size indicated that adventure programs not only have a major impact on participants' lives, but the impact is long-lasting.

Self-regulation. Hattie et al. (1997) found the major theme underlying participant outcomes with the greatest gain was self-control (the “sense of control over or regulation of the self, responsibility, or an assurance of self”) (p. 70). These outcomes listed in descending order were independence, decision-making, assertiveness, self-understanding, confidence, self-efficacy, and internal locus of control. Moreover, many gains were retained over time. Thus, adventure programs seem to be “most effective at providing participants with a sense of self-regulation” (p. 70). The meta-analysis performed by Hattie et al. (1997) was an important update to the work completed by Cason and Gillis (1994).

Maturity. Another seminal meta-analysis conducted by Cason and Gillis (1994) examined the effects of outdoor adventure programs with adolescents. In their study, they found the following participant outcomes in descending order: grades, school attendance, attitude, behavioral assessments, locus of control, and self-concept. In general, younger participants and longer duration programs were associated with larger effect sizes, and adolescents who participated in adventure programs benefitted from larger gains than non-participants did. Further, adventure programming was found to have an equally effective influence on adjudicated adolescents compared to other adolescent populations. The effect sizes of adventure programs were typically higher for adults than adolescents; therefore, maturity may be a variable that affects participant outcomes (Cason & Gillis, 1994; Hattie et al., 1997).

Self-perceptions. Neill (2002) found that in general, outdoor education programs have a small to moderate effect on participants’ self-perceptions of personal qualities and capabilities. He highlighted a noticeable strength of outdoor education programs: the

capacity to facilitate a continuing cycle of positive transformation within participants.

However, he cautioned that some programs were more effective than others at achieving positive outcomes, and outdoor education is not a “panacea” (p. 8). He suggested that in order to gain more reliable insights on the outcomes of OE programs, standardized testing measurements should be used to obtain reliable and valid empirical evidence from outdoor education programs.

Academics. Gabrielsen and Holtzer (1965) conducted a study examining the effectiveness of outdoor education programs to teach certain subjects more effectively: with a deeper understanding, enhanced practical knowledge, and greater retention than classroom methods (as cited in Gillette, 1971, p.13). Their research highlighted outdoor education’s ability to lend itself to “engaging students in concrete experiences with content directly related to science, social sciences, and humanities” (as cited in Gillette, 1971, p. 14). They argued that outdoor education “gives meaning to content and thereby makes subject matter more interesting, manageable, challenging, and applicable” (p.14) for students, resulting in greater retention of useable knowledge from personal experiences outdoors. Over the years, outdoor education outcomes-based research has increased significantly. One of the most commonly studied outcomes of participants in outdoor education programs is self-concept.

Self-Concept

Early research examining the construct of self began with Freud (1900, 1911, 1923, 1933, 1938), as is evident in his ample work studying ego development and functioning (as cited in Purkey, 1970). Despite criticism from behavioral psychologists, Purkey (1970) highlighted important researchers (Mead, Lewin, Goldstein, Mazlow,

Lecky, Bertocci, Murphy, and Raimy) who also contributed to the knowledge of the self. For instance, Mead (1934) considered the self to be constructed through interactions with one's environment. However, Lewin (1935) regarded the self as an important and permanent construct that gave stability to personality. Further, Goldstein (1939) preceded the work of Maslow (1954, 1956) in studying the notion of self-actualization. Lecky (1945) examined the idea of self-consistency as a motivator for behavior. Additionally, Bertocci (1945) distinguished between the object self and the subject self. Then, Murphy (1947) discussed the relation of the self to interpersonal relationships. Finally, Raimy (1948) introduced the notion of psychotherapy's role to enhance an individual's self-concept.

Self-concept, originally thought to be “a unitary monolithic entity” (Purkey, 1970, p. 67) focusing on self-esteem is now considered a “cognitive schema—that is...an organized knowledge structure that contains beliefs about one's attributes as well as episodic and semantic memories about the self” (p. 67). Self-concept and self-esteem have often been used interchangeably; however, they are distinguished from one another in the fact that self-esteem is an aspect of self-concept that refers to feelings of self-worth and the degree to which individuals are satisfied with themselves. On the other hand, self-concept refers to individuals' beliefs about their attributes (e.g., personality, abilities, physical appearance, values) and identity. Kinch (1963) suggested that self-concept is influenced by relationships with others, which consequently affects behavior. Self-concept consists of the interaction of three subselves with the world: the Identity Self, the Behavioral Self, and the Judging Self (Fitts et al., 1971).

The most basic dimension of self-concept is identity (Fitts et al., 1971). Identity

describes how individuals answer the question “Who am I?” and includes the labels individuals use to define their identity. Individuals’ identities will fundamentally influence their behaviors (e.g., an offer to sing karaoke will be declined if ‘singer’ is not part of an individual’s identity because in order to sing one has to be a singer, and in order to be a singer one has to sing). There are many interactions between the Identity Self and the Behavioral Self and this interaction is required to achieve true actualization of the self. In contrast, the Behavioral Self is influenced by both internal and external consequences of behaviors, which in turn influence identity.

For example, Fitts et al. (1971) described the Behavioral Self: children who experience the abilities required to walk will exercise these capacities with the aim of mastering the skill of walking. The internal consequence (child’s drive to walk) reinforces the behavior. Children experience satisfaction and internal reward from walking, so they exercise this new capacity infinitely. Parents’ satisfaction with the success of their child acts as external reinforcement. This external feedback positively reinforces children to engage in the behavior. As a result, proficient walkers include “walker” as part of their identity.

The third dimension of self-concept is the Judging Self. The Judging Self observes and evaluates both the Identity Self and Behavioral Self (Fitts et al., 1971). The Judging Self will either approve or disapprove of the Behavioral Self. If the behavior is deemed important to one’s identity or self-esteem, then the behavior is adopted into the Identity and Behavioral Selves. The Judging Self determines an individual’s “satisfaction with the self or extent to which one can live and tolerate himself” (Fitts et al., 1971, p.

20). An understanding of the theory of self-concept assists researchers in studying the factors that affect self-concept.

Fitts et al. (1971) proposed three factors that affect self-concept: experience (especially interpersonal interactions), aptitude (in areas valued by the individual and others), and self-actualization (the realization of one's true individual capacities).

Understanding the factors that affect self-concept are important to researchers seeking to evaluate the relationship between self-concept and performance. In reviewing studies on school dropouts, employment dropouts, and juvenile delinquents, Fitts (1972)

hypothesized that participants with a better self-concept would have better performance.

This hypothesis has important implications for educators seeking to understand the relationship between self-concept and academic performance.

Self-concept and academic achievement. In examining several studies considering GPA, achievement tests, classroom participation, attitudes towards school and teachers, and years of schooling (as indicators of academic achievement) and their relationship to self-concept, Fitts (1972) found that self-concept significantly determined general academic performance. That is to say, when grades and achievement tests are studied, the connection with self-concept is insignificant. However, intelligence, motivation, and self-perceptions are better indicators of academic achievement than general self-concept report tools. Generally speaking, individuals' self-concept will show a slight relationship to their academic achievement because individuals with a healthier self-concept are more likely to efficiently use their own knowledge; this capacity plays a vital role in determining performance. For instance, an adolescent's self-concept is closely related to his or her adult life because a positive self-concept aids job-seeking and

favorable vocational performance (Fitts, 1972). On the other hand, Brookover, Thomas, and Patterson (1964) concluded that self-concept is “positively and significantly correlated with the perceived evaluations of the student by other significant people” when IQ is omitted (as cited in Purkey, 1970, p. 17). Evidence suggests that the relationship between self-concept and academic performance is reciprocal and that one variable shapes the other and vice versa (Purkey, 1970). However, researchers explain the relationship between academics and self-concept differently for males than females.

Numerous studies have indicated that the correlation between self-concept and academic achievement is significant for boys, but insignificant for girls (Bledsoe & Garrison, 1962; Campbell, 1965; Fink, 1962; Lewis, 1976; Shaw & Alves, 1963). However, in examining the relationship between self-concept and performance, proponents contend that self-concept is closely tied to motivation, regardless of gender. Understanding the different factors contributing to self-concept for males versus females will assist educators in motivating students to learn.

Generally, human motivation is an individual’s attempt to act in a manner that is consistent with the way he or she views him or herself (Purkey, 1970). Combs and Snygg (1959) noted that an internal personal motivation is present at all times in all situations in all individuals. This relationship is the interaction between motivation and behavior that further enhances and develops an individual’s self-concept. Evolution of the understanding of self-concept, its influence on behavior, and factors that influence self-concept have encouraged researchers to examine self-concept as an outcome of outdoor education programs.

Self-concept in outdoor education research. Improving participants’ self-

concept has been and continues to be a main objective of many outdoor adventure education programs (Hattie et al., 1997; Neill, 1997). Marsh, Richards, and Barnes (1986) examined the change in multiple dimensions of self-concept in a 26-day Outward Bound residential program. Findings suggested that Outward Bound was “an effective intervention for enhancing multiple dimensions of self-concept and an internal locus of control” (p. 489). Likewise, Capurso and Borsci (2013) investigated the impact of a ship sailing experience on adolescents’ self-concept. They used a pretest/posttest design with a follow-up three months after completion of the program. A significant difference in self-concept was found immediately following the experience, but gains were not maintained over time. Their study confirmed the notion that outdoor education programs positively impact participants’ self-concept for the short-term.

In examining longer duration courses, Lambert, Segger, Staley, Spencer, and Nelson (1978) investigated changes in self-concept as a function of participating in a college class that included wilderness experiences. The study used two different college classes: one emphasizing survival skills and the other emphasizing group activities in a wilderness setting. Changes in self-concept for students participating in these courses were compared with students enrolled in traditional lecture courses or courses with limited experiential learning. Findings indicated that participants in the college wilderness experience courses experienced greater positive change in self-concept and positive self-attitude, in a way that far exceeded the control groups. However, a significant limitation to the study was that students enrolled in wilderness courses are often excited and enthusiastic about participation because they anticipate personal growth and development. Further, the state of cognitive dissonance (characteristic of survival

courses) influenced participants to hold positive attitudes towards outcomes of the course. This state of cognitive dissonance has encouraged researchers to investigate the influence of the therapeutic effects of outdoor education on self-concept.

Research investigating outdoor education as a therapeutic intervention in rehabilitation settings or with individuals with disabilities refutes the notion that self-concept is relatively stable over time and undergoes little change because of participation in an outdoor education program. For example, Luckner (1989) investigated the effects of a 10-day winter outdoor education course on the self-concept of hearing-impaired individuals. Participants included 10 students in the experimental group who were individually paired with a control group. All study participants (including those in the control group) were tested before, immediately after, and two months following the experience. Findings indicated that participation in the outdoor education course had a significant positive effect on the self-concept of the experimental group, and these gains were maintained for the two-month period. However, the small sample size limits the study's generalizability. Other studies (discussed in the following paragraph) have indicated that changes in self-concept following participation in an outdoor education program are not exclusive to individuals with disabilities.

For instance, Gillett, Thomas, Skok, and McLaughlin (1991) examined the effect of a six-day wilderness experience on the self-concept and environmental knowledge and attitudes of 12th grade students (using a pretest/posttest design). They found there was a significant increase on the posttest results of the experimental group in 3 of 10 measures on the Tennessee Self-Concept Scale (TSCS): identity, behavior, and overall self-concept. The experimental group demonstrated significant increases in two of five

measures (general and total self-concept scale scores) as measured by the Self-Esteem Inventory (SEI). The pre- and posttest subscale scores for the environmental questionnaire of the experimental group indicated a statistically significant increase for environmental knowledge, but not for environmental attitude. These results suggested that a short-term wilderness experience had a positive impact on self-concept and on environmental knowledge but not on environmental attitude. Research examining various wilderness programs of different durations is required to understand the impact of outdoor education programs on self-concept.

One such study was conducted by Hazelworth and Wilson (1990) who examined the effects of an outdoor adventure camp experience on the self-concept of adolescents. The study compared differently themed two-week sessions at the same camp: mountain camping, canoeing, sailing, and coastal exploration. All sessions included similar features: six days spent at a nature park learning the necessary skills for the activity and one day spent on a challenge course performing individual and group cooperation initiatives. The effects of the adventure program on participant self-concept varied for each session. First, the mountain camping session stressed group cooperation, respect, and camping/orienteering skills yet displayed no significant changes in self-concept. Second, the canoeing session stressed group cooperation; as a result, a significant increase in self-concept related to family attitudes was observed. Third, the sailing session stressed mutual respect and conduct; results displayed significant positive changes in the self-concept areas of moral-ethical and family attitudes. Fourth, the coastal exploration session stressed group cooperation and conduct; results demonstrated significant positive changes in self-concept in the areas of moral-ethical and social

feelings.

Overall analysis of self-concept for all sessions demonstrated significant positive changes in self-concept related to moral-ethical, identity, and self-satisfaction dimensions. The study indicated that different outdoor adventure activities had varying impacts on self-concept, and different structural organizations of outdoor programs influenced different dimensions of self-concept. Taken together, the findings indicated a positive change in self-concept as a result of challenging oneself through participation in adventure activities. The most important factor influencing individuals' self-development is their belief that they have the power to influence change in their lives through their behaviors; Bandura (2006) has called this integral predictor of agency *self-efficacy*.

Self-Efficacy

Bandura's (1986) social cognitive theory highlights the unique "self system" (p. 363) possessed by all individuals. This system allows individuals to exercise control over their thoughts, emotions, motivation, and behaviors. Individuals modify their environment because their "self system" (p. 363) serves a regulatory capacity, providing feedback capable of influencing their cognition. This system regulates and evaluates behavior as a result of interaction with external stimuli. Individuals first engage in behavior and interpret their own performance, then modify their environment and self-beliefs, which in turn influences future behavior. According to Bandura's (1986) perspective, individuals' self-perceptions determine what they will do with their own knowledge and skills. He has contended that proficient functioning requires a harmony

between these self-beliefs (self-efficacy) and the skills and knowledge individuals possess.

Self-efficacy is described as "...people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). Individuals who "judge themselves highly efficacious will expect favorable outcomes, whereas those who expect poor performances of themselves will conjure up negative outcomes" (Bandura, 1997, p. 24). Individuals with comparable skillsets, or the same individual on separate instances, may demonstrate poor, acceptable, or exceptional behavior depending on their ability to act in different situations (Bandura, 1986). Thus, Pajares (1997) has argued that self-efficacy beliefs play an integral role in determining behavior choice, effort, perseverance, resilience, perceived stress level, and thought patterns. Self-efficacy beliefs are correlated with psychological well-being and health (Bunting, 2000), confidence (Propst & Koesler, 1998), and persistence (Pajares, 1997). Lightsey (1999) acknowledged Bandura's extensive contribution to research that noted self-efficacy is enhanced through "mastery experiences, vicarious learning, verbal persuasion, and interpretation of physiological states" (p. 159). Given that self-efficacy beliefs are a reliable predictor of outcomes, they "are central to human self-determination" (Lightsey, 1999, p. 159); in other words, shaping one's identity in the absence of external influences (i.e., self-authorship).

First, mastery experiences are most influential in developing self-efficacy beliefs (Bandura, 1986). Results considered successful by the individual raise self-efficacy, while those considered unsuccessful lower it. Many educational programs aim to increase self-efficacy beliefs through providing students authentic mastery experiences to

raise self-worth (Pajares, 1997). Second, “the vicarious experience of the effects produced by the actions of others” has significant weight when individuals “are uncertain of their own abilities or have limited prior experience” (Pajares, 1997, Sources of self-efficacy beliefs, para. 2). These experiences also include comparisons made to others and peer modeling. Third, verbal persuasions involve exposure to judgment given from others. Positive judgment must be authentic and not inflated in order to enhance self-efficacy. In contrast, negative judgment weakens self-efficacy beliefs. It is easier to weaken self-efficacy through negative judgments than it is to strengthen self-efficacy through positive appraisal (Bandura, 1986). Finally, individuals’ interpretations of their physiological states including stress, anxiety, fatigue, mood, and arousal impact their self-efficacy; likewise, individuals’ self-efficacy influence these physiological states. Strong physiological responses to a behavior provide indications about anticipated success or failure. Self-efficacy is believed to be an outcome of outdoor education programs because mastery experiences, vicarious learning, and verbal persuasions are all inherent in wilderness experiences (Lokos, 2013).

To begin, mastery experiences are inherently weaved throughout adventure programming methodology and pedagogy. For example, the unfamiliar physical environment in outdoor education helps participants gain new perspectives on their everyday familiar environments (Walsh & Golins, 1976). This new environment creates a state of cognitive dissonance by fostering a “constructive level of anxiety, a sense of the unknown, and a perception of risk” (Nadler, 1993, p. 61). Participants overcome this dissonance by mastering tasks presented to them, resulting in enhanced self-efficacy and positive outcomes (Nadler, 1993). Kimball and Bacon (1993) noted that this unfamiliar

environment provides participants with “the freedom to experiment with new psychological strategies or a fresh sense of identity” (p. 26). While numerous kinds of environments can deliver these benefits, research findings demonstrate that a wilderness environment provides additional advantages and is thus ideal (Hattie et al., 1997; Kimball & Bacon, 1993; Walsh & Golins, 1976). Moreover, McKenzie (2000) noted that “the aesthetic and spiritual qualities of the wilderness environment” (p. 20) are essential features of adventure programs leading to intrapersonal gains.

Secondly, vicarious learning is intrinsic to outdoor education programs due to the socially constructed learning environment. Participants draw on their own experiences and observe the successes and mistakes of others to construct their own knowledge (Lokos, 2013). For example, consider students who lay down to rest rather than set up their tents upon arrival to camp. Meanwhile, other students demonstrate efficacious behavior by setting up their tents, thus staying warm and dry. As a result, the non-efficacious students have to set up camp in the dark while it rains. Consequently, the students go to sleep wet and cold that evening. The next day, the students immediately prepare camp so as not to go to bed wet and cold. This example illustrates the vicarious learning of students who observe efficacious behavior and learn from the natural consequences of their non-efficacious actions.

Thirdly, verbal persuasions are important in terms of receiving feedback from others about one’s performance. However, persuasions are also important when instructors frame activities. Bandura (1986) offered that it is easier to diminish self-efficacy through negative feedback than it is through enhancing it with positive feedback. For instance, many outdoor educators aim to create positive and safe learning

environments in which participants learn from their mistakes without negative judgement from others. Further, Bandura (1974) has suggested, “behavior is not much affected by its consequences without awareness of what is being reinforced” (p. 860). Thus, the importance of framing an activity is integral for outdoor education to distinguish itself from simply sleeping outdoors. Participant gains following participation in outdoor education activities stem from students’ understanding and accomplishment of specific lessons framed by outdoor educators, not simply from being outdoors (Lokos, 2013). The interaction and interpretation of mastery experiences, vicarious learning, and verbal persuasions achieve outdoor education program outcomes.

Bandura’s self-efficacy theory is applicable to research in a wide variety of disciplines. Namely, Pintrich and Schunk (1995) drew attention to the importance of investigating self-efficacy beliefs in the context of academic motivation and self-regulation (as cited in Pajares, 1997). Researchers have used self-efficacy to describe the phenomenon that some students’ academic performance far exceeds other students with similar abilities (Pajares, 1997). Pintrich and De Groot (1990) found that self-efficacy beliefs facilitate students’ use of their own intellectual abilities, and enhancement of these beliefs leads to increased use of students’ own cognitive capacities, leading to improved performance and enhanced self-efficacy. Thus, research has linked self-efficacy beliefs to outcomes such as motivation, self-regulation, and well-being.

In his review of current directions of self-efficacy research, Pajares (1997) outlined the effects of self-efficacy beliefs. First, he posited that self-efficacy beliefs influence motivation and self-regulation because these beliefs impact the decisions people make and the sequence of actions they employ. Greater self-efficacy beliefs are

linked to increased individual effort in specific activities, increased perseverance in the face of obstacles, improved resilience in the face of adversity, and decreased stress and anxiety in challenging situations. Moreover, individuals with strong self-efficacy beliefs approach difficult tasks with the mindset that these situations can be overcome rather than dangers that should be avoided. They have heightened intrinsic motivation in activities; they have a strong commitment to challenging goals they set for themselves; and they recover more easily from failures or setbacks because they attribute failure to lack of effort or necessary skills (they believe they can acquire) to accomplish the task. In the face of challenging situations, individuals with high self-efficacy experience serenity and improved problem-solving capacities. In contrast, individuals low in self-efficacy experience stress, depression, and lack of problem-solving. These findings suggest that self-efficacy beliefs are strong determinants of one's achievement.

Outdoor education programs seek to enhance self-confidence by facilitating situations in which individuals may feel a sense of accomplishment. Many outdoor education programs consider enhanced self-efficacy to be a positive and desirable outcome of participation (Hattie et al., 1997; Neill, 2002). However, psychological researchers have cautioned that inflated self-efficacy beliefs lead to risky behaviors and diminished performance (Schmidt & DeShon, 2009). Outdoor educators and researchers examining participant outcomes must consider this finding. Inflated or inaccurate self-efficacy beliefs may be attributed to specific characteristics inherent in outdoor education programming: "The overprovision of success, isolated lessons of instruction, and inadequately processed experiences" (Schumann, 2013, p. 10). Providing equal opportunity for success and failure, teaching skills in contexts that truthfully represent

situations in which participants will apply the skills, and using “metacognitive monitoring interventions” (p. 11) will reduce the risk of inflated or inaccurate self-efficacy beliefs often experienced by outdoor education participants (Schumann, 2013). Moreover, outdoor educators must thoroughly understand how to assist participants in transferring self-efficacy gains from adventure programs to their daily lives.

Bandura (1977) has insisted that humans are able to shape the stimuli around them and not simply just react to external influences. As a result, individuals are capable of developing the ability to influence their own behaviors. According to Bandura (1989), this ability is called “human agency” (p. 1175). Individuals competent in “agentive action” are self-regulative and “proactive”, meaning they have the ability to transfer their learning and enhanced self-efficacy to overcoming challenges in their everyday lives (Lokos, 2013, p. 29). That is to say, students who successfully complete the task of independently portaging a long distance develop increased self-efficacy and are then able to transfer that into other parts of their daily lives. The increased self-efficacy gained from participation in the outdoor education course assists an individual in “successfully overcoming obstacles in their personal life that were previously perceived as impossible” (Lokos, 2013, p. 30). Developing agency is an important outcome of outdoor education programs, and Bandura (1989) has contended that agency involves deliberately influencing one’s functioning and life circumstances, and it is the most fundamental mechanism to developing self-efficacy. Likewise, Baxter Magolda et al. (2010) have posited that self-authorship involves the internal generation of beliefs that consequently guide actions and influence decisions. The manner in which individuals perceive their ability to impact the outcomes of their actions is what Rotter (1966) has called locus of

control.

Locus of Control

A closely related concept to self-efficacy is locus of control (LOC), which measures how individuals attribute successful and failed outcomes to their behaviors (Hans, 2000). LOC measures to what degree individuals believe they are responsible for the results of their actions (Rotter, 1966). Lefcourt (1982) expanded on Rotter's work to explain the dichotomy of LOC: Individuals with an internal LOC consider outcomes of their actions to be within their control; on the other hand, individuals with an external LOC consider outcomes of their actions to be unrelated to themselves and out of their control. An internal LOC orientation considers success and failure to be a result of skill and conscientiousness, whereas an external LOC orientation considers success and failure to be a result of luck, chance, or fate (Zwart, 1988).

Having an internal LOC orientation is more "psychologically healthy" (Zwart, 1988, p. 32) because individuals tend to be less anxious, aggressive, and authoritative. They are also more trusting of others and have better self-confidence than those with an external LOC orientation (Joe, 1971). Although an internal LOC is associated with adaptive and competence-type behaviors, this association does not mean that an external LOC is completely maladaptive and incompetent (Strickland, 1978). Rather, shifting towards internal LOC beliefs tends to occur as an individual matures with age. In adulthood, LOC beliefs tend to be more stable, but they can change depending upon the most adaptive LOC orientation for the situation in which individuals find themselves.

Two comprehensive meta-analyses found the exact same effect size (0.30) for the measure of LOC in examining the results of more than 13 studies of outdoor adventure

programming outcomes (Cason & Gillis, 1994; Hattie et al., 1997). Evidence has suggested that individuals with an internal LOC are more likely to take action to improve their circumstances (Deery, 1983); have improved personal adjustment, self-concept, and self-esteem (Langsner & Anderson, 1987); have greater persistence, leadership, and self-control; and are negatively correlated with feelings of anxiety, authoritarianism, helplessness, defensiveness, guilt, and conformity (Nowicki & Duke, 1989). The notion that a more internal LOC is an outcome of adventure programming is attributed to the aim of connecting participants' behavior with immediate consequences and realistic feedback, thus facilitating a heightened sense of control over their environment and a more internal LOC orientation (Bandoroff, 1989). Taylor (1989) has contended that adventure education participants gain increased levels of confidence, skill, and self-awareness to assist them in viewing uncertain situations as a challenge instead of a threat. He has insisted that increased ambiguity, along with increased levels of confidence and skill, facilitate a more internal LOC response. Although developing a more internal LOC is associated with outcomes of outdoor programs, it is important to note that an external LOC has also been documented in the research.

For instance, Gaar (1981) highlighted a positive relationship between external LOC and relational trust (after participation in a wilderness education program) called "adaptive externality" (p. 44). She contended that wilderness programs facilitate participant adaptation to the uncertainty inherent in the natural environment. She insisted that participants develop a more external LOC in order to respond in a healthy way to ambiguous environments. For instance, Kelly and Baer (1971) documented a shift to an external LOC in their study of delinquents. They found the habitual behaviors of

delinquents to disregard authority and ignore laws were challenged by the uncertain and new environment wilderness presented. As a result, these behaviors were seen as unhelpful, and the delinquents were dependent upon instructors for their own well-being. Generally, wilderness program participants are (a) exposed to an uncertain and ambiguous environment, (b) obligated to depend on instructors at times for safety and survival, and (c) required to deal with the natural consequences of the environment (Hans, 2000). According to Gaar (1981), all of these factors inherent in wilderness programming facilitate adaptive externality because control is placed outside of the participant, and developing self-awareness requires the adoption of external LOC beliefs.

In her meta-analysis, Hans (2000) found an effect size of 0.38 for the effect of adventure programming on LOC, which confirms the effect size found in previous meta-analyses (Cason, 1994; Hattie et al., 1997). Findings indicated a significant shift to a more internalized LOC regardless of program characteristics. Further, the more time participants spent involved in the adventure program, the more internalized their LOC was when compared to participants involved in shorter duration programs.

An internal LOC orientation is associated with participants exerting control over their own development and environment. Similarly, self-authored individuals take control over their own learning and internally generate knowledge and beliefs (Baxter Magolda, 1999; Kegan, 1994). Wilderness education is characterized by individuals experiencing the natural consequences to their actions (Hans, 2000). Likewise, Baxter Magolda (2004) has contended that constructive-developmental pedagogy teaches students to take responsibility for their own behavior because they have been given direct experiences in which they learn from the natural consequences of their actions.

Life Effectiveness

Life effectiveness measures how effective individuals believe themselves to be in the psychological and behavioral processes required to respond to the necessary tasks to be successful in life (Neill, Marsh, & Richards, 2003). Neill et al. (2003) have successfully developed the Life Effectiveness Questionnaire (LEQ) to measure the effects of outdoor education programs on participants' life effectiveness. The LEQ is a self-report instrument that measures changes in self-perceptions of 11 key dimensions related to life effectiveness: time management, social competence, achievement motivation, intellectual flexibility, organizational self-discipline, productive teamwork, task leadership, emotional control, active initiative, self-confidence, and resourcefulness. Richards, Ellis, and Neill (2002) have contended that life effectiveness is a superior measure of intervention outcomes than self-esteem or self-concept because these constructs are more difficult to report and to measure accurately using self-report scales. Life effectiveness is easier to report while in the field (Sibthorp & Arthur-Banning, 2004) and is a multidimensional construct that allows for better understanding of adventure participant outcomes (Lane, 2008).

The LEQ has been used to examine the outcomes of adventure education programs. For example, Powers (2004) studied the effects of participation in a six-day backpacking trip on the life effectiveness of 11th graders at an independent school. She found an overall positive increase in life effectiveness with significant gains in eight of nine subscales of the LEQ. Long-term effects were statistically significant for the dimensions of time management, task leadership, and self-confidence when measured six weeks after completion of the course. Further, Lane (2008) examined the effects of an

adventure travel summer camp on the life effectiveness of participants. Findings indicated significant improvement in the dimensions of social competence and emotional control. He found that adventure courses of more than 17 days maintained gains in life effectiveness over the long-term when tested six months after completion of the program, suggesting the importance of duration of program in determining the long-term impact of participant outcomes. Likewise, shorter length programs have also been proven to positively influence the life effectiveness of participants.

For example, Flood, Gardner, and Cooper (2009) tested the impact of a one-day challenge course experience on students' life effectiveness skills. Findings indicated that a one-day challenge course program did affect college students' life effectiveness skills when measured using the LEQ-H. Results also showed a greater effect size for females than males. The benefits received by female participants of challenge course programs included enhanced time management, increased social competence, heightened motivation, improved leadership skills, and enhanced self-confidence. On the other hand, male participants experienced some positive changes, although the effects were less statistically significant. The study supports the notion that one-day challenge course programs can have a significant effect on participants' life effectiveness skills, yet it is unknown if these gains are sustained over time. Further, Neill (1999b) suggested that adults might benefit more than adolescents might from psychosocial interventions because they are less resistant to change (Cason & Gillis, 1994; Neill & Richards, 1998).

Frauman and Waryold (2009) examined the impact of wilderness orientation programs on the life effectiveness of college students. The experimental group reported increased scores on every dimension of the LEQ except for achievement motivation and

self-confidence when compared to scores from the control group. Findings indicated that participation in a wilderness orientation program and participation in a living learning community do contribute to enhanced perceived life effectiveness. The current college cohort characterized by healthy self-esteem and high self-interest (Howe & Straus, 2003) may explain the lack of change in the dimensions of achievement motivation and self-confidence. Because of their Baby Boomer parents who praised and coddled them through their youth, these students learned to think of themselves before others and to believe they are special (Twenge, 2006).

Dougherty (2005) examined the changes in life effectiveness following challenge course participation for participants enrolled in the Becoming an Outdoors-Woman (BOW) program. Results indicated a significant increase in posttest life effectiveness, and these gains were sustained at a one-month follow-up test. On the other hand, Ho's (2003) study examining the effects of a three-day adventure-based camping program on Singaporean pupils' life effectiveness challenges the notion that adventure programs have an effect on participants' life effectiveness scores. Findings indicated little difference in posttest scores of participants in a three-day residential adventure program compared to the posttest scores of the non-treatment group. The comparison of effect size differences between means showed little difference between the experimental and control groups. Ho (2003) contended that culture plays an important role when examining attitudes concerning risk and the communication of feelings. Thus, researchers need to be cognizant of participants' abilities to comprehend the LEQ questions, and findings cannot be generalized across ethnicities.

Price and DeBever (1998) examined the effects of a seven-week residential drug

rehabilitation program on participants' life effectiveness. Findings indicated significant increases in the life effectiveness dimensions of social competence, time management, task leadership, achievement motivation, and emotional control of participants.

However, no significant findings were documented in the areas of self-confidence, active initiative, and intellectual flexibility. They noted these findings were expected due to the established objectives of the program and the likelihood that participants perceived the adventure activities as dangerous and threatening due to their novelty. Further, participants may have been of the "treatment mindset" (p. 366), a perspective in which taking initiative is not often fostered because self-perceptions are more of a receiver of treatment rather than active agent in their treatment.

Stenger (2001) examined the effects of a three-day residential outdoor education program on middle school students' perceptions of life effectiveness. Findings indicated significant gains for both males and females in overall LEQ scores; these gains were sustained at one-month follow-up. All nine life effectiveness dimensions measured by the LEQ-I significantly increased from pretest to posttest. Only intellectual flexibility gains (IF) were not sustained over time, likely because younger individuals show smaller gains than older participants do, and the magnitude of change for IF was smaller than the other nine dimensions (Neill, 1999).

Culhane (2004) examined the effects of a fifth grade adventure-based cooperative physical education program on fifth grade students' life effectiveness and locus of control. Findings indicated that there was no difference in life effectiveness traits as measured by the Review of Personal Effectiveness with Locus of Control following participation in an eight-week adventure-based cooperative education unit. This finding

supports the notion that off-site adventure programs have an advantage over adventure programs inside the public school. In this study, there were no off-site visits and the activities were conducted exclusively in the gymnasium. The uniqueness of an off-site experience in a new environment for participants may be more advantageous than the same activity conducted in a familiar indoor environment. The varied research findings in the above-mentioned studies suggest that life effectiveness is a complex construct to measure consistently and fluctuates depending on participant age, program duration, and program structure. However, life effectiveness is influenced by individuals' abilities to fulfill their true potential.

Self-Actualization

Self-actualization is a cornerstone of humanistic psychology. Although Maslow (1943) is often credited with the popularization of the concept of self-actualization, he built upon the work of Jung, Adler, and Goldstein. In discussing his concept of individuation, Jung (1953/1983) described it as a process in coming to selfhood. He argued that individuals become themselves when they are ready and when they decide it is necessary to choose their own direction in life. According to Adler, an individual is motivated by social interest. Social interest is the "innate urge to cooperate and work with other people for the common good" (Encyclopedia Britannica, 2014, para. 4). In healthy individuals, social interest is highly developed. Moreover, Goldstein (1939) noted that one is "governed from within" and is motivated to attain self-actualization (as cited in Shin, 1992, p. 67). He defined self-actualization as "the fulfillment of one's capacities or potentialities in the best possible way under a given circumstance" (as cited in Shin, 1992, p. 67). Later, Maslow (1943) conceptualized his theory of self-

actualization and acknowledged the influence of James, Dewey, Wertheimer, Goldstein, Freud, and Adler on this theory.

The framework for Maslow's (1943) human motivation theory progresses through a hierarchy of needs (from the bottom): physiological, safety, belongings and love, esteem, and self-actualization at the apex. He proposed that an individual cannot attain their true potential or achieve self-actualization until their basic needs are met. He suggested that a lower level need, such as safety, does not necessarily have to be fully satisfied in order to address a higher need. Instead, he offered that all needs are addressed somewhat concurrently to different degrees. For instance, a less urgent need is minimized so that a more urgent need can be satisfied. When a need is adequately satisfied, a higher need emerges and serves as the focus until it is met. Maslow (1943) argued that individuals' actions express simultaneously their physiological, safety, love, esteem, and self-actualization needs.

Maslow (1943) described self-actualization as the need for one to do what he or she is meant to do in life. For example, "a musician must make music, an artist must paint, a poet must write, if he is to be ultimately happy" (p. 382). He argued that individuals are driven by their desire for self-fulfillment and the attainment of potentiality. He suggested that the need for self-actualization is unique to every individual: Individuals with creative capacities will seek an artistic outlet, and individuals with athletic capacities will seek an athletic outlet. All individuals want to realize their true potential.

Self-actualizing individuals differ from non-self-actualizing individuals. Maslow (1970) found that self-actualizing individuals have a better perception of reality and view

the unknown as a stimulating challenge instead of frightening. Self-actualizing people see “human nature as it *is* and not as they would prefer it to be” (p. 156). That is to say, they accept themselves completely on basic physiological levels as well as higher-order levels without feeling shame, guilt, or anxiety. For example, they have a healthy appetite for food, they sleep well, and they enjoy their sexual lives without unnecessary inhibition. They completely accept themselves and others, including any shortcomings. They are able to act spontaneously, they appreciate simplicity, and they do not argue over triviality.

Self-actualizing people are focused on external problems instead of internal shortcomings. Their mission in life is to address a problem outside of themselves. This mission is unselfish and concerned with the good of others. They enjoy solitude without discomfort and prefer privacy to a larger degree than non-self-actualizing individuals. They maintain a level-head and calm disposition in the face of controversy. They are autonomous and detach their emotions to concentrate on the problem. They independently form opinions, make decisions, and continuously pursue personal growth and development. In experiencing success, they favor the opportunity to grow over gaining recognition and prestige. They appreciate the simplicities of life repeatedly (e.g., the beauty in a sunset or pretty flower). They have deeper and more profound personal relationships than non-self-actualizing people. They are democratic in character, regardless of another person’s class, race, gender, religion, or education. These individuals have strong moral and ethical standards, a sense of humor that does not target or hurt others, and a special creativity that allows them to maintain a fresh perspective. The most defining characteristic of self-actualizing individuals is their resistance to

enculturation. In other words, they move to the beat of their own drum. A fundamental characteristic of self-actualizing individuals is their heightened intrapersonal intelligence.

Self-actualization describes individuals' intrapersonal intelligence and capacity for openness to and acceptance of their true selves (Runco, 2011). The achievement of self-actualization requires individuals to make decisions that consistently promote growth, even if it is the more difficult choice to make (Maslow, 1970). Lambert et al. (1978) studied the effect of an academic college class with wilderness experience on participants' self-concept and self-actualization. Findings indicated that courses with a wilderness component significantly increased self-concept and positive self-attitude, which are both closely related to attaining self-actualization. When individuals experience self-actualization, they describe the feeling as similar to a peak experience.

Maslow (1968) found that highly self-actualized individuals have had more peak experiences during which they experienced lasting cognitive changes. He described peak experiences as moments of "highest happiness and fulfillment" (e.g., athletic fulfillment, intellectual insight, creative moments, or nature experiences). The characteristics of the cognitive process in peak experiences involve complete absorption in and fascination with a task resulting in a lost sense of time, the perception of the world as being independent from humankind, a perception that transcends the self, and a revelatory and self-validating experience carrying intrinsic value that cannot be satisfactorily described. Scott (1974) hypothesized that "wilderness experiences are more likely to foster self-actualization and the occurrence of peak experiences than outdoor activity in more degraded environments" (p. 236) because of anecdotal evidence surrounding individuals such as Thoreau, Muir, and Leopold. All three men used the wilderness to experience

personal growth and “their writings suggest that peak experiences aided their understanding of the environment” (p. 236). On the other hand, Young (1983) examined the variables determining wilderness use among adults. He found self-actualization was not a significant influence on wilderness use. Evidently, more empirical evidence is required to examine more closely the relationship between wilderness experience and self-actualization.

Young and Crandall (1984) studied the notion that wilderness users were more self-actualized than non-wilderness users and that frequent wilderness users were more self-actualized than occasional users. They administered surveys and collected data from two samples: 503 adult non-wilderness users and 222 wilderness users. Findings indicated that wilderness users were significantly more self-actualized than non-users, and higher self-actualized individuals were weakly correlated with having a more positive wilderness attitude. However, there was no difference in self-actualization between frequent and occasional wilderness users. Thus, self-actualization has a slight positive relationship to wilderness use and attitudes, meaning wilderness experiences have a small effect on self-actualization.

Scherl (1989) claimed that wilderness experiences give participants the opportunity to look more closely at themselves because consequences from their actions immediately provide self-relevant feedback to encourage personal growth. The wilderness setting lends itself to influencing individuals’ self-perceptions because the conditions are equivalent to factors found to be favorable for memory and learning (Thomas, 1977). “In particular the concreteness, cue salience, and lack of distraction and ambiguity, seem to facilitate clearness of perception” so that individuals gain greater

intrapersonal insight (Newman, 1980, p. 328).

Shin (1992) examined whether wilderness campers' self-actualization was related to their wilderness attitude or the physical quality of wilderness environments where they camped. He collected data from 540 randomly sampled campers in three Ontario Provincial Parks: Algonquin, Killarney, and Quetico. Findings indicated a significant positive correlation between wilderness attitude and self-actualization. Moreover, self-actualization was highly correlated with the wilderness quality of the area where individuals opted to camp.

Vogel (1989) examined the effects of Project USE (an Outward Bound-style course) on participants' self-actualization and self-perceptions of personal growth. The quasi-experimental study collected data from a sample of 59 students: 39 students in the experimental group enrolled in the Project USE course and 20 students in the control group. Instrumentation included the Personal Orientation Inventory (POI) (Shostrom, 1963) to measure self-actualization, a self-perception of personal growth scale known as Course Description (Silberman & Allenderm, 1974), participant journals, and instructor evaluations (as cited in Vogel, 1989). Findings indicated Project USE participants experienced increased levels of self-actualization and heightened self-perceptions of personal change. Significant differences were measured on 7 of 12 variables on the POI, and the experimental group expressed heightened self-perceptions of personal growth when compared to the control group. Thus, outdoor education programming such as Project USE increases participants' self-actualization and self-perceptions of personal change. Vogel (1989) proposed a significant correlation might exist between self-perception of change and the process towards self-actualization.

Yaffey (1992) studied the notions that individuals regularly engaging in outdoor adventure pursuits are more self-actualized than non-participants, and outdoor adventure programs facilitate personal growth and increase self-actualization. Participants were selected from instructors at two outdoor organizations: Outward Bound and Plas y Brenin. A student group participating in an Outward Bound course was also selected for comparison. All participants completed the Personal Orientation Inventory (POI) before and after participation in a course. Findings indicated that Plas y Benin instructors scored higher on the POI than the students, but this result was not found for Outward Bound instructors. However, results indicated that participation in the Outward Bound course significantly increased POI scores for the student group after completion of the course, confirming that outdoor education programs enhance participants' self-actualization. Further investigation is required to examine the possibility that people regularly participating in outdoor pursuits are more self-actualized than non-participants.

Sveen and Denholm (1997) examined the effectiveness of an outdoor program as a preventative intervention for adolescents at-risk of offending. Findings indicated significant differences between treatment and control groups in the areas of overall self-esteem and self-actualization on pretest and posttest scores. Female participants had greater initial short-term gains in self-actualization than males, but these gains were not retained over time. These results were consistent with the findings of a study conducted on participants of an Outward Bound course by Vander Wilt and Klocke (1971).

White and Hendee (2000) observed the relationship between naturalness and solitude and the development of self, community, and spirituality of wilderness users. They found positive relationships: (1) between naturalness and solitude and (2) among

the development of self, community, and spirituality of participants in three wilderness programs. However, they indicated that future studies were required to validate the relationship between the three categories of development and the wilderness qualities of naturalness and solitude.

Self-actualization, as an outcome of outdoor education programs, is a complex attribute to measure due to its subjectivity. Thus, researchers have preferred to study related constructs such as self-esteem and self-concept. Regardless of the attribute being measured, evidence supports the contention that outdoor education programs affect the development of self and influence personal growth in participants. Self-actualization is related to self-authorship because it is the full acceptance of one's self and answers the question, *Who am I?*, a key question characteristic of self-authorship. Self-authored individuals lead a life of purpose and make decisions grounded in their beliefs and values (Baxter Magolda et al., 2010). Likewise, highly self-actualized people fulfill their potential and satisfy the life purpose for which they were destined (Maslow, 1968).

Reasoned Links Between Outdoor Education and Self-Authorship

Dewey (1938/1981) argued, "it is impossible to prepare the child for any precise set of conditions" (p. 445) because it is not possible to predict the future of society. Rather, education should give the child "...command of himself...so to train him that he will have the full and ready use of all his capacities" (p. 445). Baxter Magolda (2008) described the command of one's life as self-authorship, or the ability to internally generate answers to the questions: *How do I know?*, *Who am I?*, and *How do I want to construct social relationships?*. Given that there are few studies examining self-authorship (SA) as an outcome of outdoor education (OE) programs (FERENCEVYCH, 2004;

Gass et al., 2003), reasoned links connecting outdoor education with self-authorship are necessary. The links explored in this section include overcoming a state of cognitive dissonance, internalizing one's LOC, achieving mastery, experiencing natural consequences to one's actions, and problem-solving to overcome challenges.

Overcoming a state of cognitive dissonance. Outdoor education takes place in an ambiguous environment that encourages a state of cognitive dissonance from which personal growth occurs (Lambert et al., 1978; Nadler, 1993). OE also encourages the development of a more internalized locus of control (Casson & Gillis, 1994; Hattie et al., 1997). Additionally, OE fosters problem-solving through task mastery (Hattie et al., 1997; Walsh & Golins, 1976). Similarly, self-authorship requires problem-solving on behalf of the individual to overcome the “provocative moment” (an experience resulting from an imbalance between students and their ways of knowing), which catalyzes them into looking inward for self-definition (Pizzolato, 2005, p. 625). SA requires individuals to trust their internal voice in forming their identity and realizing their purpose in life (Baxter Magolda 2008; Pizzolato, 2005). OE inherently employs the characteristics of constructive-developmental pedagogy outlined by Baxter Magolda (1999) as a means to encourage the development of SA in students.

OE programming methodologies intentionally create an environment in which participants experience a state of cognitive dissonance. Festinger (1957) first investigated the theory of cognitive dissonance that addresses how individuals manage inconsistency between their thoughts about their beliefs, actions, and environment. Festinger (1957) posited that individuals encounter dissonance in certain situations, a state that they will be motivated to reduce, resulting in changes to future behavior,

cognition, and experiences. Outdoor education pedagogy aims “to create a state of dissonance between participants’ beliefs and actions” using new activities that have a perceived level of risk, promoting personal growth and learning (Brown, 2008, p. 7). In order to resolve the conflict between their beliefs and actions, individuals will reduce this dissonance by altering their cognition until consistency is reached (Festinger, 1957).

Likewise, Pizzolato (2005) suggested the “provocative moment” impels individuals into self-authorship because of disequilibrium present in their ways of constructing knowledge (p. 625). The “provocative moment” results in individuals reconsidering their beliefs and self-concept with the aim of acting on those reflections to effect change (p. 625). Subsequently, individuals’ decision-making processes aim to resolve the dissonance experienced in the “provocative moment”, impelling them into self-authorship because of an enhanced self-definition and self-understanding (p. 625).

Internalizing one’s LOC. A more internally oriented LOC is well documented as an outcome of participation in outdoor education programs (Casson & Gillis, 1994; Hattie et al., 1997). Individuals with an internal LOC act to improve their circumstances (Deery, 1983), thus increasing their self-concept and self-esteem (Langsner & Anderson, 1987). Baxter Magolda (2014) posited that self-authored individuals trust their internal voice and look inward to generate their beliefs, identity, and knowledge. In order for an individual to self-author, Pizzaloto (2005) argued that a more internalized LOC, enhanced self-concept, and heightened self-esteem are required to aid individuals in overcoming the “provocative moment” (p. 625). Both outdoor education and self-authorship involve overcoming challenges in new environments, leading to mastery and the ability to try out new identities (McKenzie, 2000).

Achieving mastery. McKenzie (2000) posited that adventure programming outcomes are achieved because of confounding factors including—but not limited to—the physical environment and characteristics of OE activities. The physical environment is ambiguous and novel, presenting participants with problems to master. Through demonstrating mastery, participants experience positive benefits such as enhanced self-concept and increased self-esteem (Nadler, 1993). Walsh and Golins (1976) found that tasks performed in outdoor education are straightforward and promote mastery. That is to say, participants feel accomplished when solving tangible problems within a supportive group setting in outdoor education programs. Since participants solve problems they would not ordinarily encounter outside the wilderness setting, self-perception is enhanced and becomes more congruent with their attitudes. Subsequently, participants are better prepared to approach future problems with newfound attitudes, values, and beliefs.

Outdoor education encourages learners to conceptualize learning for application to their daily lives because problem-solving engages the cognitive, affective, and psychomotor domains concurrently (Walsh & Golins, 1976). Mastery in OE “involves the fullest Gestalt of the learner; such development by its very nature reorganizes the meaning and direction of a person’s experience” (Walsh & Golins, 1976, p. 14). The challenging nature of OE activities encourages participants to overcome a state of cognitive dissonance by mastering the skills associated with achieving success. Conrad and Hedin (1981), Dyson (1995), Iso-Ahola and Graefe (1988), and Witman (1995) have contended that the combination of challenge, mastery, and success inherent in OE activities encourages growth in participants.

Experiencing natural consequences to actions. Walsh and Golins (1976)

posited that OE activities are planned so that success and mastery are possible, but failure plays an equally important role in encouraging growth (Bandura, 1997; Witman, 1995). Bandura (1997) holds the view that difficulties and setbacks teach perseverance and commitment to continued effort. Participants develop the capacity to see the valuable learning in their failures and exert better control over events in the future by improving their abilities. Witman (1995) found “learning from failures” (p. 48) to be ranked as the ninth most valued outcome by adolescents participating in adventure programs. Thus, the challenge presented to participants in OE activities encourages the mastery of skills required to be successful in overcoming the state of dissonance so that learners experience enhanced self-concept, self-esteem, and self-efficacy. All of these constructs are related to forming new attitudes, beliefs, and self-perceptions, leading to a heightened sense of self (Conrad & Hedin, 1981; Dyson, 1995; Iso-Ahola & Graefe, 1988; Nadler, 1993; Walsh & Golins, 1976).

Problem-solving to overcome challenges. Self-authorship requires advanced problem-solving skills so that individuals gain mastery over their own decisions and learning (Hodge, Baxter Magolda, & Haynes, 2009). Constructive-developmental pedagogy encourages self-authorship because students make decisions about what they learn and co-design the learning experience with instructors. The learning environment presents learners with:

thorny problems and topics that lend themselves to multiple legitimate perspectives, introducing them to competencies needed to address those topics, and helping them form, and accept responsibility for, their own decisions and

actions in ways that are consistent with their own identities. (p. 19)

In this learning environment, the paradigm shifts from educators “giving answers to and exercising authority over students towards encouraging questions from and sharing authority with students” (Hodge, Baxter Magolda, & Haynes, p. 19). By solving complex problems to gain mastery over their decisions and shape their identities, self-authored individuals develop in all three dimensions: epistemological, intrapersonal, and interpersonal.

Self-authorship exemplified in the epistemological dimension is characterized by the ability to critically examine knowledge and the capacity to internally generate ideas. The intrapersonal dimension of self-authorship requires individuals “to register disagreement and to argue for their perspectives” (Hodge, Baxter Magolda, & Haynes, p. 18). Attaining self-authorship in the interpersonal dimension requires that individuals stand up for their beliefs without the concern of gaining affirmation from others. Likewise, OE aims to holistically develop the learner in the cognitive, affective, and psychomotor domains (Walsh & Golins, 1976); learning environments that foster self-authorship aim to encourage the development of holistic meaning-making capacities in the epistemological, intrapersonal, and interpersonal domains (Hodge et al., 2009).

OE and SA both require that individuals solve problems independently and collaboratively to master the skills necessary to overcome challenging tasks (Hodge et al., 2009; Walsh & Golins, 1976). Thus, OE and SA share an emphasis on problem-solving and mastery to overcome a state of dissonance, which encourage personal growth and heightened self-understanding. Outdoor education pedagogy is more closely examined in order to compare it to constructive-developmental pedagogy to better understand how OE

encourages the development of self-authorship in participants.

Outdoor Education Pedagogy

Outdoor education consists of combining techniques from adventure education and experiential education models. Walsh and Golins (1976) have broadly described the adventure education process as one that engages participants in “characteristic problem-solving tasks set in prescribed physical and social environments that impel the participant to mastery of these tasks and which in turn serves to reorganize the meaning and direction of his life experience” (p. 2). The confounding variables in achieving adventure education outcomes (the learner, prescribed physical and social environments, problem-solving tasks, the instructor, and the reflective process) are compared to the experiential education principles outlined by the AEE (n.d.). This section provides an understanding of how outdoor education pedagogy lends itself to participants’ SA development and serves as a comparison between OE pedagogy and constructive-developmental pedagogy.

Definition. Priest (1990) succinctly defined outdoor education as:

an experiential method of learning with the use of all senses. It takes place primarily, but not exclusively, through exposure to the natural environment. In outdoor education, the emphasis for the subject of learning is placed on relationships concerning people and the natural resources. (p. 113)

OE is grounded in experiential learning and seamlessly weaves adventure education principles throughout its program to examine learners’ reciprocal relationship with the natural world. Similarities in adventure and experiential education are closely examined to provide the foundation in which OE is grounded and better understand how OE can influence personal growth and enhance self-understanding, both of which are constructs

related to attaining self-authorship.

Motivated learner. First, adventure education relies on a motivated learner who thinks, feels, and behaves as if there is something to be gained from participation. Dewey (1910/1939) posited that because "...learning is something that the pupil has to do himself and for himself, the initiative lies with the learner" (p. 615). Likewise, experiential education is designed to encourage initiative, decision-making, and accountability on behalf of the learner (AEE, n.d.). Learners are responsible and accountable for their learning in adventure and experiential education. In the same way, Baxter Magolda (1999) stated that self-authorship involves learners shifting from viewing knowledge as certain to uncertain in addition to seeing themselves as an active participant who is ultimately responsible for constructing their knowledge. Walsh and Golins (1976) contended that the learning environment shapes the responsibility, initiative, and accountability characteristic of both OE and SA.

Physical environment. The prescribed physical environment typical of adventure education is unfamiliar to the learner. The novel environment provides a contrast for learners to gain new perspectives and "is the first step towards reorganizing meaning and direction of [their] experience" (Walsh & Golins, 1976, p. 4). Walsh and Golins (1976) have noted that the outdoor environment inherent in adventure education is preferred because it is highly stimulating for the senses, presents perceived risky situations, is the perfect laboratory for problem-solving, and encourages self-sufficiency and self-awareness because consequences lack society's safety nets. Likewise, experiential education occurs in many settings, but learners "may experience success, failure, adventure, risk-taking, and uncertainty, because the outcomes of the experience

cannot be totally predicted” (AEE, n.d., para. 3). Even if experiential education occurs indoors, educators seize spontaneous teachable moments, and the intentional design of the experience helps participants learn from “natural consequences, mistakes, and successes” (AEE, n.d., para. 3).

Similarly, Baxter Magolda et al. (2010) found that a provocative moment—or a series of challenging situations—must be faced and overcome by individuals in order to move towards self-authorship; therefore, marginalized individuals who face these moments earlier in life (e.g., racial minorities, lesbian, and at-risk students) appear to develop self-authorship at an earlier age. The physical environment is not the only prescribed setting that achieves adventure and experiential education program outcomes; the interpersonal relationships characteristic of such programs also play an important role.

Social environment. The prescribed social environment in adventure education consists of an interdependent, supportive peer group working towards a common objective, subsequently promoting opportunities for individual and cooperative decision-making (Walsh & Golins, 1976). The interpersonal exchange fosters reciprocity, allowing all individuals to trade-off strengths and weaknesses within a group setting to solve problems. Further, the problem-solving tasks employed in adventure education promote mastery because they are organized, incremental, concrete, manageable, consequential, and holistic. Similarly, experiential education engages participants holistically. That is to say, learners are engaged on intellectual, emotional, social, spiritual, and physical levels (AEE, n.d.). Further, many relationships are developed through experiential education activities: intrapersonal, interpersonal, and learner to the

world at large.

Likewise, Hodge et al. (2009) posited that self-authorship involves relationships between the learner and educator, learner and self, and learner with other learners. Knowledge is socially constructed in SA and relies upon students constructing knowledge without fear of rejection from peers or affirmation from external sources of authority. One of these well-documented influential social relationships is that between learner and educator.

Educator. Walsh and Golins (1976) found that adventure educators take on many different roles in facilitating programming: translator, initiator, trainer, maintainer, authority figure, and exemplar. Experiential education recognizes the role of educators to include: “Setting suitable experiences, posing problems, setting boundaries, supporting learners, insuring physical and emotional safety, and facilitating the learning process” (AEE, n.d., para. 3). Further, educators are cognizant of their biases, judgments and pre-conceptions and the impact these beliefs have on the learning experience and participants. Because the instructor plays such an influential role in facilitating positive adventure program outcomes, a substantial amount of research has examined the characteristics of effective instructors (Aguilar, 1986; Bartley & Williams, 1988; Hendy, 1975; Hopkins, 1982; Phipps & Claxton, 1997; Riggins, 1985, 1986; Thomas, 1985; Wood, 1978).

Similarly, Pizzolato and Ozaki (2007) suggested the role of educators in fostering SA is to develop the capacity in students to recognize “multiple perspectives, knowledge as tentative, and the self as central to knowledge construction” (p. 212). Therefore, the relationship between educator and student is integral to attaining outdoor education outcomes and promoting self-authorship in students. An equally important factor in

determining adventure program impact on participant outcomes is reflection (or processing), which helps participants extract meaning from their learning experiences.

Processing. Lastly, processing enables learners to internalize meaning in order to transfer learning from adventure activities to their daily lives (McKenzie, 2000). AEE (n.d.) posited that “experiential learning occurs when carefully chosen experiences are supported by reflection, critical analysis and synthesis” (para. 3). Throughout the experiential learning process, participants question, investigate, experiment, problem-solve, and construct meaning in order to link their learning to their daily activities. Reflection allows learners to internalize their learning, which forms the foundation for future learning experiences. Likewise, Bekken and Marie (2007) found reflection to be an important processing tool for students to examine their epistemological, intrapersonal, and interpersonal development concerning self-authorship. Processing allows learners to examine their values, beliefs, and judgments, thus leading to enhanced learning and personal growth.

Many of the factors that achieve adventure education outcomes are also characteristic of experiential education and relate to self-authorship research. Outdoor education is best described as a large tree with “two major branches from the main trunk...one branch is called adventure education; the other branch is called environmental education...[and] the leaves of this tree are the experiential learning process” (Priest, 1986). In addition to borrowing from adventure and experiential education models, outdoor education develops ecosystemic and ekistic relationships. Ecosystemic relationships are concerned with the dynamics and interdependency of all features of ecosystems, while ekistic relationships are concerned with the interactions and

reciprocity between humans and the natural environment. Outdoor education combines outdoor pursuits and environmental education to promote ecological literacy and stewardship through being active outdoors. The characteristics inherent in OE promote personal growth primarily in the areas of self-concept and self-esteem (Conrad & Hedin, 1981; Dyson, 1995; Iso-Ahola & Graefe, 1988; Nadler, 1993; Walsh & Golins, 1976), suggesting a resemblance to constructive-developmental pedagogy aimed at encouraging self-authorship.

Comparing Constructive-Developmental Pedagogy to OE

Outdoor education fundamentally integrates experiential and adventure education principles. By looking more closely at tenets outlined by experiential and adventure education (the basis of OE) and comparing them to those in constructive-developmental pedagogy, a better understanding of how OE lends itself to fostering the development of self-authorship in participants is gained. Constructive-developmental pedagogy maintains three beliefs: validating students as knowers, situating learning in students' own experiences, and constructing knowledge with the active participation of both educator and student (Baxter Magolda, 1999). Likewise, OE values a student-centered approach to pedagogy, the use of participants' experiences to construct learning, and a reciprocal relationship between educator and learner (AEE, n.d.).

Self-authored individuals view knowledge as uncertain and recognize that they are ultimately responsible for internally generating their beliefs, values, and identity (Baxter Magolda et al., 2010). Validating the knowledge of students involves valuing their perspectives, recognizing them as proficient, and encouraging them to construct knowledge rather than simply accept knowledge from external sources of authority

(Baxter Magolda, 1999). When students are central to the learning process, as evidenced in self-authorship and constructive-developmental pedagogy, the methodology is described as student-centered (Froyd & Simpson, 2008). Outdoor education similarly involves a student-centered approach to learning experientially in the natural environment (Priest, 1986). A student-centered approach to education in this context means that learning is created through “student discovery and construction of knowledge” (Froyd & Simpson, 2008, p. 1). Likewise, the principles of experiential education outlined by the AEE (n.d.) highlight that “experiences are structured to require the learner to take initiative, make decisions and be accountable for results” (para. 3); thus, students play an active role in constructing their knowledge. In experiential learning, students are active in the learning process and assume responsibility for their learning and meaning-making (AEE, n.d.). Constructive-developmental pedagogy and OE both demonstrate a student-centered approach that assists learners in making meaning of their experiences, subsequently leading to personal growth.

Constructive-developmental pedagogy involves situating the learning in students’ own experiences (Baxter Magolda, 1999). In other words, students use their prior experiences (not the educator’s perspective) as the foundation for learning so they build upon prior knowledge. Similarly, Dewey (1910/1939) contended that learning from experience involves drawing upon “past experience and prior knowledge” (p. 12). He argued that when learners attempt to solve a problem, they collect additional evidence from previous experiences and prior knowledge regarding the present situation in order to think critically about accepting or refuting the solution. The role of “reflection, critical analysis, and synthesis” (AEE, n.d., para. 3) is integral to students drawing upon past

learning experiences in experiential education. Generally, knowledge construction involves individuals' understandings of previous knowledge and judgments (Piaget, 1952; Vygotsky, 1962). Situating learning in students' own experiences means the task is authentic, outcomes are applicable to their daily lives, and learning is guided rather than presented (AEE, n.d.; Hodge et al., 2009). Self-authorship is developed through educators intentionally situating learning in students' previous experiences and prior learning, which means both educator and learner, must be actively involved and equally contribute to the learning process (Baxter Magolda, 1999).

Active participation from both educator and student means the learning process and expertise are equally shared and knowledge is constructed collectively; for example, students make meaning from knowledge introduced by the educator instead of uncritically accepting knowledge presented to them (Hodge et al., 2009). Likewise, the AEE (n.d.) posits that learning experiences involve the learner taking initiative, making decisions, and being responsible for outcomes. That is to say, learning outcomes are personalized to inform students' prospective experiences and learning opportunities.

Both educators and learners are not only provided the opportunity for, but are encouraged to examine their personal values, beliefs, and identities. The educator's role includes seizing unplanned learning opportunities in addition to "setting suitable experiences, posing problems, setting boundaries, supporting learners...and facilitating the learning process" without influencing the learner by maintaining neutrality (AEE, n.d.; Priest, Gass & Gillis, 2000). Instead, learning stems from natural consequences to learners' behaviors as well as successful and unsuccessful outcomes to these actions (AEE, n.d.). Actively engaging students in their learning encourages them to reflect on

their attitudes and beliefs, resulting in personal growth (McKenzie, 2000). Likewise, Hodge et al. (2009) claimed that when educator and students mutually construct learning, the integration of epistemological, intrapersonal, and interpersonal maturity is encouraged so that self-authorship is attained.

The presented evidence suggests that the three assumptions of constructive-developmental pedagogy (Baxter Magolda, 1999) align closely with the principles of experiential education (AEE, n.d.) and adventure education that are characteristic of outdoor education ICPs. The shared tenets of constructive-developmental and outdoor education pedagogies include *validating the student as knower*, *situating learning in students' own experience*, and *defining learning as mutually constructing meaning*; these principles are central to providing learners with learning experiences in which they may experiment with and develop self-authorship skills (Baxter Magolda, 1999). Outdoor education program outcomes include enhanced problem-solving skills, a more internalized locus of control, and increased self-efficacy and self-actualization. Enhanced problem-solving capacities encourage students to look within themselves to make meaning and construct knowledge instead of depending on external sources of authority. A more internalized LOC orientation, heightened self-efficacy, and increased self-actualization all contribute to students being capable of standing by their beliefs and knowledge without the influence of others or concern for the affirmation from authority.

Summary

The case for a clear link between outdoor education and self-authorship has been attempted in the review of the literature. Research examining outcomes of OE as constructs related to self-authorship development have been examined (e.g. self-concept,

self-efficacy, LOC, life effectiveness, and self-actualization). Reasoned links between outdoor education and self-authorship were explored by comparing outdoor education pedagogy (comprised of experiential and adventure education principles) to constructive-developmental pedagogy. Shared characteristics between OE and SA included (1) overcoming a state of dissonance, (2) internalizing one's LOC, (3) achieving mastery, (4) experiencing natural consequences to one's actions, and (5) problem-solving to overcome challenges. The similarities between outdoor education and constructive-developmental pedagogies were investigated: *validating the student as knower*, *situating learning in students' own experience*, and *defining learning as mutually constructing learning*. Constructive-developmental pedagogy—an approach aimed at fostering self-authorship development in students—shares similar characteristics to outdoor education that are responsible for participants experiencing personal growth. Moreover, research has more recently connected self-authorship to outdoor education programs (Bekken & Marie, 2007; Ferencevych, 2004; Gass et al., 2003).

Chapter III

Methodology

The purpose of this study was to investigate changes in self-authorship levels among participants of 10th and 12th grade outdoor education integrated curriculum programs. Data was analyzed to answer the following research questions:

1. To what extent did self-authorship levels of 10th and 12th grade high school students differ *before* and *after* participation in a one-semester outdoor education integrated curriculum program?
2. To what extent did self-authorship levels within the grade level differ based upon gender?
3. To what extent did self-authorship levels differ between 10th and 12th grade students?
4. To what extent were changes in self-authorship levels evident three months after completion of the outdoor education integrated curriculum program? More specifically, what dimensions of self-authorship increased following participation in one-semester outdoor education integrated curriculum programs and maintained similar levels three months following the experience?

This quasi-experimental research study used a one-group pretest-posttest design (Baldwin & Berkeljon, 2010). One-group pretest-posttest design, “has a pretest measure (O₁) before manipulation (X) as well as a posttest measure (O₂) following treatment” (p. 1173). Quasi-experimental designs differ from experimental designs with respect to

participant selection. In quasi-experimental designs, participants are not randomly assigned to conditions due to ethical or practical constraints. This researcher selected a quasi-experimental design for the present study due to practical constraints (e.g., the inability to select a true control group, the lack of ability to use probability sampling techniques, and the convenience of selecting a sample within driving distance to the researcher's residence).

Hypotheses

This investigator proposed the following null hypotheses for this research:

H₀ 1: Self-authorship levels of 10th and 12th grade high school students as measured by the Self-Authorship Questionnaire (SAQ) will not differ between pretest and posttest scores.

H₀ 2: Self-authorship levels as measured by the SAQ will not differ between females and males within the grade level.

H₀ 3: Self-authorship levels as measured by the SAQ will not differ between 10th and 12th grade students.

H₀ 4: Gains in self-authorship levels as measured by the SAQ will not be retained over time and the same pretest levels will be evident three months following completion of the course.

The following chapter discusses the program selection, participants, data collection, and data analysis used in this study. More specifically, this chapter describes the program selection, participants and selection method, instrumentation and its development, informed consent, data collection procedures, and data analysis measures used and the rationale for their selection.

Program Selection

Community Environmental Leadership Program (CELP) and Headwaters classes at Centennial Collegiate Vocational Institute (CCVI) in Guelph, Ontario, Canada were selected as the sample for this quasi-experimental study. CELP is a four-credit 10th grade outdoor education ICP focusing on environmental leadership. Each day, the program is based out of the Guelph Arboretum in Guelph, ON. Students were bussed to the location from CCVI daily. The course consisted of 24 students (with equal male and female distribution) enrolled in English, Civics and Careers, Outdoor Activities, and Interdisciplinary Studies credits. Students spend a majority of their daily class time outdoors learning experientially. At the course's culmination, the 10th grade students teach environmental education programs to elementary students. This experiential component offers students the opportunity to demonstrate an understanding of their knowledge gained from participation in CELP.

The program is based on three principles: 1) learn in a unique setting, 2) develop a relationship with the natural world, and 3) lead by example. Students build relationships that go beyond the walls of the classroom, cook in small groups for the entire class, and engage with other students experientially. Students participate in a five-day canoe trip along the Magnetawan River (if participating in first semester), or a five-day winter camping snowshoe trip in Algonquin Park (if participating in second semester). In English, students reflect upon their experiences throughout the course. Students also participate in bike trips around the Guelph area to learn about local environmental issues and sustainable living practices. Leadership is practiced through team-building activities and tasks, teaching environmental education programs to elementary students, and

designing an “active citizenship” day volunteering in the community.

Headwaters is a four-credit 12th grade outdoor education ICP focusing on environmental leadership and building upon the CELP program. The program is based each day out of the Guelph Unitarian Fellowship in Guelph, ON. Students were bussed to the location from CCVI daily. The course consists of 24 students (with equal male and female distribution) enrolled in English, Environment and Resource Management, Outdoor Activities, and Interdisciplinary Studies credits. Students participate in a five-day winter camping trip at the beginning of the course and a five-day canoe trip towards the end of the course. Students spend a majority of their daily class time outdoors learning experientially.

Towards the end of the course, students teach environmental education programs to elementary classes, demonstrating a culmination of their knowledge gained from participation throughout the semester. If participating in second semester, students sew moccasins for a traditional winter camping snowshoe trip in Algonquin Park and explore their leadership skills through planning and teaching physical activity. While on the canoe trip, students complete an overnight solo experience and learn canoeing skills. Students explore climate change as well as practice organic agriculture by visiting farms and planting an organic garden. Headwaters prepares students for higher education by learning through inquiry, engaging in critical thinking, and investigating and reflecting on possible career and life paths.

Participants

Grade 10 CELP and Grade 12 Headwaters students at CCVI in Guelph, Ontario, Canada were used for this study. Students were enrolled in either CELP or Headwaters

(one-semester outdoor education ICPs) at CCVI. One 10th grade CELP class of 24 students ranging in age from 15 to 16 years and evenly distributed across genders was used as the sample of 10th graders. One 12th grade Headwaters class of 24 students ranging in age from 17 to 18 years and evenly distributed across genders was selected as the sample of 12th graders. CELP and Headwaters are optional courses for students at the school and participation in the study was voluntary.

Delimitations

There was no attempt made to include participants outside of the purposefully selected sample of this study in order to focus on self-authorship as an outcome of one type of 10th and 12th grade outdoor education integrated curriculum programs. Integrated curriculum programs vary in duration, number and type of expeditions, and credits earned. Therefore, in order to control for as many confounding variables as possible, one 10th grade and one 12th grade program were purposefully selected for this study.

The sample was delimited to 10th and 12th graders participating in the CELP or Headwaters programs at CCVI because the participating school only offers OE ICPs to these two grades. This researcher selected a convenience sample because every school board does not offer ICPs, and the other programs that were contacted to participate in the study had been cancelled by the schools or were not interested in participating in the research. Moreover, this researcher selected well-established programs that are approximately 10 years old and were supportive of research as evidenced by their previous participation. Further, as there is limited evidence examining SA in adolescents and therefore little opportunity for data comparison, data was compared between genders within the grade level as well as between both grade levels to indicate differences in SA

development during different stages of adolescence.

Data Collection

Anecdotal evidence suggests that outdoor education programs positively impact participants' development; however measuring specific outcomes proves to be a difficult undertaking. Neill (2002) outlined that there are two main methods used to investigate outdoor education program outcomes: post-program surveys and pretest/posttest design. He explained that the latter methodology examines participant self-perceptions before and after participation in a program to compare differences, while post-program surveys ask participants their opinions regarding the structure of the program. Further, he suggested that the validity of the pretest/posttest design depends upon three factors: 1) the quality of the measurement tool, 2) the use of control or comparison groups, and 3) whether follow-up testing is used. This study attempted to implement the first and third of Neill's recommendations.

Instrumentation. The data collection instrument used for this study was a one-page double-sided survey with 27 Likert scale questions, called the Self-Authorship Questionnaire (see Appendix A). Additional questions were added to the SAQ to gather information on participant gender, age, and grade level for statistical analyses. The posttest for this study included five additional questions that examined other confounding variables that may influence students' self-authorship development: instructor, outdoor education ICP program characteristics (e.g., camping experiences), and previous outdoor education ICP experience (e.g., number of semesters).

Until recently, there was no tool to measure self-authorship in outdoor education programs. Ferencevych (2004) developed and piloted the SAQ to design an effective tool

to measure self-authorship in outdoor education program participants. He designed the SAQ as an easy-to-use self-report instrument that measures changes in key areas of self-authorship in outdoor education programs: 1) situational coping, 2) interpersonal leadership, 3) self-efficacy, and 4) knowledge creation (see Appendix B).

The goal of the SAQ development was “to design and pilot test a valid and reliable measure of self-authorship” for use in outdoor education programs (FERENCEVYCH, 2004, p. 31). This objective was accomplished in two phases: the first phase involved qualitative analysis of data from a focus group conducted with members of Plast, an outdoor organization that identifies self-authorship as an outcome of its program (FERENCEVYCH, 2004). As a result of the focus group, a pool of items was generated for inclusion in a preliminary version of the SAQ (v. 1). The second phase included analysis of quantitative data collected during pilot testing of the SAQ v. 1 for the purpose of refining it into a more psychometrically sound instrument for a second version (SAQ v. 2) (FERENCEVYCH, 2004).

The pilot testing of the SAQ v. 1 contained 40 items to measure eight themes identified in the focus group interview. Data screening was performed on all 40 items to eliminate poorly functioning items. The finalized Self-Authorship Questionnaire (SAQ v. 2) retained 27 items of the initial 40 and was used as the measurement tool in this study. FERENCEVYCH (2004) highlighted that many of the items generated for the SAQ v. 2 were adapted or used directly from the Review of Personal Effectiveness and Locus of Control (RICHARDS, ELLIS, & NEILL, 2002) and the Empowerment Scale (ROGERS, CHAMBERLIN, ELLISON, & CREAN, 1997). The 27 items are divided into four subscales: situational coping, interpersonal leadership, self-efficacy, and knowledge creation. He

argued that based on the original data, the reliability analysis on the SAQ v. 2 returned a Cronbach's Alpha = 0.85, indicating high reliability. The researcher and designer of the SAQ, Ferencevych (2004) granted permission for the tool to be used in this research study.

Because the SAQ instrument used in this study was not psychometrically tested, there were no database samples that could be used for statistical comparison. Nonetheless, this researcher opted to use the SAQ because it used age-appropriate language, was targeted for use in outdoor education programs, and returned high reliability during pilot testing (Ferencevych, 2004). Moreover, the Likert-scale format of questions on the SAQ allowed for quantitative data collection and analysis. Additional questions added by this researcher were geared towards experiences the majority of students would likely have had in their one-semester ICP to examine confounding variables that may influence participants' self-authorship. Further, this researcher wished to extend the use of the SAQ for use in other types of outdoor education programs.

Informed consent. Protocols for informed consent followed procedures for the Upper Grand District School Board Research Liaison Committee (see Appendix C) and the Minnesota State University, Mankato Institutional Review Board for the Protection of Human Subjects (see Appendix D). Student assent (see Appendix E) and parent/legal guardian consent (see Appendix F) were provided. Written permission to conduct research was obtained from the teachers of the classes and the Principal of the School through email communication.

Students were recruited to participate by the researcher visiting their class in-person during the week of March 9th, 2015 to describe the study, to hand out consent

forms for guardians, and to answer any questions. Consent forms were returned with the students during the same week of class to their teacher and given to the researcher on the day of SAQ pretest administration (March 11th, 2015). Student assent forms were distributed on March 9th, 2015 and collected immediately to guarantee timely return. Consent and assent forms were stored in a locked office at Minnesota State University, Mankato and will remain there for up to three years after completion of the research, at which point they will be destroyed.

Procedures. The outdoor education ICP curriculum consisted of a full semester commencing February 3, 2015 and terminating June 16, 2015. Student assent and parental consent were collected on March 11th, 2015. All participants were surveyed using the same tool, the SAQ v. 2 (see Appendix A). The SAQ v. 2 was administered on three separate occasions: as a pretest conducted in-person on March 11th, 2015; as a posttest emailed during the final week of the course June 15th, 2015; and as a second posttest emailed three months after completion of the program on September 1st, 2015. The follow-up posttest delivery date was selected for the first month of a new school year to increase response rate. The pretest was completed in person to increase the percentage of completed surveys returned to the researcher. The initial and second posttests were emailed to students to facilitate delivery, minimize disruption of the school day, accommodate school board policy on research dates, and as an easy means to contact graduated students no longer attending CCVI.

Pretest. Participants were given the pretest SAQ in person around noon on March 11th, 2015. At the pretest, students were given instructions with time to ask questions prior to responding to the survey. The survey consisted of a one-page two-sided

instrument (SAQ). The first side had written instructions on how to complete the survey properly. The backside of the survey included four demographic questions (ID, grade, age, sex) and 27 self-report Likert scale SAQ items. Students responded to 27 items on a five-point Likert-scale (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). Identification numbers were self-assigned by participants and consisted of their middle initial and last four digits of their home phone number. ID numbers served to maintain the confidentiality of responses, while providing identification numbers for tracking pretest and posttest results for each participant.

Posttest. During the final week of classes (June 15th, 2015), participants were emailed a posttest using Qualtrics, an online survey software. The SAQ posttest (see Appendix G) included the same four demographic questions and 27 Likert scale self-report SAQ items with an additional five questions. The additional questions included responses to gain information on the types of outdoor education activities students engaged in during the semester (i.e., winter camping, solo experiences, canoeing, and teaching environmental programs) as well as to what degree each of these experiences influenced students' self-authorship development. Students were also asked to report on a scale (strongly disagree, disagree, agree, strongly agree, no opinion) to what degree the instructor influenced their self-authorship development. A final question asked students if they had previously participated in an integrated curriculum program (ICP). If so, they were asked to share how many semesters (including the present semester) they participated in ICPs. Reminder emails with replacement surveys were sent out to non-participants on June 20, July 6, and July 24, 2015 to increase response rate. Thank you emails were sent out as participants completed the survey.

Three-month posttest. A second posttest was emailed to participants on September 1st, 2015 with the exact same survey composition as the initial pretest (see Appendix H). Reminder emails were sent out with replacement surveys on September 4th, 7th, and 10th, 2015 to increase response rate. Thank you emails were sent out as participants completed the survey.

It was very helpful for this research that CELP and Headwaters students have experience writing in journals to reflect on their participation and learning throughout the semester. They complete assignments that encourage reflection: 1) on their actions; 2) on their relationships with the natural environment; 3) on challenges, 4) on leadership, and group processes; and 5) on other learning they may have experienced in the course. The researcher posits that the SAQ may have given students an additional opportunity for formal reflection, which may have allowed additional learning regarding their ICP participation.

Data Analysis

Descriptive statistics were used to summarize characteristics of the participants with respect to age, grade level, and gender. Survey data was entered and analyzed using the Statistical Package for the Social Sciences (23.0) for Windows. Inferential statistics were used to process the quantitative data produced by the SAQ. All *t*-tests were two-tailed with a significance level of .05. First, paired two-tailed *t*-tests using $\alpha=.05$ as well as effect sizes (Cohen's *d*) were calculated to answer the first and fourth research questions:

1. To what extent did self-authorship levels of 10th and 12th grade high school students differ *before* and *after* participation in a one-semester outdoor education ICP?
4. To what extent were changes in self-authorship levels evident three months after completion of the outdoor education integrated curriculum program? More specifically, what dimensions of self-authorship increased following participation in one-semester outdoor education integrated curriculum programs and maintained similar levels three months following the experience?

The first research question was answered by using paired two-tailed *t*-tests to compare pretest and posttest scores for 10th and 12th grade students on the five SAQ domains (situational coping, interpersonal leadership, self-efficacy, and knowledge creation) and on overall SAQ scores. Then, Cohen's *d* effect size scores were calculated to determine to what degree participation in a one semester outdoor education ICP had an effect on students' self-authorship levels.

The fourth research question was answered by using paired two-tailed *t*-tests to compare posttest and three-month posttest scores for 10th and 12th grade students on the five SAQ domains and on overall SAQ scores. Likewise, Cohen's *d* effect size scores were calculated to determine to what degree participation in a one semester outdoor education ICP had a lasting effect on students' self-authorship level gains.

Independent *t*-tests were conducted to answer the second and third research questions:

2. To what extent did self-authorship levels within the grade level differ based upon gender?

3. To what extent did self-authorship levels differ between 10th grade and 12th grade students?

Using independent *t*-tests, data within the grade level were compared using pretest and posttest scores to compare SAQ dimension and overall SAQ scores on T1, T2, and T3 between males and females as well as between 10th and 12th graders. Levene's test was conducted to confirm equality of variances for independent *t*-tests; degrees of freedom were adjusted if Levene's test indicated nonhomogeneous variances. Levene's test is an *F*-test used to determine "the absolute deviation of each score from the mean of its group in which the scores of the groups are unrelated" (Levene, 1960 as cited in Cramer, 2004, p. 564). Levene's test was selected because it was developed for use with data that are not normally distributed, when group size is unequal, and it compares "the population estimate of the variance between groups with the population estimate of the variance within the groups" (Cramer, 2004, p. 564). A $p > .05$ indicates homogeneity of variances in the two conditions. Levene's test is calculated using *Equation 1*:

$$F = \frac{\textit{Between-groups variance estimate}}{\textit{Within-groups variance estimate}} \quad (1)$$

Chapter IV

Results

This chapter presents the descriptive statistics of the sample and summarizes the findings of the statistical analyses used. The scores on each of the four SAQ dimensions and the overall SAQ scores acted as the dependent variables in paired sample *t*-tests to determine the impact of the outdoor education ICP on participants' self-authorship, whereas independent variables for independent sample *t*-tests included sex and grade.

Demographic and descriptive statistics were determined for participants on the pretest (T1), posttest (T2), and three-month posttest (T3). A total of 26 students completed T1; two students indicated they did not wish to take part in the posttests by selecting the "No" response to the question, "Do you wish to participate in the two follow-up email surveys administered in June and September 2015?". The researcher is unsure why these students did not wish to participate in the follow-up posttest surveys given that the students were 18 years of age, so no parent/guardian consent was required. Consequently, 24 emails were sent out for T2 and 19 students responded, resulting in a 79% response rate. Surveys that could not be matched (i.e., surveys that did not have an identification code or surveys that did not have a corresponding match in T2 or T3) were removed because they did not reflect a pretest/posttest design, thus the data could not be used for paired *t*-tests. After removing unmatched surveys, 16 complete surveys remained for T2. Twenty-four emails were sent out for T3, of which 18 surveys were returned, resulting in a 75% response rate. After removing four unmatched surveys that did not have identification codes, 14 completed surveys remained.

For T1, the mean age reported by participants was 16.46 years, with a range from 15 to 18 years; females largely outnumbered males, but there was approximately an equal number of CELP and Headwaters students (see Table 1). T2 participants, ranging in age from 15 to 18 years, reported a mean age of 16.52 years. Once again, the number of females and males were disproportionate, yet CELP and Headwaters participants were approximately equal. T3 participants reported a mean age of 16.89, of which females outnumbered males (see Table 1); CELP and Headwaters participants were approximately equal.

Table 1

Gender and Program Characteristics of Survey Participants

Group	T1		T2		T3	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Males	6	23.1	5	26.3	4	22.2
Females	20	76.9	14	73.7	14	77.8
CELP	11	42.3	9	47.4	8	44.4
Headwaters	15	57.7	10	52.6	10	55.6
Unmatched responses	0	0	3	11.5	4	15.4
No response	0	0	7	26.9	8	30.8
	N=26		n=19		n=18	

Note. CELP=Community Environmental Leadership Program (10th grade). Headwaters=12th grade.

Differences in Pretest and Posttest SAQ Scores

The first null hypothesis tested whether there were significant changes in self-authorship levels of 10th and 12th grade high school students after participation in a one-semester outdoor education ICP. Scores were totaled for each SAQ dimension (situational coping, interpersonal leadership, self-efficacy, and knowledge creation) by adding the ranking for the corresponding SAQ items. Next, overall SAQ scores were found by aggregating all 27 items.

Paired two-tailed *t*-tests were conducted to determine the effects of participation in an outdoor education ICP on self-authorship development by analyzing each SAQ dimension score and the overall SAQ scores for pretest and posttest group means at a confidence level of .05. Unmatched responses ($n=3$) were omitted from the paired *t*-tests because they did not match a pretest/posttest design. Analysis of the *t*-tests for the treatment phase (T1 to T2) showed significant increases from pretest to posttest for three of four SAQ dimensions: situational coping, interpersonal leadership, and self-efficacy (see Table 2). However, results indicated no significant difference for knowledge creation. Moreover, the most significant increase from T1 to T2 occurred for overall SAQ scores. These results indicate that participation in a one-semester outdoor education ICP increases 10th and 12th grade students' self-authorship.

Table 2

Paired t-tests for SAQ Dimensions and Overall Mean SAQ Scores (Treatment Phase)

n=16

SAQ Dimension	T1		T2		t	Sig
	M1	SD1	M2	SD2		
Situational Coping	32.93	3.66	37.43	4.47	4.54*	0.000
Interpersonal Leadership	30.25	5.36	35.63	3.95	3.92*	0.001
Self-Efficacy	29.31	3.65	33.06	2.64	4.29*	0.001
Knowledge Creation	7.94	1.98	8.31	2.50	0.88	0.394
Overall SAQ scores	100.44	10.80	114.44	9.32	5.27*	0.000

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). *t*-tests were two-tailed and * $p < .05$.

Analysis of the *t*-tests for the posttest phase (T2 to T3) showed no significant differences between SAQ dimension and overall SAQ scores (see Table 3), indicating that gains were retained three months following participation.

Table 3

Paired t-tests for SAQ Dimensions and Overall Mean SAQ Scores (Posttest Phase)

n=14

SAQ Dimension	T2		T3		t	Sig
	M1	SD1	M2	SD2		
Situational Coping	36.93	4.57	38.79	2.86	1.59	0.135
Interpersonal Leadership	35.43	4.13	36.64	3.32	1.65	0.123
Self-Efficacy	32.86	2.77	33.07	1.64	0.289	0.777
Knowledge Creation	8.50	2.62	9.14	1.88	1.09	0.295
Overall SAQ scores	113.71	9.73	117.64	6.11	1.66	0.120

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). *t*-tests were two-tailed and **p*< .05.

In addition to significance testing, effect sizes (Cohen's *d*) were calculated for the four SAQ dimensions and the overall SAQ scores. Effect sizes were calculated using an effect size calculator (Becker, 1999) that uses group means and standard deviations from *t*-test output. The effect size calculator uses *Equation 2*:

$$Cohen's\ d = \frac{M_1 - M_2}{s_{pooled}} \quad (2)$$

where $s_{pooled} = \sqrt{\left(\frac{s_1^2 + s_2^2}{2}\right)}$.

Cohen's *d* was conducted in order to assess to what degree participation in a one-semester outdoor education ICP had an effect on students' self-authorship. Analysis of the treatment phase (T1 to T2) showed that effect sizes ranged from 0.16 to 1.18 for the four SAQ dimensions, and the overall SAQ scores effect size was 1.39 (see Table 4). The lowest SAQ dimension effect size was reported for knowledge creation, while the largest effect size was reported for self-efficacy; these findings are congruent with the paired *t*-test output. The largest effect size out of the five scales was for the overall SAQ scores. These findings support the increases in self-authorship observed in the paired *t*-

tests. Cohen (1988) defined effect sizes as small ($d=.2$), medium ($d=.5$), and large ($d=.8$). Based on Cohen's (1988) interpretation, participants received a large positive effect on self-authorship levels from participation in a one-semester outdoor education ICP.

Table 4

Effect Size Analysis Results for SAQ Dimensions and Overall SAQ scores

SAQ Dimension	T1-T2	T2-T3	T1-T3
	Cohen's <i>d</i>	Cohen's <i>d</i>	Cohen's <i>d</i>
Situational Coping	1.10	0.49	1.78
Interpersonal Leadership	1.14	0.32	1.43
Self-Efficacy	1.18	0.09	1.33
Knowledge Creation	0.16	0.28	0.62
Overall SAQ scores	1.39	0.48	1.96

Note. Effect sizes $> .8$ are in boldface. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me).

Differences Within Grade Levels Based on Gender

The second null hypothesis tested whether there were differences in SAQ scores within the grade level based on gender demographics. Scores were totaled for each SAQ dimension (situational coping, interpersonal leadership, self-efficacy, and knowledge creation) by adding the ranking for the corresponding SAQ items. Next, overall SAQ scores were found by aggregating all 27 items. Participants self-identified as male or female, and no other genders were reported. Statistical analysis compared responses of males and females on each test (T1, T2, and T3) using two-way independent sample t -tests.

Pretest. First, independent t -tests were performed at a confidence level of .05 for each SAQ dimension as well as overall SAQ scores for Headwaters (12th grade) students on T1 (see Table 5). Independent sample t -tests indicated no significant differences

between males and females for the Headwaters students on T1. Levene's test indicated equal variances for situational coping $F(13)=6.80$, $p=.022$; interpersonal leadership $F(13)=0.40$, $p=.540$; self-efficacy $F(13)=1.75$, $p=.209$; knowledge creation $F(13)=4.02$, $p=.066$; and overall SAQ scores $F(13)=4.19$, $p=.061$; consequently, degrees of freedom were kept at 13. Levene's test calculates degrees of freedom as $n-k$, where k is the number of groups. Nonetheless, females demonstrated higher mean scores than males for situational coping, self-efficacy, knowledge creation, and overall SAQ scores. However, males showed higher mean scores than females on interpersonal leadership. These results must be interpreted with caution because female participants far outnumbered males, and the male group consisted of only two participants.

Table 5

*Independent Sample t-tests for Gender at Pretest for Headwaters Students**n=15*

SAQ Dimension	T1					
	Gender	n	M	SD	t	Sig.
Situational Coping	Male	2	31.00	0.00	-0.66	0.523
	Female	13	31.69	3.79		
Interpersonal Leadership	Male	2	34.00	2.83	1.04	0.319
	Female	13	31.15	3.67		
Self-Efficacy	Male	2	27.00	1.41	-0.69	0.500
	Female	13	28.92	3.77		
Knowledge Creation	Male	2	7.00	4.24	-0.57	0.578
	Female	13	7.92	1.85		
Overall SAQ scores	Male	2	99.00	0.00	-0.11	0.914
	Female	13	99.69	8.65		

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). $p < .05$.

Table 6

Independent Sample t-tests for Gender at Pretest for CELP Students

n=11

SAQ Dimension	T1					
	Gender	n	M	SD	t	Sig.
Situational Coping	Male	4	33.25	1.26	0.93	0.378
	Female	7	31.00	4.65		
Interpersonal Leadership	Male	4	26.25	7.14	-1.75	0.114
	Female	7	32.00	3.96		
Self-Efficacy	Male	4	26.75	2.22	-2.01	0.075
	Female	7	30.43	3.21		
Knowledge Creation	Male	4	6.75	1.71	-2.77*	0.022
	Female	7	9.71	1.70		
Overall SAQ scores	Male	4	93.00	8.98	-1.54	0.159
	Female	7	103.14	11.24		

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). * $p < .05$.

Second, independent t -tests were performed at a confidence level of .05 for each SAQ dimension as well as overall SAQ scores for CELP (10th grade) students on T1. Levene's test indicated equal variances for situational coping $F(9)=1.88$, $p=.203$; interpersonal leadership $F(9)=1.57$, $p=.242$; self-efficacy $F(9)=.60$, $p=.458$; knowledge creation $F(9)=.07$, $p=.801$; and overall SAQ scores $F(9)=.23$, $p=.640$; consequently, degrees of freedom were kept at 9. Independent sample t -tests indicated no significant differences between males and females for CELP students on T1 in situational coping, interpersonal leadership, and overall SAQ scores (see Table 6). However, significant differences between male and female scores were found for self-efficacy and knowledge creation, indicating that 10th grade females reported higher perceived pretest self-efficacy

and knowledge creation scores than males. A note of caution when interpreting the data:

There were twice as many female participants as males.

Posttest. Third, independent *t*-tests were performed at a confidence level of .05 for each SAQ dimension as well as overall SAQ scores for Headwaters (12th grade) students on T2. Independent sample *t*-tests indicated no significant differences on any SAQ dimensions or overall SAQ scores between males and females for the Headwaters students on T2 (see Table 7). Levene's test could not be performed because there was only one male participant; therefore, degrees of freedom were kept at 8. Females demonstrated higher mean scores than males on all SAQ dimensions as well as overall SAQ scores, indicating that 12th grade females reported higher perceived pretest self-authorship levels.

Table 7

Independent Sample t-tests for Gender at Posttest for Headwaters Students

n=10

SAQ Dimension	T2					
	Gender	n	M	SD	t	Sig.
Situational Coping	Male	1	35.00	-	-0.32	0.754
	Female	9	36.33	3.91		
Interpersonal Leadership	Male	1	37.00	-	-0.04	0.968
	Female	9	37.11	2.57		
Self-Efficacy	Male	1	33.00	-	-0.47	0.653
	Female	9	33.56	1.13		
Knowledge Creation	Male	1	5.00	-	-1.19	0.269
	Female	9	8.00	2.40		
Overall SAQ scores	Male	1	110.00	-	-1.08	0.311
	Female	9	115.00	4.39		

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). *p*< .05.

However, these results must be disregarded because females outnumbered males and Levene's test could not confirm homogeneity of variances to minimize Type I error.

Fourth, independent *t*-tests were performed at a confidence level of .05 for each SAQ dimension as well as overall SAQ scores for CELP (10th grade) students on T2. Independent sample *t*-tests indicated no significant differences in all four SAQ dimensions and overall SAQ scores between males and females for CELP students on T2 (see Table 8). Levene's test indicated equal variances for situational coping $F(7)=2.64$, $p=.148$; interpersonal leadership $F(7)=4.98$, $p=.061$; self-efficacy $F(7)=5.25$, $p=.056$; knowledge creation $F(7)=.15$, $p=.712$; and overall SAQ scores $F(7)=1.91$, $p=.209$; consequently, degrees of freedom were kept at 7.

Table 8

Independent Sample t-tests for Gender at Posttest for CELP Students

n=9

SAQ Dimension	T2					
	Gender	n	M	SD	t	Sig.
Situational Coping	Male	4	39.50	1.29	0.76	0.473
	Female	5	37.00	6.40		
Interpersonal Leadership	Male	4	36.50	2.38	1.21	0.267
	Female	5	33.00	5.34		
Self-Efficacy	Male	4	33.75	0.50	0.82	0.438
	Female	5	31.80	4.66		
Knowledge Creation	Male	4	7.75	2.87	0.71	0.415
	Female	5	9.20	2.17		
Overall SAQ scores	Male	4	117.50	4.65	0.21	0.463
	Female	5	111.00	16.00		

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). $p < .05$.

Three-month posttest. Fifth, independent *t*-tests were performed at a confidence level of .05 for each SAQ dimension as well as overall SAQ scores for CELP (10th grade)

students on T3. Independent sample *t*-tests indicated no significant differences in all four SAQ dimensions and overall SAQ scores between males and females for CELP students on T3 (see Table 9). Levene's test indicated equal variances for situational coping $F(6)=1.20$, $p=.315$; self-efficacy $F(6)=1.62$, $p=.251$; and knowledge creation $F(6)=.02$, $p=.891$; consequently, degrees of freedom were kept at 6. In contrast, Levene's test did not indicate equal variances for interpersonal leadership $F(5.76)=6.30$, $p=.046$ and overall SAQ scores $F(4.33)=32.91$, $p=.001$; consequently, degrees of freedom were adjusted to 5.76 and 4.33, respectively.

Table 9

*Independent Sample t-tests for Gender at Posttest for CELP Students**n=8*

SAQ Dimension	T3					
	Gender	n	M	SD	t	Sig.
Situational Coping	Male	3	37.67	2.08	-0.73	0.492
	Female	5	39.20	3.19		
Interpersonal Leadership	Male	3	37.67	2.08	0.84	0.518
	Female	5	35.60	4.82		
Self-Efficacy	Male	3	31.67	0.58	-1.53	0.176
	Female	5	33.60	2.07		
Knowledge Creation	Male	3	9.33	2.08	-0.16	0.875
	Female	5	9.60	2.30		
Overall SAQ scores	Male	3	116.33	1.53	-0.38	0.722
	Female	5	118.00	9.62		

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). * $p < .05$.

Sixth, independent *t*-tests were performed at a confidence level of .05 for each SAQ dimension as well as overall SAQ scores for Headwaters (12th grade) students on

T3. Independent sample *t*-tests indicated no significant differences on any SAQ dimensions or overall SAQ scores between males and females for the Headwaters students on T3 (see Table 10). Levene's test could not be performed because there was only one male participant; therefore, degrees of freedom were kept at 8. Females demonstrated higher mean scores than males on situational coping, knowledge creation, and overall SAQ scores, indicating that 12th grade females report higher perceived long-term self-authorship levels. However, these results must be disregarded because females outnumbered males and Levene's test could not confirm homogeneity of variances to minimize Type I error.

Table 10

Independent Sample t-tests for Gender at Posttest for Headwaters Students

n=10

SAQ Dimension	T3					
	Gender	n	M	SD	t	Sig.
Situational Coping	Male	1	33.00	-	-1.90	0.095
	Female	9	39.22	3.11		
Interpersonal Leadership	Male	1	39.00	-	0.69	0.508
	Female	9	37.44	2.12		
Self-Efficacy	Male	1	34.00	-	0.430	0.679
	Female	9	33.22	1.72		
Knowledge Creation	Male	1	4.00	-	-2.09	0.70
	Female	9	8.78	2.17		
Overall SAQ scores	Male	1	110.00	-	-1.52	0.167
	Female	9	118.67	5.41		

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). $p < .05$.

Differences Between Grade Levels

The third null hypothesis tested whether there were significant changes in self-authorship levels between 10th and 12th grade students after participation in a one-semester outdoor education ICP. Scores were totaled for each SAQ dimension (situational coping, interpersonal leadership, self-efficacy, and knowledge creation) by adding the ranking for the corresponding SAQ items. Next, overall SAQ scores were found by aggregating all 27 items. Statistical analysis compared responses of 10th and 12th grade students on each test (T1, T2, and T3) using independent sample *t*-tests.

Table 11

Independent Sample t-tests for Grade Level at Pretest for All Participants

N=26

SAQ Dimension	T1					
	Grade	n	M	SD	t	Sig.
Situational Coping	10	11	31.82	3.84	0.15	0.882
	12	15	31.60	3.52		
Interpersonal Leadership	10	11	29.91	5.75	-0.88	0.386
	12	15	31.53	3.62		
Self-Efficacy	10	11	29.09	3.33	0.31	0.761
	12	15	28.67	3.58		
Knowledge Creation	10	11	8.64	2.20	0.99	0.333
	12	15	7.80	2.08		
Overall SAQ scores	10	11	99.45	11.24	-0.04	0.970
	12	15	99.60	8.02		

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). $p < .05$.

First, independent *t*-tests were performed at a confidence level of .05 for each SAQ dimension as well as overall SAQ scores for all participants on T1. Levene's test indicated equal variances for situational coping $F(24)=.25$, $p=.621$; interpersonal

leadership $F(24)=.50$, $p= .884$; self-efficacy $F(24)=.26$, $p=.613$; knowledge creation $F(24)=.03$, $p=.865$; and overall SAQ scores $F(24)=2.01$, $p=.169$; consequently, degrees of freedom were kept at 24. Independent sample t -tests indicated no significant differences between 10th and 12th grade students on T1 for all four SAQ dimensions and overall SAQ scores (see Table 11). Twelfth grade students had higher mean scores for interpersonal leadership and overall SAQ scores than 10th grade students. However, 10th grade students had higher mean scores on situational coping, self-efficacy, and knowledge creation than 12th grade students. These results suggest that there may be some difference between 10th and 12th grade pretest self-authorship levels.

Table 12

Independent Sample t-tests for Grade Level at Posttest for All Participants

n=19

SAQ Dimension	T2					
	Grade	n	M	SD	t	Sig.
Situational Coping	10	9	38.11	4.78	0.98	0.341
	12	10	36.20	3.71		
Interpersonal Leadership	10	9	34.56	4.45	-1.57	0.135
	12	10	37.10	2.42		
Self-Efficacy	10	9	32.67	3.46	-0.73	0.479
	12	10	33.50	1.08		
Knowledge Creation	10	9	8.56	2.46	0.76	0.458
	12	10	7.70	2.45		
Overall SAQ scores	10	9	113.89	12.16	-0.15	0.884
	12	10	114.50	4.42		

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). $p < .05$.

Second, independent t -tests were performed at a confidence level of .05 for each SAQ dimension as well as overall SAQ scores for all participants on T2. Levene's test indicated equal variances for situational coping $F(17)=.04$, $p=.840$; interpersonal

leadership $F(17)=3.45$, $p=.081$; self-efficacy $F(17)=3.08$, $p=.10$; knowledge creation $F(17)=.33$, $p=.576$; and overall SAQ scores $F(17)=2.56$, $p=.128$; consequently, degrees of freedom were kept at 17. Independent sample t -tests indicated no significant differences between 10th and 12th grade students on T2 for all SAQ dimensions and overall SAQ scores (see Table 12). Nonetheless, 12th grade students had higher mean scores for interpersonal leadership, self-efficacy, and overall SAQ scores than 10th grade students. On the other hand, 10th grade students had higher mean scores than 12th grade students on situational coping and knowledge creation. Although these differences were not substantial, these results are consistent with differences on pretest SAQ scores between 10th and 12th graders.

Third, independent t -tests were performed at a confidence level of .05 for each SAQ dimension as well as overall SAQ scores for all participants on T3. Levene's test indicated equal variances for situational coping $F(16)=0.89$, $p=0.359$; interpersonal leadership $F(16)=2.79$, $p=0.114$; self-efficacy $F(16)=0.69$, $p=0.420$; knowledge creation $F(16)=0.70$, $p=0.415$; and overall SAQ scores $F(16)=0.35$, $p=0.562$. Independent sample t -tests indicated no significant differences between 10th and 12th grade students on T3 for all SAQ dimensions and overall SAQ scores (see Table 13). However, 10th grade students had higher mean scores on situational coping and knowledge creation than 12th grade students. In contrast, 12th grade students had higher scores on interpersonal leadership, self-efficacy, and overall SAQ scores. Even though these differences are not considerable, these results are consistent with T1 and T2 differences in SAQ scores observed between 10th and 12th graders.

Table 13

*Independent Sample t-tests for Grade Level at Posttest for All Participants**n=19*

SAQ Dimension	T3					
	Grade	n	M	SD	t	Sig.
Situational Coping	10	8	38.63	2.77	0.16	0.987
	12	10	38.60	3.53		
Interpersonal Leadership	10	8	36.38	3.96	-0.85	0.409
	12	10	37.60	2.07		
Self-Efficacy	10	8	32.88	1.89	-0.51	0.616
	12	10	33.30	1.64		
Knowledge Creation	10	8	9.50	2.07	1.08	0.297
	12	10	8.30	2.54		
Overall SAQ scores	10	8	117.38	7.37	-0.14	0.893
	12	10	117.80	5.79		

Note. Likert scale values (1=false/not like me, 2=more false than true, 3=neutral, 4=more true than false, 5=true/like me). $p < .05$.

Impact of Confounding Variables on Self-Authorship

Self-authorship includes development in three dimensions: cognitive, intrapersonal, and interpersonal (Baxter Magolda, 1999). This multidimensional structure suggests that self-authorship may be influenced by many variables, including the learner, physical and social environments, and educator. The posttest (T2) had five additional questions not included on the pretest or second posttest. This section discusses students' responses to items 28-32 on T2, which were added by the researcher to examine to what degree students perceived outdoor education program characteristics contributed to their self-authorship.

Perception of instructor's role. First, item 28 on the SAQ posttest asked students to rate on a Likert scale (0=no opinion, 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree) to what degree they believed the teacher played a role in

their self-authorship development. In summary, 95% of students either agreed or strongly agreed that the teacher played a role in their self-authorship development (see Table 14). In contrast, only 5% of students ($n=1$) disagreed that the teacher played a role in their self-authorship development, indicating students perceived the instructor to have a substantial impact on their self-authorship development.

Table 14

Frequency of Perceived Role of Instructor

Frequency	N	Percent
No opinion	0	0
Strongly disagree	0	0
Disagree	1	5
Agree	7	37
Strongly Agree	11	58

Note. Likert scale values (0=no opinion, 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree).

Second, item 29 on the SAQ posttest asked students to select the outdoor experiences (i.e., winter camping, canoeing, solo experience(s), and instructing environmental programs to elementary students) they took part in during the semester from February to June 2015. Participants were then asked to respond to item 29, which asked them to rate on a scale (1=not at all, 2=very little, 3=somewhat, 4=definitely, 5=not applicable) to what degree each outdoor experience played a role in their self-authorship development.

Perception of winter camping. All participants took part in winter camping ($n=19$) and instructing environmental programs to elementary students ($n=19$), whereas only Headwaters (12th grade) students took part in canoeing ($n=10$) and solo experience(s) ($n=10$). A total of 95% of participants perceived the winter camping experience to “definitely” play a role in their self-authorship development, while only 5%

perceived winter camping to play “very little” role (see Table 15). These results suggest that students perceived the winter camping experience to have a considerable impact on their self-authorship development.

Table 15

Frequency of Perceived Role of Outdoor Education Experiences

	Frequency	N	Percent
Winter Camping	Not applicable	0	0
	Not at all	0	0
	Very little	1	5
	Somewhat	7	37
	Definitely	11	58
Instructing elementary students	Not applicable	0	0
	Not at all	0	0
	Very little	2	11
	Somewhat	4	21
	Definitely	13	68
Canoeing	Not applicable	9	47
	Not at all	0	0
	Very little	0	0
	Somewhat	4	21
	Definitely	6	32
Solo experiences	Not applicable	9	47
	Not at all	0	0
	Very little	0	0
	Somewhat	0	0
	Definitely	10	53

Note. Likert scale values (0=not applicable, 1=not at all, 2=very little, 3=somewhat, 4=definitely).

Perception of instructing elementary students. Next, participants were asked to what degree they perceived instructing environmental programs to elementary students impacted their self-authorship development. All CELP and Headwaters students ($n=19$) reported instructing environmental programs to elementary students. In total, 89% of participants reported the experience to “somewhat” or “definitely” play a role in their self-authorship development (see Table 15). In contrast, only 11% of students indicated that their experience instructing environmental programs to elementary students played

“very little” role in their self-authorship development. These results indicate that students perceived the environmental education instructional experience markedly impacted their self-authorship development.

Perception of canoeing. Additionally, students were asked to rate to what degree canoeing experiences during the semester played a role in their self-authorship development. Headwaters students ($n=10$) participated in a canoeing trip at the end of the semester, while CELP ($n=9$) students did not take part in canoeing. Since this question was not applicable to CELP students, they selected “not applicable” (47%). On the other hand, all Headwaters students indicated that their canoeing experiences, which consisted of canoe training and the end of year canoe trip, “somewhat” or “definitely” played a role in their self-authorship development (see Table 15). These results indicate that students perceived the canoeing experience to have substantially impacted their self-authorship development.

Perception of solo experiences. Lastly, students were asked to rate to what degree solo experience(s) played a role in their self-authorship development. Headwaters students ($n=10$) participated in solo experiences on their winter camping and canoeing trips, while CELP ($n=9$) students reported not taking part in solo experiences. Since this question was not applicable to CELP students, they selected “not applicable” (47%). On the other hand, all Headwaters students indicated that their solo experiences “definitely” played a role in their self-authorship development (see Table 15). These results suggest that students perceived solo experiences to substantially impact their self-authorship development.

Previous outdoor education experience. Item 31 on the SAQ posttest (T2)

asked students if they had previously participated in an outdoor education ICP.

Participants who indicated that they had previously participated in an outdoor education ICP were then asked in item 32 to report the total number of semesters (including the present semester) they had participated in an outdoor education ICP (1,2, 3,...8 semesters, or >8 semesters). Most participants had previously participated in an outdoor education ICP (68%), whereas 32% reported they had not participated in an ICP prior to the present semester (see Figure 1). A total of 5% of participants previously participated in three semesters, 42% previously participated in two semesters, and 21% previously participated in one semester. These results suggest that 12th grade students are more likely than 10th graders to have previously participated in an outdoor education ICP.

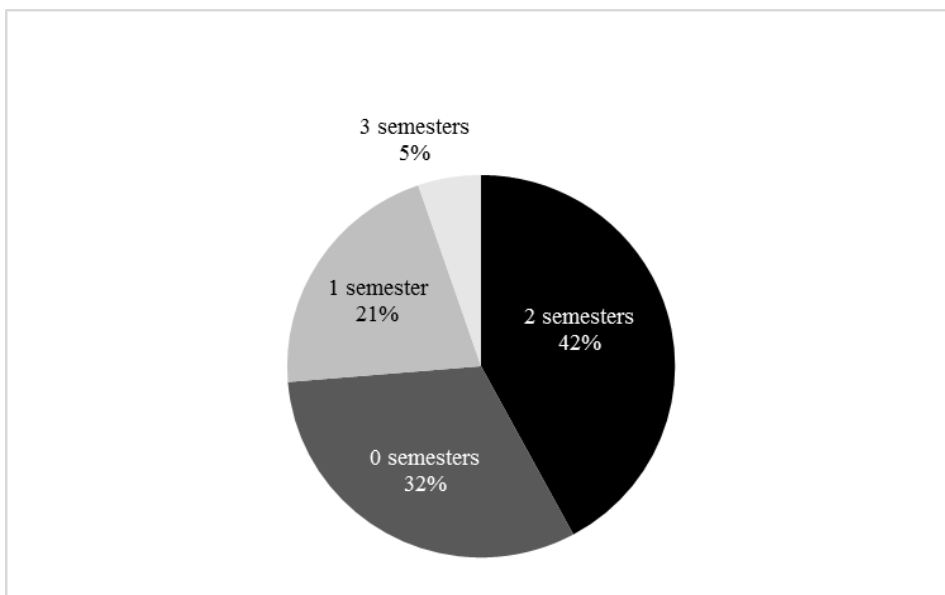


Figure 1. Self-reported number of semesters of previous ICP participation. This figure illustrates the number of semesters of previous ICP participation (excluding the presently enrolled semester).

In summary, more male participants than females had not previously participated in an outdoor education ICP, whereas more Headwaters than CELP students had

previously participated in an ICP (see Table 16). Headwaters participants reported in the additional comments to the researcher section that they previously took part in the 10th grade CELP program among other ICPs offered by the Upper Grand District School Board.

Table 16

*Previous Participation in Outdoor Education ICPs for All Participants
n=19*

Group	T2			
	Frequency		Percentage	
	Yes	No	Yes	No
Males (n=5)	2	3	40.0	60.0
Females (n=14)	11	3	78.6	21.4
CELP (10 th grade) (n=9)	3	6	33.3	66.7
Headwaters (12 th grade) (n=10)	10	0	100.0	0.0

Note. CELP=Community Environmental Leadership Program.

Noteworthy Additional Comments

The final question on the SAQ posttest provided a section for participants to record comments to the researcher. Most participants (63%) took the time to record a response. Some responses noted the previous outdoor education ICP and related experiential learning in which students had participated. For instance, five 12th grade females indicated that they had previously participated in CELP, one 12th grade female had participated in Da Vinci (an 11th grade four-credit arts and science environmental leadership ICP), and two 12th grade females had participated in Beyond Borders (a 12th grade four-credit interdisciplinary program focusing on leadership, experiential learning

and post-secondary preparation).

CELP students. On the other hand, some comments demonstrated students' perceptions of the impact of outdoor education ICPs on their self-authorship development. For example, a 10th grade female demonstrated her intrapersonal and interpersonal insight gained from the program: *CELP helped me to see who I am, and develop my best skills and traits to move me forward into the future and become an asset to society.* Similarly, another CELP female student insisted the program *helps you to find out what your strengths and weakness are and helps you discover who you are as a person and what you believe/feel about certain things.* In considering the value of ICPs, a CELP female student asserted *More of these programs should be available. CELP has been the most rewarding experience.*

Headwaters students. Likewise, insight from the Headwaters students seemed to highlight the influence of the ICP on their self-authorship development. For instance, a 12th grade male student emphasized the role of interpersonal relationships gained from his participation on his self-authorship development:

The students I was with everyday played a significant role in my development as a person. I feel that finishing high school with an integrated program, especially Headwaters, gave me a much stronger skillset and a proper 'rite of passage' leaving to enter into the actual world.

Another 12th grade female indicated that the program shaped her intrapersonal and interpersonal dimensions of self-authorship: *It was an amazing way to get away from the pressures of high school and trying to fit in. It really helped me discover who I am.*

The testing of the stated hypotheses as well as the supplementary analyses of the additional questions included on T2 resulted in several significant findings with respect to the impact of one-semester outdoor education ICPs on the self-authorship development of 10th and 12th grade students. These findings have implications for the delivery of outdoor education ICPs at the high school level. The next chapter includes a discussion of the findings and their implications as well as recommendations for future research.

Chapter V

Discussion

The development of self-authorship has been documented as important for success in adulthood (Baxter Magolda, 1999; Kegan, 1994). While teacher-centered classrooms encourage students to depend on the teacher to tell them how to act and make meaning of their learning (McLaren & Leonard, 1992), outdoor education integrated curriculum programs (ICPs) share similarities with constructive-developmental pedagogy, which is thought to encourage the development of self-authorship in students (Baxter Magolda et al., 2010). The inclusion of outdoor education ICPs in academic settings has many purposes, and their potential to influence the self-authorship of students may be one of the most important outcomes. The purpose of this study was to examine the impact of participation in one-semester outdoor education ICPs on a select group of high school students' perceived self-authorship development.

Hypotheses

Increased self-concept, self-efficacy, and life effectiveness as well as a more internalized locus of control have been cited as some of the potential benefits of participating in outdoor education programs (Capurso & Borsci, 2013; Culhane, 2004; Flood, Gardner, & Cooper, 2009; Hattie et al., 1997; Lokos, 2013). These outcomes directly relate to self-authorship, which is the capacity to make meaning, identify a cogent belief system and identity as well as construct social relations (Baxter Magolda, 2008). Moreover, Miles and Priest (1999) have noted that adventure education programs influence both intrapersonal and interpersonal development, which are two dimensions of

self-authorship (Baxter Magolda, 2008). The hypotheses in this study sought to nullify any relationships between outdoor education and adolescent self-authorship development.

Differences in pretest and posttest SAQ scores. The first and fourth null hypotheses tested to what degree participation in a one-semester outdoor education ICP impacted participants' self-authorship and assessed whether or not these gains were retained three months following participation. This researcher found that scores for three of four SAQ dimensions (situational coping, interpersonal leadership, and self-efficacy) in addition to overall SAQ scores were significantly different for 10th and 12th grade students after participation in a one-semester outdoor education ICP. Furthermore, gains in these three SAQ dimensions and overall SAQ scores were retained three months following participation in the course. This study supports the contention that participation in a one-semester outdoor education ICP can impact 10th and 12th grade students' self-authorship development. Likewise, reported effect sizes support the finding that students received a large positive effect on their self-authorship development from participating in an outdoor education ICP. Therefore, these findings support a rejection of the first and fourth null hypotheses.

The increase in self-authorship levels at posttest can be explained by the mastery, vicarious learning, and verbal persuasions (Lokos, 2013) participants experienced throughout the semester. Moreover, these experiences likely increased capacities related to self-authorship such as leadership competencies, self-assurance, independence, decision-making, self-efficacy, self-understanding (Hattie et al., 1997), identity (Gillet, Thomas, Skok, & McLaughlin, 1991; Hazelworth & Wilson, 1990), self-satisfaction (Hazelworth & Wilson, 1990), and positive self-attitude (Lambert et al., 1978). As a

result, students perceived an increase in self-authorship development from pretest to posttest. The observed large positive effect sizes could be attributed in part to the length of the program (one-semester) and age of the participants: younger participants and longer duration programs demonstrate larger effect sizes (Cason and Gillis, 1994). Moreover, the effect sizes found in this study are within the range found in previous studies (Cason & Gillis, 1994; Hattie et al., 1997). Another interesting finding in this study is that gains in self-authorship were retained three months following participation in the ICP, which may be attributed to the length of the program: programs longer than 17 days have been found to have long-term impacts on participants (Powers, 2004).

In contrast, the lack of significant impact of ICP participation on the knowledge creation dimension may be because neither the CELP nor the Headwaters programs articulated academic performance or knowledge creation as an outcome. This result is consistent with the findings of Hattie et al. (1997) that concluded higher academic performance has only been observed in adventure programs that explicitly state academic performance as an outcome.

Differences within grade level based on gender. The second null hypothesis tested to what degree males and females within the grade level differed in self-authorship development before and after participation in a one-semester outdoor education ICP.

CELP students. This researcher found that 10th grade (CELP) students demonstrated no significant differences between males and females on T2 and T3. However, CELP students showed significant differences between males and females in the knowledge creation dimension on T1: Females scored significantly higher than males. A likely explanation for these results is that females approximately doubled males, which

may have influenced the results.

Nonetheless, this finding relates to higher gains for females than males previously observed in self-actualization (Scherl, 1989) and life effectiveness skills (Flood, Gardner, & Cooper, 2009), which are constructs that may be related to self-authorship. One possible reason for the higher scores for females than males in this study could be the older sample: The overall mean age for females was 16.86 years and 15.60 for males. Other studies examining the impact of outdoor education programs on participant outcomes have found that adults demonstrated greater benefits from psychosocial interventions because adolescents are more resistant to change (Neill, 1999; Neill & Richards, 1998). Even though the mean age for females is not substantially greater than males, maturity may play a role in self-authorship development and participants' self-perceptions of their development.

Another probable reason for the differences observed between females and males in the knowledge creation dimension is that Flood, Gardner, and Cooper (2009) have suggested that since females tend to be more open to group communication and reflective processes, they may receive greater benefits than males following participation in adventure education programs. Moreover, they contended that females are more likely than males to be open and honest about their emotions, which may contribute to higher scores.

Headwaters students. One interesting finding is that pretest and posttest measures for 12th grade participants demonstrated no significant differences between males and females in all four SAQ dimensions and overall SAQ scores, which is not consistent with previous studies (see Flood, Gardner, & Cooper, 2009; Hattie et al., 1997;

Plas, 1994; Scherl, 1989). A likely explanation for the lack of difference observed between males and females is the small sample size that resulted in few male respondents. Therefore, taken together these findings support an acceptance of the second null hypothesis.

Differences between grade levels. The third hypothesis tested to what degree 10th and 12th grade students differed in self-authorship development following participation in a one-semester ICP. This researcher found that there were no significant differences between 10th and 12th graders in self-authorship development on all three tests (T1, T2, and T3). These results are not consistent with previous findings that have indicated older individuals experience greater benefits from adventure education programs because maturity may play a role (see Neill, 1999; Flood, Gardner, & Cooper, 2009; Neil & Richards, 1998).

A possible explanation for these results may be that one-quarter of 12th grade students had previously taken the 10th grade program, so participants in both grades had been exposed to a similar curriculum. In 10th grade, students obtain credits in career studies and civics, and the curriculum of both these courses relate closely to the SAQ dimensions of situational coping, self-efficacy, and knowledge creation. In Career studies, students learn “personal management skills”, “identify teamwork and leadership skills”, “identify internal and external influences that may limit or expand their educational and career opportunities”, “demonstrate effective use of communication skills in a variety of settings”, and “develop a personal profile that describes their current interests, skills, competencies, accomplishments, and characteristics” (Ontario Ministry of Education, 2006, p. 34). On the other hand, Civics and Citizenship “explores rights

and responsibilities associated with being an active citizen in a democratic society” (Ontario Ministry of Education, 2013, p. 147). The outcomes of Career Studies and Civics and Citizenship align closely with the development of self-authorship in all three dimensions (i.e., intrapersonal, interpersonal, and epistemological). At pretest, CELP students may have been fully immersed in their Civics and Careers courses, which may have elevated their SAQ scores. At the same time, Headwaters students may have been asked to draw on their prior knowledge of Civics and Careers when selecting a postsecondary destination in their final year of high school, influencing their SAQ scores. For these reasons, this study may have been unable to demonstrate a difference in self-authorship level based on age. Moreover, the small sample size of 12th grade participants may have limited the comparison of group means.

Another plausible explanation for the lack of difference in self-authorship levels between grades is that the pretest was administered after students’ winter camping trip. On this trip, students overcame challenges and a state of cognitive dissonance, which are “provocative experiences” (Pizzolato, 2003, p. 803). Participants may have had elevated pretest and subsequent posttest self-authorship levels because both 10th and 12th graders experienced the same provocative experiences during winter camping. Moreover, the notion that students may not self-author prior to college is a consideration given that Baxter Magolda (2004) and Kegan (1994) have suggested this capacity emerges during adulthood.

Similarly, research into adolescent development has demonstrated that adolescents work towards aligning their actions with peers (to fit in) instead of internally defining an identity that will guide their actions (Grotevant, 1998; Kiesner, Cadinu,

Poulin, & Bucci, 2002; Rubin, Bukowski, & Parker, 1998). However, research into high-risk college students has found that early provocative experiences may provoke pre-collegiate self-authorship (e.g., during adolescence) (Pizzolato, 2003). Because ICP participants have many provocative experiences during the semester, they may likely experience pre-collegiate self-authorship. Nevertheless, the degree to which students have the capacity to transition from the crossroads to self-authorship (as discussed in Chapter II, p. 25) may not be that different between 10th and 12th grade, especially since both grades may have been exposed to quite similar provocative experiences during the semester. Therefore, this result supports an acceptance of the third null hypothesis that there were no differences between 10th and 12th grade students in self-authorship development.

Impact of Teacher and Outdoor Education Experiences

Although not directly related to research questions, the supplementary data analyses sought to examine to what degree participants perceived outdoor education ICP characteristics contributed to their self-authorship development.

Impact of instructor. First, almost all students agreed or strongly agreed that the instructor played a role in their self-authorship development. Given that the 10th grade teacher was male and had been involved with the program since 1996 and the 12th grade female teacher had about 10 years of experience with the program, this result seems to be consistent with other research. For instance, a possible explanation for the high perception of the teacher's impact is that instructors have been rated higher if they had taught more courses, held higher positions (e.g., Instructor vs. Assistant Instructor), had an undergraduate degree, were older, had more experience traveling alone, and were male

(Riggins, 1985). Similarly, Aguiar (1986) found that instructor effectiveness was related to level of education and experience but not gender. In contrast, Phipps and Claxton (1997) found female instructors were rated as more effective. These results confirm that the instructor's gender does not likely play a role in effectiveness as perceived by participants, yet age and experience may play a role.

Relationships with the educator have been found to be influential on students' self-authorship development. Moreover, since educators help students recognize multiple perspectives, knowledge as tentative, and the self as central to knowledge construction, this result supports previous research into the role of the educator in students' self-authorship development (Pizzolato and Ozaki, 2007). Additionally, this study further supports the notion that instructors have a substantial influence on outdoor education participant outcomes (e.g., self-authorship) (McKenzie, 2000).

Impact of winter camping. Second, almost all students perceived the winter camping experience substantially played a role in their self-authorship development. Winter camping is a physically and emotionally demanding trip that emphasizes overcoming obstacles including cold weather, long hikes in snowshoes while hauling gear on toboggans, and community living. While on trip, students are provided plenty of opportunities to master survival skills including fire starting, shelter building, and repairing equipment. This result may be explained by challenges in adventure education activities that are designed to be perceived as impossible with high risk, creating a state of cognitive dissonance in participants (Kimball & Bacon, 1993); winter camping is perceived as risky because of the cold weather and high degree of self-sustenance

students must demonstrate via shelter building, fire starting, and gear hauling. By overcoming this state of cognitive dissonance or provocative experience, students are impelled into self-authorship (Pizzolato, 2003).

Further, the relationship between winter camping and self-authorship may be partly explained by the growth adventure education participants experience if they have “educative” experiences (Dewey, 1938, p. 25; Walsh & Golins, 1976): Experiences sequenced in such a way to meet a degree of challenge that fosters mastery, vicarious learning, and verbal persuasions, thus achieving positive outcomes (Lokos, 2013). Moreover, this result is likely related to the great deal of “perseverant effort” (Bandura, 1997, p. 80) that activities such as winter camping require, consequently challenging students to show mastery of many primitive survival skills and contributing to their self-authorship development. Therefore, this result suggests that winter camping may impact participants’ self-authorship development.

Impact of instructing elementary students. Third, almost all students perceived their experience instructing environmental education programs to elementary students impacted their self-authorship development. This result is in agreement with those obtained by Russell and Burton (2000): Teaching elementary students was an influential experience that made learning more practical and meaningful, which may have consequently influenced students’ self-authorship development. This perceived impact of teaching experience on self-authorship development could be attributed to participants demonstrating mastery and experimenting with a new sense of identity while teaching, thus increasing self-efficacy and therefore self-authorship (Kimball & Bacon, 1993; Nadler, 1993). Therefore, instructional experiences could be a major factor in impacting

ICP participants' self-authorship development.

Impact of canoeing. Fourth, almost all Headwaters students perceived their canoeing experience markedly impacted their self-authorship development. A possible explanation for this result may be that students overcame physical challenges (e.g., portaging a canoe), thus enhancing self-efficacy and transferring this learning to their daily lives to overcome challenges they once considered impossible (Lokos, 2013). Moreover, their backcountry wilderness camping experience may have allowed participants to look more inwardly and more closely at themselves, influencing the intrapersonal dimension of self-authorship (Scherl, 1989). In addition, students participated in solo experiences on their canoe trip, which may have contributed to their self-authorship development: naturalness and solitude impact self-actualization, which is related to self-authorship (Hendee, 2000). Since students participated in solo experiences while on their canoe trip, it is difficult to determine if students perceived the solo experience or the activities related to canoeing as influential on their self-authorship. After all, solo experiences impact the independence of outdoor education participants, which is an important skill for self-authorship. Therefore, this result provides support that canoeing experiences may impact students' self-authorship development.

Impact of solo experience(s). Fifth, most students perceived their participation in solo experiences substantially impacted their self-authorship development. This result supports previous research into the impact of solitude on adolescent development: Adolescents who spend significant time alone are better adjusted than those who spend little or no time alone (Larson, 1997).

Moreover, solitude has been found to allow adolescents to connect with

themselves beyond their emotions (Kessler, 2000). The impact of solo experiences on self-authorship may be explained by Bodkin and Sartor's (2005) personal and societal outcomes associated with solitude: Participants recognize a new sense of purpose and meaning, experience self-acceptance, and increase trust in their inner voice. These outcomes all directly relate to self-authorship: The capacity to look inward, trust one's internal voice, and shape a cogent identity and belief system that will guide one's actions. Moreover, this result supports Bobilya, McAvoy, and Kalisch's (2005) finding that solo experiences are times for personal evaluation and goal setting, which directly relate to the intrapersonal dimension of self-authorship. Because solo experiences have the capacity to teach self-reliance and self-awareness, this result is not surprising.

Another plausible explanation for the impact of solo experiences on participants' self-authorship is the societal outcome outlined by Bodkin and Sartor (2005). That is to say, participants recognize significant interpersonal relationships in their lives as well as their own value and capacity; they increase in maturity and concern for others. Self-authorship involves the capacity to act on an internally defined belief system and identity, which shapes how individuals' form relationships with others. This result may support a link between solo experiences and self-authorship. Therefore, it could be conceivable that solo experiences impact participants' self-authorship.

Implications

Because this study only included outdoor education integrated curriculum programs (ICPs) at a high school in Guelph, Ontario, Canada, there is some question as to whether or not this study could be generalized to apply to other ICPs or similar one-semester outdoor education programs. Further, the small sample size limits the

generalizability of the results. Nevertheless, these results contribute to the paucity of research in the areas of outdoor education ICPs and the impact of outdoor education on self-authorship. This study appears to be one of the first involving Ontario outdoor education ICPs and self-authorship, as well as one of the few to examine self-authorship development in an adolescent population of outdoor education participants.

This study appears to indicate that students participating in outdoor education ICPs experience a large, positive effect on self-authorship, and these gains are retained over several weeks of time. This finding has implications for teachers of the CELP and Headwaters programs as well as other ICPs: ICP participation may help students move from the crossroads stage to self-authorship (as discussed in Chapter II, p. 25). This transition is important, especially in 12th grade as students prepare for the transition to postsecondary education. More importantly, college readiness skills such as self-authorship may be outcomes of participation in ICPs. Because students demonstrated significant increases in situational coping, self-efficacy, and interpersonal leadership, the teachers of these programs can articulate these dimensions as outcomes of their curriculum. On the other hand, teachers of these programs may want to implement strategies to increase growth in the knowledge creation dimension. For example, integrating different subjects with clearly articulated learning outcomes related to academic performance may help students recognize knowledge as uncertain and themselves as contributors of knowledge, increasing their epistemological dimension of self-authorship development. Another possible strategy is for educators to use more intentionally the three assumptions of constructive-developmental pedagogy: validating the student as knower, situating learning in students' own experiences, and co-creating

the learning experience with students (as discussed in Chapter II, pp. 23-24).

The findings in this study additionally reveal that the nature of outdoor education experiences do impact participants' self-authorship. For instance, students perceived winter camping, canoeing, instructing elementary students, and solo experiences as influential on their self-authorship development. It can therefore be assumed that preserving these aspects of ICPs will prove beneficial to participants' self-authorship development.

Another implication of this study is that gender and age do not appear to impact participants' self-authorship development. However, further research with larger samples is needed to fully determine the implications of age and gender for educators.

Additionally, the present study raises the possibility that outdoor educators can have an influential role in participants' self-authorship development. While preliminary, this finding suggests that outdoor educators heed the instructional strategies they use and the impact their personality, gender, and other characteristics may have—be it negatively or positively—on shaping participant outcomes. Moreover, because students perceived the instructor to considerably impact their self-authorship development, outdoor educators should aim to intentionally foster students' self-authorship.

The findings in this study may help educators understand the types of outdoor experiences that impact students' self-authorship. Outdoor educators may want to continue to use winter camping, instructing elementary students, canoeing, and solo experiences as part of their ICPs should they wish to impact students' self-authorship. Nevertheless, more research into the impact of different outdoor activities on participants' self-authorship is warranted to fully understand if this association can be

generalized to all outdoor education activities, or if certain activities are more impactful than others. Overall, this study strengthens the idea that outdoor education ICPs impact participants' self-authorship development.

Limitations

One limitation of this study was the small sample. In this case, there were two sections of ICPs with 24 students enrolled in each. Of the 48 students, 26 elected to participate in this research study. This participation rate was not a high percentage of participants (54%), but is acceptable given that there are very few ICPs in Ontario. Nevertheless, a small sample size does limit the generalizability and statistical significance of the findings. Moreover, the sample size of 26 students was inadequate for statistical power as suggested by Cohen (1988). However, a strength of this study was the response rate (>70%) and the retention of nearly all participants for the three waves of data collection. Nonetheless, a larger sample size using the same conditions may have provided different results. Consequently, these findings may only be applied to the two programs studied and should not be generalized to all outdoor education ICPs.

Second, the researcher was unable to collect pretest data prior to the ICP start date because of school board research regulations and student availability. As a result, pretest data was collected three weeks after the course start date. Further, the pretest was administered after students returned from their winter camping experience, which is an especially demanding camping trip that places an emphasis on building teamwork, developing self-efficacy, and overcoming numerous physical and mental demands (e.g., hauling gear using toboggans and snowshoes, sleeping in canvas tents outdoors, and dealing with extremely cold weather from -25°C to -40°C). As a result, pretest SAQ

levels may be higher than if the pretest was administered prior to the outdoor education ICP intervention. Collecting pretest data after the course start date was unavoidable because the school board research proposal process took longer than anticipated and approval was given after the course start date. Moreover, teachers gave permission for the researcher to enter the classroom solely in March 2015. Therefore, this researcher opted to administer the pretest SAQ in person (rather than attempt a web-based survey earlier in the semester) to establish personal contact and minimize non-response.

Third, another limitation regards the activities and curriculum in which students took part. Tenth graders experienced winter camping and instructing elementary students, whereas twelfth graders experienced winter camping, canoeing, solo experiences, and instructing elementary students. Perhaps the difference in activity had an effect on change, or lack of change, in student self-authorship. Moreover, the package of credits students receive differs between the two grades, and courses such as Career Studies and Civics and Citizenship may lend themselves to development in some of the SAQ dimensions more than other credits may. Furthermore, the winter camping experience was aimed more towards the group experience, whereas the canoeing experience incorporated solo experiences, thus placing greater emphasis on self-authorship. The differences between the outdoor education experiences and curriculum may have affected the findings of this study. Nonetheless, this researcher selected the two programs, knowing these differences may play a role in students' self-authorship, because they served as a convenient sample for comparison.

Fourth, outdoor education participants have been found to be enthusiastic about personal growth and development (Lambert, Segger, Staley, Spencer, & Nelson, 1978).

Additionally, many confounding variables may explain the impact of ICPs on participants' self-authorship. For example, CELP and Headwaters students regularly participated in reflection and self-report surveys, so they may have anticipated the positive impact of ICPs on their self-authorship, leading to response bias and an overestimation of SAQ ratings. Another limitation is that since few participants indicated they had 0 semesters of previous ICP participation, nonparticipants who did not take part in the study may have had perspectives that differed in a meaningful way from the participants. Consequently, this study is susceptible to nonresponse bias. Notwithstanding these limitations, this study suggests that outdoor education ICPs impact participants' self-authorship.

Recommendations for Further Research

Based on the findings from this study, this researcher highly recommends that future studies use the SAQ instrument to investigate the short-term and long-term impacts of participation in one-semester outdoor education ICPs. Although previous research focusing on the long-term impacts of outdoor education and camp programs lasting 10-30 days investigated short-term and long-term impacts such as self-concept, self-actualization, self-efficacy, and life effectiveness, very little research has been conducted with respect to the long-term impacts of one-semester ICPs on self-authorship. Further, Neill (2002) has suggested that the validity of the pretest/posttest design depends upon three factors: 1) the quality of the measurement tool, 2) the use of control or comparison groups, and 3) whether follow-up testing is used. Future research should take these recommendations into consideration by using a control group to gauge participants' perceived self-authorship development in a traditional classroom setting, using

probability sampling techniques so that a larger, more representative sample can be used to obtain generalizable findings, and obtaining baseline self-authorship levels prior to administering the pretest.

More broadly, research is also needed to determine the role of the teacher and other confounding variables in students' self-authorship development. Hattie et al. (1997) have concluded that instructors are integral to influencing the adventure education experience, which suggests that more research is needed in this area. In their meta-analysis of challenge course outcomes, Gillis and Speelman (2008) asked, "Do the activities themselves provide a greater impact or is this a result of how the activities are conducted?" (p. 129). More research is needed to better understand to what degree the outdoor education experiences in ICPs (i.e., the package of credits, winter camping, canoeing, solo experiences, and instructing younger students) and the instructor impact participants' self-authorship and related outcomes.

While results from this study provide evidence that a one-semester outdoor education ICP can have a moderate to high positive effect on participants' self-authorship development, whether the gains can be sustained beyond three months remains uncertain. Future research should involve longitudinal follow-up regarding the impact of ICPs on participant outcomes such as self-authorship. This study highlights the need for additional research to assess more accurately the long-term impacts of participation in a one-semester outdoor education ICP on self-authorship. Further study into the impact of outdoor education on participants' self-authorship could help outdoor education programs better construct and offer opportunities that will benefit their students for the long-term.

Conclusion

Tenth and twelfth grade students who participated in the second semester CELP and Headwaters classes at Centennial Collegiate Vocational Institute experienced a positive increase in their perceived levels of self-authorship. Specific dimensions that increased to a significant level included situational coping, interpersonal leadership, self-efficacy, and overall SAQ scores. Comparing the research participants between genders and grades showed that perceived self-authorship increases did not significantly differ. Knowledge creation seemed to be a stable construct across genders and grade levels, experiencing no significant change during the length of this study. Further research is warranted, but the findings of this study seem to point to an overall positive impact on self-authorship because of participation in an outdoor education ICP in the 10th and 12th grade levels in a public school setting.

Experiencing outdoor education ICPs and participating in outdoor activities such as winter camping, canoeing, solo experiences, and instructing elementary students appear to have a positive impact on public high school students' perceptions of their self-authorship development. Further research in the area of outdoor education and self-authorship as a participant outcome would help clarify the benefit of participation in outdoor education ICPs for this population. Although questions remain, these types of programs have a positive impact on participants. As a former teacher and adolescent participant of ICPs, this study adds validity to my perceptions and observations of the value of these experiences for adolescents.

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Appendix A

Self-Authorship Questionnaire (Pretest)

SAQ v.2

PLEASE DO NOT TURN OVER YET READ THESE INSTRUCTIONS

This is a chance for you to consider how you think, feel, and make decisions. **This is not a test**—there are no right or wrong answers, and everyone will have different responses. It is important that you give your own views about yourself without talking to others and are honest in your responses. Your answers will be used for research purposes only and will in no way be used to refer to you as an individual at any time.

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement on the next page is as a description of you. **Answer the statements about how you feel now**, (not how you felt at another time in your life, or how you might feel tomorrow).

Please do not leave any statements blank.

False Not Like Me				True Like Me
1	2	3	4	5
This statement doesn't describe me at all; it isn't like me at all.	More false than true	Neutral	More true than false	This statement describes me very well; it is very much like me.

SOME EXAMPLES

1. I am a creative person.	1	2	3	4	5
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(The 4 has been circled because the person answering believes the statement "I am a creative person" is more true than false.)

2. I am good at writing poetry.	1	2	3	4	5
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(The 2 has been circled because the person answering believes that the statement is more false than true as far as he/she is concerned.)

3. I am given opportunities to make a difference.	1	2	3	4	5
---	---	---	--------------	---	---

(The 3 has been circled because at first the person thought that the statement was neutral but then the person corrected it to 4 to show that the statement was more true than false about him/her.)

If still unsure about what to do, ASK FOR HELP.

MIDDLE INITIAL: _____	LAST FOUR DIGITS OF HOME PHONE NUMBER: _____
AGE: _____ (years)	GRADE: _____
(Check one) <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE <input type="checkbox"/> _____	
PROGRAM: (Check one) <input type="checkbox"/> CELP <input type="checkbox"/> Headwaters	

STATEMENT	FALSE Not like me		NEUTRAL		TRUE Like me
01. No matter what happens I can handle it.	1	2	3	4	5
02. No matter what the situation I can handle it.	1	2	3	4	5
03. Whatever situation arises I can come up with a solution.	1	2	3	4	5
04. I cope well with changing situations.	1	2	3	4	5
05. I enjoy coming up with solutions to my problems.	1	2	3	4	5
06. I am willing to make difficult decisions.	1	2	3	4	5
07. I am calm in stressful situations.	1	2	3	4	5
08. I can research a topic and form my own opinion effectively.	1	2	3	4	5
09. I am efficient and do not waste time.	1	2	3	4	5
10. I am a capable leader.	1	2	3	4	5
11. I am able to handle positions of authority.	1	2	3	4	5
12. I am a good leader when things need to get done.	1	2	3	4	5
13. I feel comfortable speaking in front of a group.	1	2	3	4	5
14. I communicate effectively with other people.	1	2	3	4	5
15. I am given opportunities to make a difference.	1	2	3	4	5
16. I am given real responsibility in my life.	1	2	3	4	5
17. I am effective in social situations.	1	2	3	4	5
18. I show good judgment in most situations.	1	2	3	4	5
19. I see myself as a capable person.	1	2	3	4	5
20. I make the right decision a majority of the time.	1	2	3	4	5
21. I know I have the ability to do anything I want to do.	1	2	3	4	5
22. I am able to do things as well as most other people.	1	2	3	4	5
23. I am good at deciding whether a risk is worth taking.	1	2	3	4	5
24. I am capable of regulating my own actions.	1	2	3	4	5
25. I never question the opinion of my superiors.	1	2	3	4	5
26. I believe experts are in the best position to decide what people should learn.	1	2	3	4	5
27. I always look to my teacher/boss for direction.	1	2	3	4	5

Appendix B

Self-Authorship Questionnaire Items Identified by Subscale

Factor 1	01. No matter what happens I can handle it.
Situational Coping	02. No matter what the situation I can handle it. 03. Whatever situation arises I can come up with a solution. 04. I cope well with changing situations. 05. I enjoy coming up with solutions to my problems. 06. I am willing to make difficult decisions. 07. I am calm in stressful situations. 08. I can research a topic and form my own opinion effectively. 09. I am efficient and do not waste time.
Factor 2	10. I am a capable leader.
Interpersonal Leadership	11. I am able to handle positions of authority. 12. I am a good leader when things need to get done. 13. I feel comfortable speaking in front of a group. 14. I communicate effectively with other people. 15. I am given opportunities to make a difference. 16. I am given real responsibility in my life. 17. I am effective in social situations.
Factor 3	18. I show good judgment in most situations.
Self-efficacy	19. I see myself as a capable person. 20. I make the right decision a majority of the time. 21. I know I have the ability to do anything I want to do. 22. I am able to do things as well as most other people. 23. I am good at deciding whether a risk is worth taking. 24. I am capable of regulating my own actions.
Factor 4	25. I never question the opinion of my superiors.
Knowledge Creation	26. I believe experts are in the best position to decide what people should learn. 27. I always look to my teacher/boss for direction.

Appendix C

Upper Grand District School Board Research Proposal Approval



UPPER GRAND
DISTRICT SCHOOL BOARD

204-4

RESEARCH PROPOSAL APPROVAL

Research Application No. : SPRING 2015-01

External Internal

Title of Research Project: Effects of Outdoor Education Integrated Curriculum Programs on Self-Authorship Development in Adolescents

Researcher/Investigator: Amanda McGowan Phone #: 289-383-3687

Project starting date: February, 2015 Project Completion date: September, 2015

This research project has been approved subject to the following conditions:

1. Police Record Checks have been forwarded to the Chair of the Research Liaison Committee. **Police Record Checks must be forwarded to Krystyna Gazo prior to the study commencing.**
2. Police Record Checks have been adjudicated (as necessary) for all Researchers/ Investigators involved in this project.
3. All conditions as outlined in the application form 204-1, as applicable will be followed.
4. The collection and use of personal information will be protected as per the Municipal Freedom of Information and Protection of Privacy Act, in accordance with form 204-3.
5. Only the schools listed below will be used for this research project.
Grade 10 (CELP) and Grade 12 (Headwaters) only at Centennial Collegiate Vocational Institute
6. Participation of any research project is at the discretion of the school Principal.

LIST OF SCHOOLS SUGGESTED FOR THIS RESEARCH PROJECT	NAME OF PRINCIPAL	PHONE NUMBER
Centennial Collegiate Vocational Institute	Scot Bishop	519-821-0360

Tracy Lindsay

Chairperson of the Research Liaison Committee

February 13, 2015

Date

Appendix D**Approval Letter from Minnesota State University, Mankato Institutional Review
Board for the Protection of Human Subjects**

May 14, 2015

Dear Julie Carlson, EdD:

Your proposed changes to your Minnesota State University, Mankato IRB approved research ([693556-5] Effects of Outdoor Education Integrated Curriculum Programs on Self-Authorship Development in Adolescents) have been accepted as of May 14, 2015. Thank you for remembering to seek approval for changes in your study.

If you make additional changes in the research design, funding source, consent process, or any part of the study that may affect participants in the study, you will have to reapply for approval (see <http://grad.mnsu.edu/irb/continuation.html>). Should any of the participants in your study suffer a research-related injury or other harmful outcome, you are required to report them to the Associate Vice-President of Research and Dean of Graduate Studies immediately.

The letter approving your changes is attached to your original proposal; therefore, the original approval date has not changed. When you complete your data collection or should you discontinue your study, you must submit a Closure request (see <http://grad.mnsu.edu/irb/continuation.html>). If you will be collecting data for one calendar year or longer, please submit a Continuation (<http://grad.mnsu.edu/irb/continuation.html>). Please include your IRBNet ID number with any correspondence with the IRB.

We wish you success in your research. If you have any questions, feel free to contact Mary Hadley at irb@mnsu.edu or 507-389-5102.

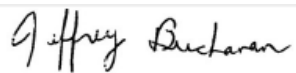
Cordially,

A handwritten signature in black ink that reads "Mary Hadley".

Mary Hadley, Ph.D.
IRB Coordinator

A handwritten signature in black ink that reads "Julie A. Carlson".

Julie Carlson, Ed.D.
IRB Co-Chair



Jeffrey Buchanan, Ph.D.
IRB Co-Chair

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Minnesota State University, Mankato IRB's records.

Appendix E

Information and Assent Letter to Students



Information and Assent Letter to Students

Dear Student:

You are invited to participate in a research study titled: *Effects of outdoor education integrated curriculum programs on self-authorship development in adolescents*. The purpose of this study is to examine the educational benefits of participating in an outdoor education program. As part of the study, you will anonymously fill out a questionnaire and responses will be used as data for part of a Master's thesis conducted by Amanda McGowan, a current Graduate Student in the Department of Educational Leadership at Minnesota State University, Mankato. The study will be supervised by Dr. Julie Carlson in the Department of Educational Leadership at Minnesota State University, Mankato. The Research Liaison Committee of the Upper Grand District School Board has given permission for this study to be carried out at your school.

Your participation is completely voluntary. Participation may be discontinued at any time before the data collection is complete without penalty or loss of benefits. All information collected will be strictly confidential and you will not be identified individually. Your decision whether to participate will not affect your relationship with Minnesota State University, Mankato, nor will a refusal to participate involve a penalty or loss of benefits. Data will be collected using one in-person survey and two follow-up email surveys. Each of the three surveys should require approximately 10 minutes to complete. The survey is completely confidential. Names will not be recorded on the surveys, and no students will be identified in the research process. A private coding system will be used, which will consist of the student's middle initial and last four digits of the home phone number. The student will write this code on the top of his or her survey form each time it is taken, which will allow the researcher to match pre- and post-course responses to the survey without knowing or using student names.

The pre-course survey will be conducted in person and collected in an envelope by the researcher without any identification of the name of the participants. Names of participants and non-participants will be known by classroom teachers as they will assist with assembling participants into a room for the researcher to administer the initial survey. This way, students will remain anonymous to the researcher. Two post-course surveys will be emailed to participants, one during the last week of the course in June 2015 and a second three months following completion of the course in September 2015. For the purpose of delivering the follow-up survey, a student email contact is required. Responses to online surveys will be anonymous. However, whenever one works with online technology there is always the risk of compromising privacy, confidentiality, and/or anonymity. If you would like more information about the specific privacy and anonymity risks posed by online surveys, please contact the Minnesota State University, Mankato Information and Technology Services Help Desk (507-389-6654) and ask to speak to the Information Security Manager.

If you agree to participate in the study, you will be given a one-page, double-sided questionnaire. For each of the 27 survey questions, you will be asked to circle the response on a scale of 1 to 5, which best reflects your feelings at that moment in time. The scale responses range from false (not like me) to true (like me). This is not a test and there are no correct or incorrect responses. These questions relate to how you think, feel, and make decisions. Participants will also be asked to provide demographic information (age, grade level, gender) for data comparison purposes. Participants will be surveyed three times: once in-person during the week of March 9-13th, 2015, once via email during the week of June 15-19th, 2015, and once via email during the week of September 15-19th, 2015. The combined time required to complete all three surveys is about 30 minutes.

Initial: _____
(Please continue
reading on back) →

There are no direct benefits for participation in this research. However, information gained through the research may prove beneficial to enhancing the field of outdoor education. The risks of participating in this research are not more than encountered in everyday life. A minimal risk that may occur in taking the survey is the possible mental discomfort students may experience in thinking about their individual responses to the self-authorship survey questions.

All information obtained in this research project will be kept private by the staff of this research project. All information will be stored in a locked office at Minnesota State University, Mankato and destroyed three years after completion of the research. The consent forms can be viewed only by Amanda McGowan, Dr. Julie Carlson, and the classroom teachers. No names will be recorded other than on the consent forms. The information will be collected under the authority of Board Policy #204 and the Municipal Freedom of Information and Protection of Privacy Act. Users of this information will be the members of the Board's Research Liaison Committee. The contact person for inquiries concerning this information is the Superintendent responsible for this policy.

The distribution of the questionnaire has been approved by the Minnesota State University, Mankato Institutional Review Board for the Protection of Human Subjects. In order to participate in this study, consent needs to be given by both student and parent/legal guardian.

Should you have any questions about this research project or would like more information before, during, or after the study, or wish to withdraw from the study at any point, you may contact **Amanda McGowan** (amanda.mcgowan@mnsu.edu) or supervising faculty member, **Dr. Julie Carlson** (julie.carlson@mnsu.edu). You also may contact the Minnesota State University, Mankato Institutional Review Board Administrator, **Dr. Barry Ries**, at 507-389-2321 or barry.ries@mnsu.edu with any questions about research with human participants at Minnesota State University, Mankato.

Two copies of the letter are enclosed. If you wish to participate, please sign one indicating your choice and return it to the researcher today. The other copy is for your records. Thank you for your consideration.

Sincerely,

Amanda McGowan
Minnesota State University, Mankato
289-383-3687 (cell)

Scot Bishop
Principal, CCVI

I wish to participate in the research project being conducted in the Upper Grand District School Board.
Please print clearly

Student Name (please print) _____

Signature of Student

Date

I am 18 years or older, and do not require parental permission.
(initial)

Do you wish to participate in the two follow-up e-mail surveys administered in June and September 2015?
(please check one)

- Yes (please provide e-mail address) _____
- No

Appendix F

Information and Consent Letter to Parents/Guardians



Information and Consent Letter to Parents/Guardians

Dear Parent/Legal Guardian:

Your son/daughter is invited to participate in a research study titled: *Effects of outdoor education integrated curriculum programs on self-authorship development in adolescents*. The purpose of this study is to examine the educational benefits of participating in an outdoor education program. As part of the study, participants will anonymously fill out a questionnaire and responses will be used as data for part of a Master's thesis conducted by Amanda McGowan, a current Graduate Student in the Department of Educational Leadership at Minnesota State University, Mankato. The study will be supervised by Dr. Julie Carlson in the Department of Educational Leadership at Minnesota State University, Mankato. The Research Liaison Committee of the Upper Grand District School Board has given permission for this study to be carried out at your child's school.

Your child's participation is completely voluntary. Participation may be discontinued at any time before the data collection is complete without penalty or loss of benefits. All information collected will be strictly confidential and students will not be identified individually. Your decision whether to allow your child to participate will not affect your relationship with Minnesota State University, Mankato, nor will a refusal to participate involve a penalty or loss of benefits. Data will be collected using one in-person survey and two follow-up e-mail surveys. Each of the three surveys should require approximately 10 minutes to complete. The survey is completely confidential. Names will not be recorded on the surveys, and no students will be identified in the research process. A private coding system will be used, which will consist of the student's middle initial and last four digits of the home phone number. Students will write this code on the top of their survey form each time it is taken, which will allow the researcher to match pre- and post-course responses for the survey, without knowing or using student names.

The pre-course survey will be conducted in person and collected in an envelope by the researcher without any identification of the name of the participants. Names of participants and non-participants will be known by classroom teachers as they will assist with assembling participants into a room for the researcher to administer the initial survey. This way, students will remain anonymous to the researcher. Two post-course surveys will be emailed to participants, one during the last week of the course in June 2015 and a second three months following completion of the course in September 2015. For the purpose of delivering the follow-up survey, a student email contact is required. Responses to online surveys will be anonymous. However, whenever one works with online technology there is always the risk of compromising privacy, confidentiality, and/or anonymity. If you would like more information about the specific privacy and anonymity risks posed by online surveys, please contact the Minnesota State University, Mankato Information and Technology Services Help Desk (507-389-6654) and ask to speak to the Information Security Manager.

If you agree to have your child participate in the study, your child will be given a one-page, double-sided questionnaire. For each of the 27 survey questions, your child will be asked to circle the response on a scale of 1 to 5, which best reflects him/her at that moment in time. The scale responses range from false (not like me) to true (like me). This is not a test and there are no correct or incorrect responses. These questions relate to situational coping, interpersonal leadership, self-efficacy, and knowledge creation. Participants will also be asked to provide demographic information (age, grade level, gender) for data comparison purposes. Participants will be surveyed three times: once in-person during the week of March 9-13th, 2015, once via email during the week of June 15-19th, 2015, and once via email during the week of September 15-19th, 2015. The combined time required to complete all three surveys is about 30 minutes.

DEPARTMENT OF EDUCATIONAL LEADERSHIP
 85-468 BUILDING 1000 • MINNEAPOLIS, MN 55455
 TEL: 612-552-3555 • FAX: 612-552-3555 • TDD: 612-552-3555 • FAX: 612-552-3555
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Initial: _____
 (Please continue
 reading on back) →

There are no direct benefits for participation in this research. However, information gained through the research may prove beneficial to enhancing the field of outdoor education. The risks of participating in this research are not more than encountered in everyday life. A minimal risk that may occur in taking the survey is the possible mental discomfort students may experience in thinking about their individual responses to the self-authorship survey questions.

All information obtained in this research project will be kept private by the staff of this research project. All information will be stored in a locked office at Minnesota State University, Mankato and destroyed three years after completion of the research. The consent forms can be viewed only by Amanda McGowan, Dr. Julie Carlson, and the classroom teachers. No names will be recorded other than on the consent forms. The information will be collected under the authority of Board Policy #204 and the Municipal Freedom of Information and Protection of Privacy Act. Users of this information will be the members of the Board's Research Liaison Committee. The contact person for inquiries concerning this information is the Superintendent responsible for this policy.

The distribution of the questionnaire has been approved by the Minnesota State University, Mankato Institutional Review Board for the Protection of Human Subjects. In order to participate in this study, consent needs to be given by both student and parent/legal guardian.

Should you have any questions about this research project or would like more information before, during, or after the study, or wish to withdraw from the study at any point, you may contact Amanda McGowan amanda.mcgowan@mnsu.edu or supervising faculty member, Dr. Julie Carlson julie.carlson@mnsu.edu. You also may contact the Minnesota State University, Mankato Institutional Review Board Administrator, Dr. Barry Ries, at 507-389-2321 or barry.ries@mnsu.edu with any questions about research with human participants at Minnesota State University, Mankato.

Two copies of the letter are enclosed. If you give permission for your child to participate, please sign one indicating your choice and return it with your child to school by Friday, March 27th, 2015. The other copy is for your records. Thank you for your consideration.

Sincerely,

Amanda McGowan
Minnesota State University, Mankato
289-383-3687 (cell)

Scot Bishop
Principal, CCVI

I give consent for students to provide an e-mail address to the researcher for administering the two follow-up surveys (in June & September 2015). (please check one) Yes No

I hereby give permission for my son/daughter to participate in the research project being conducted in the Upper Grand District School Board.

Name of Child (please print): _____

Age of Child: Years: _____ Months: _____

Name of Parent/Guardian (please print): _____

Signature of Parent/Guardian

Date

MSU IRBnet ID#693556-3

Date of MSU IRB approval: January 14, 2015

Appendix G

Self-Authorship Questionnaire (Initial Posttest)

Self-Authorship Questionnaire (SAQ)-June 2015

Hello CELP/Headwaters student! In March, 2015 you participated in a research project designed to help Amanda McGowan from Minnesota State University, Mankato understand the educational benefits adolescents participating in outdoor education programs experience. You are now being invited to continue with this research by answering the same questionnaire a second time. Your parents already gave permission for you to participate in this study. Participation is voluntary. I want to ask you questions about how you think, feel, and make decisions. This survey is not a test and there are no wrong answers. No one except the researcher will know how you answer the questions. The survey will take about 10 minutes to complete. You have the option not to respond to any of the questions. You may stop taking the survey at any time by closing your web browser. Participation or non-participation will not impact your relationship with Minnesota State University, Mankato, nor will a refusal to participate involve a penalty or loss of benefits. Your parents will not be told if you choose not to participate or stop participating. Responses will be anonymous. You will write your identification number (which is your middle initial and last four digits of your home phone number) so that the researcher may match pre- and post-course survey responses. However, whenever one works with online technology there is always the risk of compromising privacy, confidentiality, and/or anonymity. If you would like more information about the specific privacy and anonymity risks posed by online surveys, please contact the Minnesota State University, Mankato Information and Technology Services Help Desk (507-389-6654) and ask to speak to the Information Security Manager. The risks you will encounter as a participant in this research are not more than experienced in your everyday life. A minimal risk that may occur in taking the survey is the possible mental discomfort you may experience in thinking about your individual responses to the survey questions. There are no direct benefits for participating in this research. However, information gained through the research may prove beneficial to advancing the field of outdoor education. All information obtained in this project will be kept private by the staff of this research project. All information will be stored in password protected documents on the researcher's computer. If you have any questions about this research project or would like more information before, during, or after the study, or wish to withdraw from the study at any point, you may contact Amanda McGowan (amanda.mcgowan@mnsu.edu) or supervising faculty member, Dr. Julie Carlson (julie.carlson@mnsu.edu). You also may contact the Minnesota State University, Mankato Institutional Review Board Administrator, Dr. Barry Ries, at 1-507-389-2321 or barry.ries@mnsu.edu with any questions about research with human participants at Minnesota State University, Mankato. Submitting the completed survey will indicate your informed consent to participate. Please print a copy of this page for your future reference.

MSU IRBnet ID#693556-5

Date of MSU IRB approval: May 14, 2015

Please write your individual identification number used on your previous survey(s). The ID number consists of your middle initial and the last four digits of your home phone number. For example: L0021

Please check one.

- Male
 Female
 Enter individual answer _____

Please enter your age in years

Please select the program you were enrolled in from February-June 2015.

- CELP
 Headwaters

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
No matter what happens I can handle it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No matter what the situation I can handle it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whatever situation arises I can come up with a solution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I cope well with changing situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I enjoy coming up with solutions to my problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to make difficult decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am calm in stressful situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can research a topic and form my own opinion effectively.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I am efficient and do not waste time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am a capable leader.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to handle positions of authority.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am a good leader when things need to get done.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I feel comfortable speaking in front of a group.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I communicate effectively with other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am given opportunities to make a difference.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am given real responsibility in my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I am effective in social situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I show good judgment in most situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I see myself as a capable person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make the right decision a majority of the time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I know I have the ability to do anything I want to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to do things as well as most other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am good at deciding whether a risk is worth taking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am capable of regulating my own actions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I never question the opinion of my superiors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe experts are in the best position to decide what people should learn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I always look to my teacher/boss for direction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The teacher played a role in the development of my ability to independently think, feel, make decisions, and grow as a person. (Select one)

- Strongly disagree
- Disagree
- Agree
- Strongly agree
- No opinion

What experiences did you take part in this semester (February-June 2015)? (Check all that apply)

- Winter camping
- Canoeing
- Solo experience(s)
- Instructing elementary students environmental programs

To what degree did each experience play a role in the development of your ability to independently think, feel, make decisions, and grow as a person? (Circle one for each experience)

	Not at all	Very little	Somewhat	Definitely	Not Applicable (N/A)
Winter camping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Canoeing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Solo experience(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instructing elementary students environmental programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

An integrated curriculum program is defined as an education program taught at the secondary school level in which students spend a full day with one group of peers and one or more teachers for a semester to earn a package of credits (which may include 4-5 subjects grouped together). Programs include a significant amount of outdoor experience (e.g., camping trips, daily lessons outdoors, instruction in outdoor skills such as canoeing, backpacking, winter camping, etc.) Based on this description, have you previously participated in outdoor education integrated curriculum programs?

- Yes
- No

Answer If Yes Is Selected: Have you previously participated in outdoor education integrated curriculum programs before this semester?

How many semesters (including the present semester) have you participated in an outdoor education integrated curriculum program? (This number may include the same program in different semesters).

(Select one)

- 1 semesters
- 2 semesters
- 3 semesters
- 4 semesters
- 5 semesters
- 6 semesters
- 7 semesters
- 8 semesters
- more than 8 semesters

Please provide any additional comments for the researcher.

Appendix H

Self-Authorship Questionnaire (Three-Month Posttest)

Self-Authorship Questionnaire (SAQ) - September 2015

Q1 Hello CELP/Headwaters student! In March and June 2015, you participated in a research project designed to help Amanda McGowan understand the educational benefits adolescents participating in outdoor education programs experience. You are now being invited to continue with this research by answering the same questionnaire a final time. Your parents already gave permission for you to participate in this study. Participation is voluntary. I want to ask you questions about how you think, feel, and make decisions. This survey is not a test and there are no wrong answers. No one except the researcher will know how you answer the questions. The survey will take about 10 minutes to complete. You have the option not to respond to any of the questions; however, complete responses will help the researcher. You may stop taking the survey at any time by closing your web browser. Participation or non-participation will not impact your relationship with Minnesota State University, Mankato, nor will a refusal to participate involve a penalty or loss of benefits. Your parents will not be told if you choose not to participate or stop participating. Responses will be anonymous. You will write your identification number (which is your middle initial and last four digits of your home phone number) so that the researcher may match pre- and post-course survey responses. However, whenever one works with online technology there is always the risk of compromising privacy, confidentiality, and/or anonymity. If you would like more information about the specific privacy and anonymity risks posed by online surveys, please contact the Minnesota State University, Mankato Information and Technology Services Help Desk (507-389-6654) and ask to speak to the Information Security Manager. The risks you will encounter as a participant in this research are not more than experienced in your everyday life. A minimal risk that may occur in taking the survey is the possible mental discomfort you may experience in thinking about your individual responses to the survey questions. There are no direct benefits for participating in this research. However, information gained through the research may prove beneficial to advancing the field of outdoor education. All information obtained in this project will be kept private by the staff of this research project. All information will be stored in password protected documents on the researcher's computer. If you have any questions about this research project or would like more information before, during, or after the study, or wish to withdraw from the study at any point, you may contact Amanda McGowan (amanda.mcgowan@mnsu.edu) or supervising faculty member, Dr. Julie Carlson (julie.carlson@mnsu.edu). You also may contact the Minnesota State University, Mankato Institutional Review Board Administrator, Dr. Barry Ries, at 1-507-389-2321 or barry.ries@mnsu.edu with any questions about research with human participants at Minnesota State University, Mankato. Submitting the completed survey will indicate your informed consent to participate. Please print a copy of this page for your future reference.

MSU IRBnet ID#693556-5

Date of MSU IRB approval: May 14, 2015

Please write your individual identification number used on your previous survey(s). The ID number consists of your middle initial and the last four digits of your home phone number. For example: L0021

Please check one.

- Male
- Female
- Enter individual answer _____

Please enter your age in years

Please select the program you were enrolled in from February-June 2015.

- CELP
- Headwaters

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
No matter what happens I can handle it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No matter what the situation I can handle it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whatever situation arises I can come up with a solution.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I cope well with changing situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I enjoy coming up with solutions to my problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to make difficult decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am calm in stressful situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can research a topic and form my own opinion effectively.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I am efficient and do not waste time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am a capable leader.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to handle positions of authority.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am a good leader when things need to get done.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I feel comfortable speaking in front of a group.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I communicate effectively with other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am given opportunities to make a difference.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am given real responsibility in my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I am effective in social situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I show good judgment in most situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I see myself as a capable person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make the right decision a majority of the time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I know I have the ability to do anything I want to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to do things as well as most other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am good at deciding whether a risk is worth taking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am capable of regulating my own actions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please use the five point scale to indicate how true (like you) or how false (unlike you), each statement below is as a description of you. Answer the statements about how you feel now, (not how you felt at another time in your life, or how you might feel tomorrow). (Please do not leave any statements blank.)

	FALSE (Not like me)	More false than true	NEUTRAL	More true than false	TRUE (Like me)
I never question the opinion of my superiors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe experts are in the best position to decide what people should learn.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I always look to my teacher/boss for direction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please provide any additional comments for the researcher.