

DISSERTATION

ADVENTURE-BASED EDUCATION: A QUANTITATIVE EVALUATION OF THE
IMPACT OF PROGRAM PARTICIPATION IN HIGH SCHOOL ON YOUTH
DEVELOPMENT

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ABSTRACT

ADVENTURE-BASED EDUCATION: A QUANTITATIVE EVALUATION OF THE IMPACT OF PROGRAM PARTICIPATION IN HIGH SCHOOL ON YOUTH DEVELOPMENT

Adventure-based physical-education (ABPE) classes have become a more prevalent class offering in many middle and high schools throughout the United States. Several studies have researched the outcomes and benefits of adventure-based programs (e.g., Cason & Gillis, 1994; Gillis & Speelman, 2008; Hans, 2000; Hattie, Marsh, Neill, & Richards, 1997), and links have been made between youth-development constructs and adventure programming (e.g., Henderson, Powell, & Scanlin, 2005; Sibthorp & Morgan, 2011). To date, limited research has focused on the progression of positive-youth development (PYD) constructs in high-school students participating in a semester-long ABPE course.

This research study examined the progression of PYD of students throughout the course of a semester who were enrolled in an ABPE class compared to that progress for those who were not enrolled in any adventure classes at all. Results suggested that there were no significant differences in PYD throughout the semester for students who were enrolled in adventure classes compared to the PYD of those students who were not in any adventure classes at all. There were, however, significant differences in connection for students who were in the Adventure Leader class compared to connection for those who were not in any adventure classes at all. The findings of this research study highlight the need for more studies that examine different types of adventure classes or activities, as opposed to adventure classes or activities as a whole.

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CHAPTER 1: INTRODUCTION

Adventure-based programs have a variety of beneficial outcomes, including “leadership, self-concept, academic, personality, interpersonal, and adventuresomeness” (Hattie, Marsh, Neill, & Richards, 1997, p. 47). Many primary and secondary schools have added outdoor and adventure-based courses to their physical education (PE) programming, presumably to positively influence the lives of youth while they are also being physically active (Weinbaum, Gregory, Wilkie, Hirsh, & Fancasali, 1996). Adventure-based physical education (ABPE) courses have become more prevalent in high schools since the 1970s (Neill, 2005). However, the massive budget cuts to schools during the early 2000s and the increased emphasis on standardized testing have reduced the time and resources available for nonassessed subjects, such as PE, in many states (Pederson, 2007). Given that there is no standardized testing and little research on the benefits of ABPE, many of these specialized courses are some of the first considered for programming cuts. It is important for professionals in the field to understand the comprehensive benefits that youth gain during their participation in ABPE programs. This understanding will help administrators, teachers, students, staff, and parents know what is at risk when PE programs are targeted for elimination. The purpose of this study was to understand the relationship between a semester-long ABPE course at a public high school and PYD outcomes. This chapter includes the following sections: background and overview of existing research, the purpose of the study, research questions examined in the study, significance of the study for the audience, delimitations and limitations of the proposed research, and definition of terms.

Background of the Problem

Numerous research studies have examined a variety of subtopics within each of the broad subject areas of positive youth development (PYD), education, and adventure programming. For example, research studies have examined two of these subject areas, adventure-based programming and PYD (Jones, Dunn, Holt, Sullivan, & Bloom, 2011) and PYD in education (e.g., Weinbaum et al., 1996). Within current research, however, few research studies combine all three subject areas to examine their relation. Figure 1-1 shows a representation of each of these broad subject areas and the overlap within current research. Although research in adventure-based programming has been more recent and is not as extensive, PYD and educational research have been around for a longer period of time and have been examined more extensively. This research study aims to examine the less frequently studied areas where all three subjects overlap.

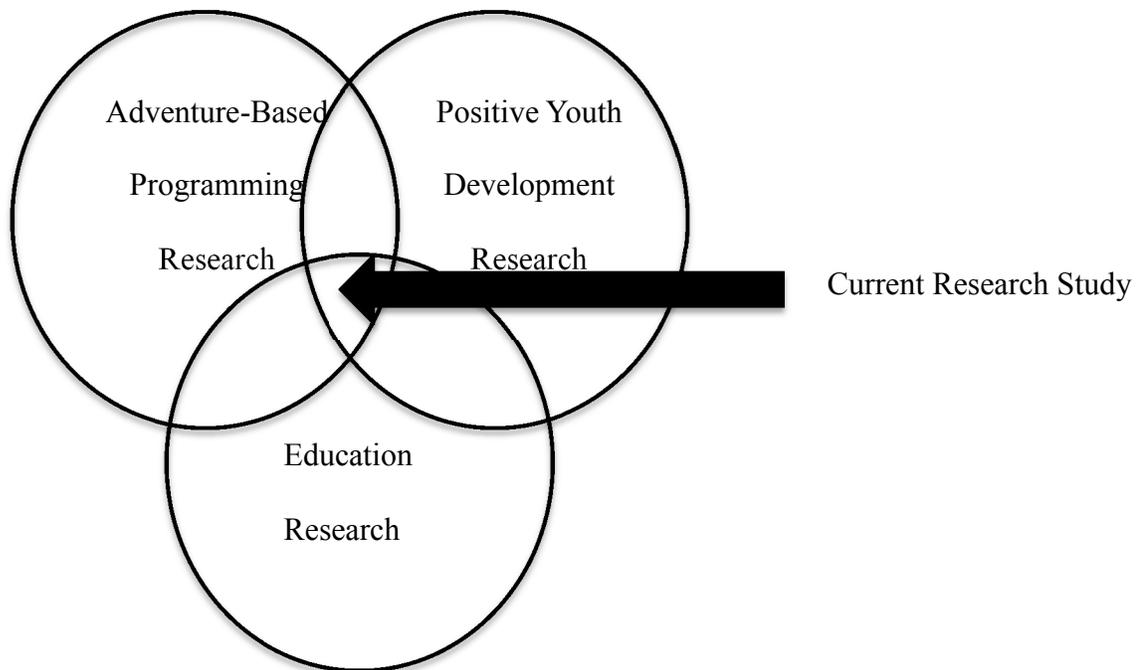


Figure 1-1. Major themes in current research study.

PYD theory has evolved from influences in prevention research, resilience research, and developmental science, among other subject areas (Catalano, Berglind, Ryan, Lonczak, & Hawkins, 1999; Lerner, Fisher, & Weinberg, 2000). PYD is a comprehensive, strengths-based perspective on adolescent development that identifies specific supports youth need for positive outcomes. These supports include positive identity, connection to family, social acceptance, and social conscience, among others. Research in PYD has indicated that positive development may occur when the strengths of young people, such as integrity or high self-esteem, are used in association with ecological influences, such as family cohesion or school environment (Lerner et al., 2005b; Lerner, Lerner et al., 2005a). Long-term positive development is more likely to be achieved by youth who exhibit the Five Cs throughout adolescence (Geldhof et al., 2014). This may be evidenced in the long term by positive indicators, such as contribution (to self, family, community, and society), engagement, hope, and successful intentional self-regulation (Geldhof et al., 2014). As individuals exhibit an increase in the Five Cs, many typical risk or problem behaviors such as substance abuse, depression, and delinquency will be less evident (Geldhof et al., 2014). PYD views youth as resources to be developed instead of problems for society to manage (Damon, 2004; Lerner, Almerigi, Theokas, & Lerner, 2005b).

The Five Cs of PYD is one model, among several, that has helped to determine the focus of PYD (Leffert, Benson, Scales, Sharma, & Dyanne, 1998; Lerner et al., 2005b; Lerner, Lerner et al., 2005a; Roth & Brooks-Gunn, 2003a, 2003b; Theokas et al., 2005). The Five Cs model of PYD emphasizes competence, character, confidence, connection, and caring/compassion as important measures of PYD (Eccles & Gootman, 2002; Lerner, Fisher, & Weinberg, 2000; Roth & Brooks-Gunn, 2003a, 2003b). Although research on the Five Cs of PYD and physical activity, including adventure-based programs, is still in its infancy, researchers have emphasized the

importance of examining the possible influence that physical activities may have on PYD (Fraser-Thomas, Cote, & Deakin, 2005; Jones, Dunn, Holt, Sullivan, & Bloom, 2011).

Adventure-education (AE) programs use dynamic activities to help participants to gain knowledge and learn skills (e.g., leadership, social skills) through experiential processes. AE became more widely used in high schools during the 1970s when Project Adventure incorporated principles and activities used with Outward Bound expeditions into PE classes (Neill, 2005). AE literature has examined private and nonprofit programs (e.g., Hattie et al., 1997; Magle-Haberek, Tucker, & Gass, 2012; Sibthorp, Furman, Paisley, & Gookin, 2008), but few studies have been conducted on primary- and secondary-school, classroom-based PE programs (Gehris, Myers, & Whitaker, 2012; Weinbaum et al., 1996).

AE research has focused on a multitude of variables, including outcomes (Cason & Gillis, 1994; Gillis & Speelman, 2008; Hans, 2000; Hattie et al., 1997), program length (Cason & Gillis, 1994; Hattie et al., 1997; Sibthorp, Paisley, & Gookin, 2007), program structure (Duerden, Taniguchi, & Widmer, 2012; Haras, Bunting, & Witt, 2005), and long-term effects (Sibthorp et al., 2008), among others. Of the few studies that have been conducted on ABPE programs, four have examined their outcomes and benefits (e.g., Cason & Gillis, 1994; Gillis & Speelman, 2008; Hans, 2000; Hattie et al., 1997), and two have shown links between adventure programming and youth-development outcomes (e.g., Henderson, Powell, & Scanlin, 2005; Sibthorp & Morgan, 2011). However, AE research has not examined PYD within a semester-long ABPE program, comparing students' experiences with those not in ABPE classes or in different type of electives. Examining PYD in the context of a semester-long educational setting is vital to understanding the benefits of the use of adventure in semester long curriculum, as compared to programs that happen over the course of a few days (which is more common).

AE and physical activity have been noted to have possible impact on components of PYD (Duerden, Widmer, Taniguchi, & McCoy, 2009; Fraser-Thomas, Cote, & Deakin, 2005; Jones et al., 2011). Although several studies have examined physical activity and aspects of PYD (e.g., Carreres-Ponsoda, Carbonell, Cortell-Tormo, Fuster-Lloret, Andreu-Cabrera, 2012; Fraser-Thomas, Cote, & Deakin, 2005; Madsen, Hicks, & Thompson, 2011), fewer studies have examined AE programs and PYD variables (e.g., Sibthorp & Morgan, 2011; Beightol, Jeverson, Carter, Gray, & Gass, 2012; Henderson, Powell, & Scanlin, 2005) or AE programs within school curricula (e.g., Conley, Caldarella, & Young, 2007; Gehris, Kress, & Swalm, 2010, 2011). No studies to date have examined ABPE classes and PYD outcomes in high school students.

Of the research studies that have examined the Five Cs of PYD in adventure or physical-activity settings, some have methodological flaws. Jones et al. (2011) examined PYD using the Five Cs with participants at an adolescent sports camp. The researchers employed the use of a survey that had been used only with younger participants; its reliability and validity with older students had not been determined. The researchers suggested evaluating PYD in sport programs using prosocial values rather than the Five Cs. Since this study, Bowers et al. (2010) have updated the Five Cs survey, including making changes to several scales that measure the Five Cs, and they have confirmed its fit for youth in grades 8-12.

In the previous research studies that examined PYD variables and physical activity or adventure programming, most studies were conducted within one time period rather than examining change over time (Carreres-Ponsoda et al., 2012; Jones et al., 2011). Some studies in AE examined changes over time, and those have significantly contributed to the literature by showing benefits long after programs have ended, an outcome that thus might influence programmatic decisions by administrators (Hattie et al., 1997; Russell, 2003; Sibthorp et al.,

2008). To understand the changes in PYD during participation in adventure-based programs, it is important for researchers to conduct pre-/poststudies with participants, and to compare students in the ABPE course with a control group.

Several of the research studies on adventure programs or physical activity and PYD have used a quantitative approach (e.g., Carreres-Ponsoda et al., 2012; Jones et al., 2011). The instruments used to assess outcomes include measures of prosocial behaviors (e.g., Carreres-Ponsoda et al., 2012) and the Five Cs of PYD (e.g., Jones et al., 2011). Although the Five Cs of PYD measure has been noted as reliable and valid in the examination of certain PYD variables in youth (Bowers et al., 2010; Geldhof et al., 2012), there are few adventure and physical-activity based studies that have employed its use. Although several of the variables in the Five Cs model have been examined separately in the literature, no ABPE studies have examined them together in the Five Cs model because it is a more recently emerging theory.

Purpose of the Study and Research Questions

The intent of this quantitative study is to understand the relationship between a semester-long ABPE course at a public high school and PYD outcomes. To help focus the direction of this research study, I examined the following questions:

- (a) In comparing a comparison group and participants in a high-school ABPE class, what differences are found in pre- and posttest PYD scores for each group?
- (b) Are there different changes in PYD scores between students in the Adventure 1, Adventure Leader Training, Adventure Outdoor Education and Adventure Leader classes?
- (c) Are there differences in amounts and directions of change in PYD for different demographic variables (sex of participant and year in school)?

Significance of the Study

This study advances the literature because the use of the Five Cs model can help researchers and educators to gain a better understanding of what youth may be gaining during their participation in semester-long ABPE courses. Results may help school districts to understand how ABPE courses support district-wide and school-specific outcomes differently than other courses do. Using PYD as a measure, schools that are interested in the long-term outcomes of students may be interested in incorporating programs that positively influence PYD.

This study will also contribute to adventure education and human development research. As the Five Cs model of PYD gains more prominence as an alternative to a deficit- or pathology-based view of youth development (Geldhof, et al., 2014), more studies need to be conducted employing the Five Cs to create a solid foundation of data and to examine its use across settings. Additionally, AE programming needs to be evaluated with an established comprehensive model of PYD instead of an examination of single outcomes that do not capture the complexities of youths' assets. This comprehensive evaluation will assist in the examination of adventure activities compared with other types of settings and programs, and the influence adventure activities have on youth. Given that youth spend a large portion of their time in schools, it is vital to understand what they are gaining from their education, including their participation in ABPE classes. By using a quantitative approach in this proposed study, I had the ability to examine the possible changes in specific PYD variables from the beginning to the end of the semester. These results, in turn, will help researchers and educators to gain a better understanding of the relationship between ABPE classes and PYD.

Delimitations

There were several delimitations to the study, of which several were related to the different types of classes that were offered at the school. In assessing ABPE participation, I examined four different types of courses in the adventure activities: Adventure 1 is the initial class students take; this class includes experiential activities, with course content such as teambuilding and initiative activities, trust activities, low- and high-challenge courses, and indoor/outdoor rock climbing, among other activities. Adventure Leader Training teaches students technical and soft skills that they need to facilitate the Adventure 1 class. The Adventure Leader class allows students, under the supervision of a faculty member, to help facilitate the Adventure 1 classes. The Adventure Outdoor Education class emphasizes backcountry living and travel, Leave No Trace ethics, and several advanced outdoor skills. The high school also regularly offers an Adventure Water Sports course; however, because the pool was under construction, the course was not offered during the semester the research study took place. Figure 1-2 shows the typical progression students must follow to advance from the base courses (Adventure 1, Adventure Outdoor Leader, and Adventure Water Sports) to Adventure Leader.

Students in the comparison group comprised those in the general population at the high school who were not currently enrolled in an adventure class. The school district requested that I limit research participation requests of students in core classes (social studies, English, math and science) and focus predominantly on reaching out, one on one, to several teachers in other content areas. To gain greater participation from students who were not currently enrolled in ABPE courses, I solicited all health courses, which are required for all students, for potential

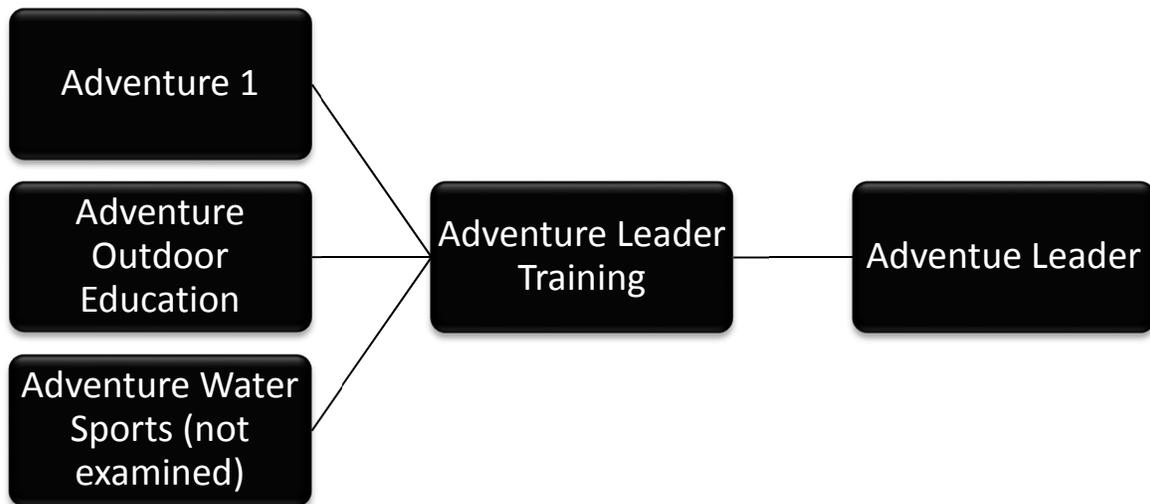


Figure 1-2. Adventure-class progression.

participants in the research study. Ultimately, courses that I solicited for participation in the study during their class periods came predominately from PE and health, but also included courses from math, fine arts, and social studies.

Definition of Terms

Adventure education: There is no universally accepted definition of adventure education (AE); its definition for the purposes of this study is “a type of education that utilizes specific risk-taking activities, such as ropes courses and mountaineering, to foster personal growth” (Wurdinger, 1997, p. xi).

Positive youth development: There is no universally accepted definition of positive youth development (PYD); its definition for the purposes of this study is a “philosophy or approach promoting a set of guidelines on how a community can support its young people so that they can grow up competent and healthy and develop to their full potential” (Dotterweich, 2006, section 1.1A). PYD programs seek to achieve one or more of the following objectives:

- (a) Promotes bonding
- (b) Fosters resilience
- (c) Promotes social competence
- (d) Promotes emotional competence
- (e) Promotes cognitive competence
- (f) Promotes behavioral competence
- (g) Promotes moral competence
- (h) Fosters self-determination
- (i) Fosters spirituality
- (j) Fosters self-efficacy
- (k) Fosters clear and positive identity
- (l) Fosters belief in the future
- (m) Provides recognition for positive behavior
- (n) Provides opportunities for prosocial involvement
- (o) Fosters prosocial norms (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004, pp. 101–102).

The following variables comprise the Five Cs:

Competence: A “Positive view of one’s actions in domain-specific areas including social, academic, cognitive, and vocational. *Social competence* pertains to interpersonal skills (e.g., conflict resolution). *Cognitive competence* pertains to cognitive abilities (e.g., decision making). School grades, attendance, and test scores are part of *academic competence*. *Vocational competence* involves work habits and career choice explorations...” (Lerner et al., 2005a, p. 23).

Confidence: “An internal sense of overall positive self-worth and self-efficacy; one’s global self-regard, as opposed to domain specific beliefs” (Lerner et al., 2005a, p. 23).

Connection: “Positive bonds with people and institutions that are reflected in bidirectional exchanges between the individual and peers, family, school, and community in which both parties contribute to the relationship” (Lerner et al., 2005a, p. 23).

Character: “Respect for societal and cultural rules, possession of standards for correct behaviors, a sense of right and wrong (morality), and integrity” (Lerner et al., 2005a, p. 23).

Caring and Compassion: “A sense of sympathy and empathy for others” (Lerner et al., 2005a, p. 23).

Researcher’s Background

It is important for any researcher not only to acknowledge biases, but also to reveal them to others (Creswell, 2009). I have been a participant as well as an administrator of adventure programming for several years, including at the location of the proposed study. Through my experience, anecdotal evidence has convinced me that adventure programming can aid in PYD growth. For instance, as a facilitator of the ABPE program for the high school being researched, I witnessed several students mature throughout the program. My observations led me to believe that the higher self-esteem and determination students demonstrated were due to their experiences on the ropes course. To fully understand this putative causal relation, I believe studies should be conducted before and after students’ participation in adventure programming. Additionally, I have been a lecturer in the Recreation and Outdoor Education program at Western State Colorado University, and I am currently the chair and faculty member of the Outdoor Education and Park Ranger programs at Red Rocks Community College, where I regularly teach courses on related topics. It was crucial for me, as I recognized my bias, to

carefully design the research, including the crafting of questions, and the collection and analysis of data.

Summary

In summary, recent literature has suggested that AE-based programs may have possible positive influences on PYD using the Five Cs measure. To date, few research studies have directly examined the link between PYD variables and adventure-based programs, and fewer have examined the link within a school context. Several research studies have examined certain variables of PYD as they relate to participation in adventure-based programs. However, no research studies have examined PYD using the entire Five Cs measure in ABPE programs throughout the course of a semester. Because youth spend a large portion of their time in school, it is vital for researchers, educators, and administrators to understand how various courses are influencing those students' development. By examining the effect of an ABPE class on PYD using the Five Cs model, we will gain a better understanding of this possible link.

CHAPTER 2: LITERATURE REVIEW

An understanding of the literature for the different types of themes that this research study examined is important for context. Both positive youth development (PYD) theory and adventure education (AE) are subcategories of larger and broader topics, with PYD being a part of psychology and human development, and AE being a part of educational theories and recreation. This chapter includes the following sections: an overview of the history of PYD theory, including a discussion of the Five Cs as a measure of PYD and an investigation into AE theory including how it is defined, qualities of programs, and benefits of participation.

Positive Youth Development

PYD is a comprehensive, strengths-based perspective on adolescent development that emphasizes specific processes that help youth in the development of positive outcomes, and that views youth as resources to be developed instead of problems to be managed (Damon, 2004; Lerner, 2005a). PYD incorporates research and ideas that span more than a century. Research on adolescent development has been extensive since its inception, including the founding ideas of G. Stanley Hall (1904), who described adolescence as a period of “storm and stress;” Anna Freud’s view of adolescence as a period of developmental disturbance (1969); and Erikson’s theory of psychosocial development that highlights adolescence as a period of identity crisis (1959, 1968). Although all of these views are different from one another, each highlights adolescence as a critical period in life. The following paragraphs highlight important notes from Catalano et al. (1999), who examined the progression of the youth-development perspective from the 1950s to contemporary times.

In the 1950s and 1960s, increases in funding for youth programs were seen as a response to youth crime and other socially undesirable behavior with the aim to invoke change, such as reducing crime (Catalano et al., 1999). During this time, youth development was viewed from a deficit perspective: Programs were created to fix existing behavioral problems and mental illnesses that youth exhibited (Catalano et al., 1999).

Throughout the 1960s, 1970s, and 1980s, youth programs that focused on reducing specific problem behaviors increased. Many research studies were conducted to examine the effectiveness of this approach to treating specific problem behaviors, including “substance abuse, conduct disorders, delinquent and antisocial behavior, academic failure, and teenage pregnancy” (Catalano et al., 1999, p. 99). For instance, Clarke and Cornish (1975) examined the effectiveness of treating delinquent youths using a residential treatment facility. Over a 4-year period, 280 criminal offender boys 13 to 15 years old were randomly placed in a residential community, with the intervention group in a therapeutic setting and the control group in a traditional school. A third group of boys who were ineligible for the therapeutic community were placed in other locations. Although the boys appeared to have positive effects of treatment while they were in the therapeutic setting, researchers found similar reconviction rates (from 68% to 70%) for boys in all three communities at a 2-year follow-up assessment.

In the 1970s and 1980s, programs shifted from a reactive to proactive approach and aimed to prevent negative outcomes. These programs focused on the ecological settings and environments that surrounded youth as a way to support them before problem behaviors happened (Catalano et al., 1999). Through the use of longitudinal studies, researchers identified variables that predicted problem behaviors, such as hyperactivity and aggression in preschoolers

of both genders (Campbell, Breaux, Ewing, & Szumowski, 1986), or girls in adolescence who had negative body images being predictive of eating disorders (Attie & Brooks-Gunn, 1989).

Youth-development workers then used this information to redesign programs to target catalysts of negative behavior as identified by predictor variables that lead to that behavior. Pentz et al. (1989) examined the effects of using mass media coverage, 10-session educational programs, skills training, and family involvement in drug prevention over the course of 2 years. Results from the 1-year follow-up review indicated significantly lower use rates of cigarettes, alcohol, and marijuana. In their examination of previous research, Catalano et al. (1999) suggested that throughout this time period “Drug prevention programs began to address empirically identified predictors of adolescent drug use, such as peer and social influences to use drugs, and social norms that condone or promote such behaviors” (p. 9). Ellickson and Bell (1990) designed a prevention program for drugs, alcohol, cigarettes, and marijuana that emphasized the acquisition of skills and knowledge related to social influence, such as ability to identify pressures from others for drug use, the benefits of resisting drugs, how to respond to pro-drug messages, and the benefits of being drug free. This program was a stark contrast to previous models that emphasized knowledge alone or scare tactics that simply showed the devastating results of drug use. The researchers found that the social-influence model helped to reduce cigarette and marijuana use in youth, but did not have significant long-term effects on alcohol use. It is clear that this important shift from responding to negative behaviors to preventing negative behaviors before they happen has been an important stepping stone in PYD theory.

Identifying and reducing risk factors has played a vital role in the development of many important programs in youth development history. Zolkoski and Bullock (2012) identified risk factors as “probability statements, the likelihood of a gamble whose levels of risk change

depending on the time or place” (p. 2295). Risk factors may be biological (i.e., mental health) or environmental (i.e., family conflict) (Zolkoski & Bullock, 2013). Hawkins, Catalano, and Arthur (2002) identified several communities that had high-risk factors related to negative outcomes or behaviors. These included risk factors such as low academic achievement, antisocial behavior, and community disorganization, among others. A program called Communities That Care (CTC) was implemented between 1993 and 2000 in 65 communities in Washington and Oregon. This program aimed to implement interventions that were previously researched to reduce risk factors and enhance protective factors for problem behaviors that lead to negative outcomes. Some interventions included mentoring, organizational change in schools, and parent training, among others. Several of the communities saw decreases in negative behavioral outcomes. While it was not part of a controlled study during this period, Port Angeles, Washington reported a 65% decrease in weapons charges, a 45% decrease in burglary, a 29% decrease in drug offences, a 27% decrease in assault charges, and an 18% decrease in larceny (Hawkins, Catalano, & Arthur, 2002).

In the 1990s, PYD emerged as the concept of resilience became of interest to researchers and youth practitioners. Resilience focuses on individuals who, despite having multiple risk factors that may make them vulnerable to negative outcomes, have achieved healthy and positive outcomes. Resilience is a “dynamic process encompassing positive adaptation within the context of significant adversity” (Luthar, Cicchetti, & Becker, 2000, p. 543). Similarly, Werner and Smith (1977) explained that vulnerability is children’s “susceptibility to negative developmental outcomes after exposure to serious risk factors, such as perinatal stress, poverty, parental psychopathology, and disruptions of their family unit” (as cited in Werner, 1993, p. 503).

Research in resilience has focused on developing an understanding of why and how resilient individuals are able to thrive despite their dire circumstances. For instance, in one of the most well-known longitudinal studies on resilience, Werner and Smith (1977) and Werner (1993) examined the developmental paths of a cohort of 698 individuals in Kauai, Hawaii from the prenatal period to ages 1, 2, 10, 18, 32, and 40 years. Of interest to the researchers were the risk factors that individuals had in prenatal development and childhood, and the developmental outcomes throughout their respective life's trajectory. Approximately one third of individuals in the study ($n = 201$) were labeled as high-risk youth. This meant that they experienced several influences in their youth that may have contributed to vulnerability to negative outcomes, or risk factors. These risk factors included youth being "born into poverty, they had experienced moderate to severe degrees of perinatal stress, and they lived in a family environment troubled by chronic discord, parental alcoholism, or mental illness" (Werner, 1993, p. 504). Of interest to the researchers was the long-term development of these high-risk individuals and how or why their developmental paths differed from others. Werner (1993) found that, of the youth labeled as high risk, two thirds of them who had four or more risk factors by the age of 2 years

...develop[ed] serious learning or behavioral problems by age 10 and had mental health problems, delinquency records, and/or teenage pregnancies by the time they were 18 years old. One out of three of these high-risk children ($n = 72$), however, grew into competent, confident and caring young adults. None developed serious learning or behavioral problems in childhood or adolescence. (p. 504)

These results furthered the argument for possible differences in developmental path that may have influenced an individual's resilience.

The positive adult outcomes of the youth considered high risk were exemplified by low divorce rates, gainful employment, lack of problems with the law, and notable accomplishments in education and careers. Werner (1993) emphasized several possible protective factors that may help in the development of resilient individuals. They include participation in extracurricular

activities; finding emotional support outside of the family unit; having an intact family unit; experiencing positive parental interactions; having a mentor or role model; and exhibiting high self-esteem, strong cognitive skills, even temperament, and locus of control, among others. The interest in protective factors and resilience research has greatly influenced the PYD theory.

Research Leading to Positive-Youth-Development Theory

PYD theory began to gain interest in the 1990s and early 2000s (Benson, 1997; Lerner & Benson, 2003; Little, 1993). The PYD theory is widely used as a tool to help professionals understand how the positive development of youth is influenced in various contexts (e.g., Benson, 1997; Lerner & Benson, 2003; Little, 1993). As previously discussed, PYD theory is a comprehensive, strengths-based perspective on adolescent development that emphasizes specific variables that help youth in the development of positive outcomes, and which views youth as resources to be developed instead of problems to be managed (Damon, 2004; Lerner, 2005a). Healthy development may occur as youths' strengths are employed in association with other environmental influences (Lerner, 2005b; Lerner, Lerner et al., 2005a). This foundation of PYD has led to the construction of several PYD theories, such as the Search Institute's 40 developmental assets (broken down into 20 internal and 20 external assets), and the Five Cs model of PYD, among others (Lerner, 2005b; Lerner, Lerner et al., 2005a; Leffert et al., 1998; Roth & Brooks-Gunn, 2003a, 2003b; Theokas et al., 2005).

PYD programs have taken a variety of different approaches to encourage the healthy development of youth. This includes programs that are of varied duration, aimed at a variety of different demographics, within communities or schools, and focus on a several different variables within PYD. As a result of an evaluation of the literature and consultation with PYD program staff and leading scientists, Catalano et al. (1999) were able to determine 15 objectives

that PYD programs seek to achieve. These include objectives that

promote bonding, foster resilience, promote social competence, promote emotional competence, promote cognitive competence, promote moral competence, foster self-determination, foster spirituality, foster self-efficacy, foster clear and positive identity, foster belief in the future, provide recognition for positive behavior, provide opportunities for prosocial involvement and foster prosocial norms. (Catalano et al., 1999, p. 11)

Five Cs of Positive Youth Development

The Five Cs model of PYD emphasizes the variables of competence, character, confidence, connections, and caring/compassion as effective measures of important factors of PYD (Eccles & Gootman, 2002; Lerner, Fisher, & Weinberg, 2000; Roth & Brooks-Gunn, 2003a, 2003b). The Five Cs of PYD have been widely recognized as a valid measure of PYD (Eccles & Gootman, 2002; Lerner, Fisher, & Weinberg, 2000; Roth & Brooks-Gunn, 2003a, 2003b). Little (1993) originally proposed the Five Cs as the following four Cs: competence, confidence, connection, and character. A fifth C, caring/compassion, was added later (Lerner, Fisher, & Weinberg, 2000; Pittman et al., 2003). The enhancement of PYD variables may reduce the likelihood that youth will develop problem behaviors and other negative outcomes (Jelicic, Bobek, Phelps, Lerner, & Lerner, 2007). Youth who incorporate the Five Cs into their lives are on a positive developmental path that may exhibit a sixth C, contribution (Lerner et al., 2005b). As the five PYD domains are enhanced, youth are likely to make different types of positive contributions to family, community, self, and society (Lerner, 2004). Conversely, youth who do not incorporate the Five Cs, or who incorporate lower levels of the Five Cs, may be at risk for personal, social, and behavioral problems (Lerner, 2004; Lerner et al, 2005b).

For each of the Five Cs, there are one or more subconstructs, which are outlined in Figure 2-1. The subconstructs for competence include academic competence, social competence, athletic competence, and grades (Bowers et al., 2010). The confidence subconstructs include identity and self-worth (Bowers et al., 2010). Connection includes the connection a youth has to

family, school, peers, and the community (Bowers et al., 2010). The subconstructs for character include behavioral conduct, values diversity, personal values, and social conscience (Bowers et al., 2010). The caring subconstruct includes the variables of empathy and sympathy (Bowers et al., 2010).

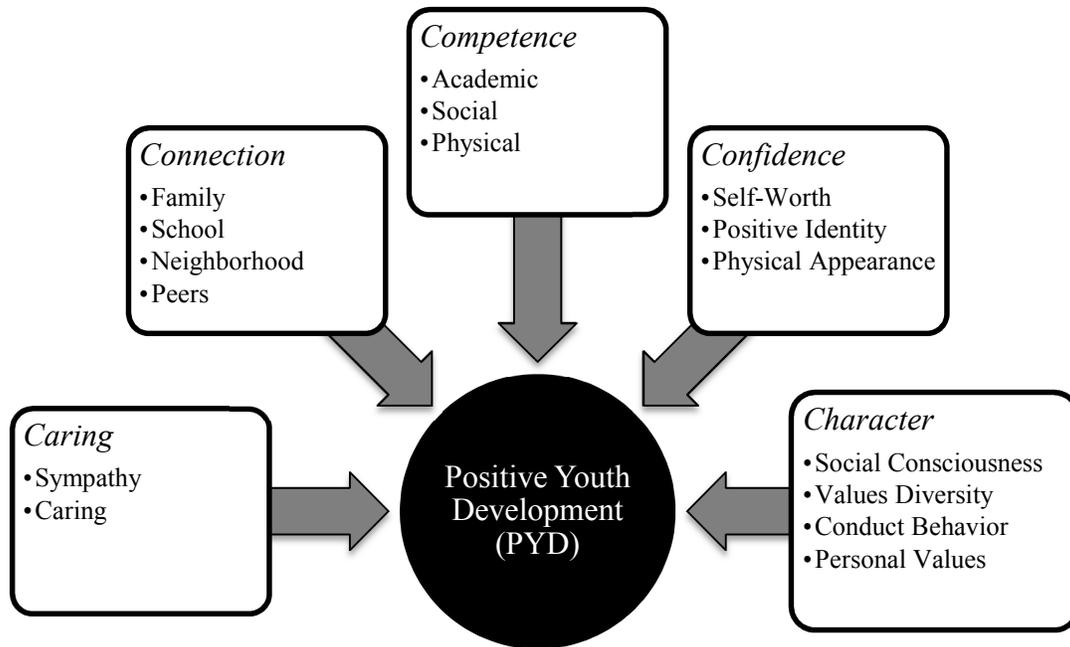


Figure 2-1. Positive-youth-development (PYD) constructs and subconstructs.

Lerner et al. (2005a) conducted one of the largest and most widely cited studies on PYD using the Five Cs and their components. This longitudinal study aimed to investigate variables in adolescence that encourage healthy development and positive adult outcomes. The study focused on youths' participation in 4-H programs as compared with those who were involved in other activities. Initially, the longitudinal study examined 1,700 fifth graders and 1,117 of their parents. The aim for the study was to survey students every year, beginning in fifth grade and continuing through twelfth grade. During the 2002-2003 school year, at the time of the first survey of fifth graders, 47.2% of the students surveyed were male, with a mean age of 11.1

years, and 52.8% were female, with a mean age of 10.9 years. One parent per student was surveyed. Other adults who completed the survey accounted for the remainder of the responses, which included grandparents, stepmothers, stepfathers, foster parents, and adults who did not specify their relationship to the child.

The survey for students focused on variables related to the Five Cs of PYD, demographic information, activity participation, and other questions related to specific topics in adolescent development. Confidence was measured using items that focused on positive identity, physical appearance, and self-worth. Competence was measured using items that evaluated academic, physical, and social acceptance. Character was measured using items that evaluated personal values, social conscience, values diversity, and conduct behavior. Caring was measured using items that evaluated sympathy. Connection, the fifth C, was measured using items regarding connection to family, school, community, and peers.

The parents' survey focused on parental/guardian information, including demographics, education level, neighborhood information, and several other subjects. Parents also answered specific questions about the child, including demographic information, and participation in groups, clubs, and activities.

Results of the first wave of the study gave baseline PYD scores for the fifth-grade individuals; these scores were used in subsequent studies of these same individuals and in studies that examine the use of the Five Cs as effective indicators of PYD. Additionally, PYD was significantly related to the sixth C, contribution. Results from the second wave of the study, which took place during the 2003–2004 school year, showed that results from the first wave were helpful in the prediction of students' contribution, lower risk-taking behaviors, and depression

during grade 6 (Jelicic et al., 2007). These results support the use of the Five Cs as an effective indicator of PYD.

As the results of several waves of the study have been examined, updates and alterations to the survey have taken place. Results from successive waves of the study have continued to support use of the Five Cs model as an effective measure of PYD (Phelps et al., 2009).

In the final report of the 4-H PYD study, Lerner et al. (2013) noted many findings from the 8-year study. By the end of the eighth wave of the research study, 7,000 participants in 42 states were examined through questionnaires. Results indicated that youth who participated in 4-H programs were more likely to make contributions to their communities, to be critically active, to have greater levels of educational outcomes, and to make healthier choices. In grades 8 and 11, participants in 4-H had significantly higher PYD scores than youth who participated in other out-of-school activities. Research findings also confirmed the Five Cs of PYD measure as a good indicator of PYD, and more specifically, the sixth C measure of contribution. Higher PYD scores were also associated with reduced risk/problem behaviors, such as bullying, substance use, delinquency, and depression.

Jones et al. (2011) studied PYD variables in adolescent sport-camp participants. The aim of the study was to see if the Five Cs model of PYD could be used as a measure of the outcomes of adolescent sport programs, as empirical evidence had suggested. Two hundred and fifty-eight adolescents (199 females, 59 males) who participated in a summer sport camp took part in the study. The mean age of participants was 13.77 years, with a range of 12 to 16 years. Participants identified 21 primary sports that they had participated in for an average of 5.52 years ($SD = 2.81$). These sports included volleyball, soccer, basketball, hockey, ringette, track and field, dance, tennis, football, cross-country skiing, swimming, gymnastics, baseball, badminton,

boxing, curling, lacrosse, rugby, show jumping, ski racing, and softball. One person did not indicate a primary sport.

Participants in Jones et al.'s (2011) study completed a modified version of the instrument used in the third wave of the 4-H study (Phelps et al., 2009) to examine the Five Cs of PYD in sport participation. Results in the study, through confirmatory analyses, did not support the Five Cs model. The researchers believed that they did not receive results that indicated the Five Cs because (a) each C may not be uniquely identified due to their stage of ontogeny, and (b) some of the Cs are so similar in nature (i.e., so highly correlated) that they are perceived as the same construct (Jones et al., p. 250).

The modified survey used for Jones et al.'s (2011) study had previously been used with participants with mean ages of 10.9 years (Lerner et al., 2005a), 10.97 years, 12.09 years, and 13.07 years (Phelps et al., 2009). Participants in Jones et al.'s study had an older mean age than those in the previous studies (13.77 years), indicating that participants in the Jones et al. (2011) study may have been in a different developmental period than participants in the Phelps et al. (2009) study. This variance emphasizes the need to ensure that instruments used for the study of PYD reflect the possible developmental differences in distinctive age groups.

In addition to Jones et al.'s (2011) conclusion that the Five Cs survey instrument should be examined for accuracy and reliability across different ages, researchers found that several items, including confidence and competence, may be measuring the same construct, as opposed to two different constructs, as was originally conceptualized (Jones et al., 2011). The researchers suggested that PYD in sport programs may be more effectively evaluated using measures that examine prosocial values and confidence/competence, rather than the Five Cs of PYD (Jones et

al., 2011). This suggestion emphasizes similar trends in adventure education (AE) research to examine programs using a few variables as opposed to larger comprehensive models.

Adventure Education

Scholarly research in AE began to grow in the 1970s as the interest in changes in self-concept influenced by adventure programs increased (Hattie et al., 1997). Since then, many studies have analyzed a variety of AE program variables, including program outcomes (Cason & Gillis, 1994; Gillis & Speelman, 2008; Hans, 2000; Hattie et al., 1997); programmatic and contextual differences (Duerden, Taniguchi, & Widmer, 2012; Haras, Bunting, & Witt, 2005); gender differences (Irish, 2006; Sammet, 2010); age of participants (Gillis & Speelman, 2008; Kiuge, 2005; Sugerman, 2001; Stiehl, 2005); length of program (Cason & Gillis, 1994; Hattie et al., 1997; Sibthorp, Paisley, & Gookin, 2007); resilience (Neill & Dias, 2001); and long-term outcomes (Sibthorp et al., 2008).

Although there is no one universally accepted definition of AE in the literature, certain variables help to define it. Several authors have noted the importance of risk-taking, experience, and personal development within their definitions (Stremba & Bisson, 2009; Wurdinger, 1997). Stremba & Bisson (2009) described client change as a vital part of AE, which includes

activities aimed at understanding concepts through adventure, that is, learning the importance of working together as a team and of support (interpersonal relationship) or the value of healthy risk taking (intrapersonal relationships). [Adventure] changes the way people think—new attitudes that can transfer to daily life. (p. 101)

AE programs vary in length: Short-term programs may last a few hours, and long-term programs may last over the course of a few months or an entire year (Desmond, 1997). AE programs have a distinct purpose: They may be therapeutic or rehabilitative or both, focus on improved or enhanced technical skills, develop leadership skills, or focus on the personal benefits through the experience of outdoor adventure. Simply having fun in the outdoors is not

enough to be considered AE because such activity lacks the personal development, reflection, analysis, and synthesis that is vital for AE (Stremba & Bisson, 2009).

AE programs typically take place in outdoor-based environments; some programs occur in remote, backcountry environments, such as in wilderness or national forest areas, and others take place in urban settings in places such as parks, schools, or recreation facilities (Bailey, 1999). AE programs involve physical activity (e.g., mountaineering, backpacking, rock climbing, challenge courses, group initiatives) as well as mental (e.g., group problem solving and decision making) and social challenges (Bailey, 1999). Participants in AE programs have varying motivations to participate, such as for healthy risk taking, by court order, for personal development, and for learning new skills. Each of these variables may be noted in Hattie's (1997) discussion of six common features of adventure programs, which included

(a) wilderness or backcountry settings; (b) a small group (usually less than 16); (c) assignment of a variety of mentally and/or physically challenging objectives, such as mastering a river rapid or hiking to a specific point; (d) frequent and intense interactions that usually involved group problem solving and decision making; (e) a nonintrusive, trained leader; and (f) a duration of 2 to 4 weeks. The most striking common denominator of adventure programs is that they involved doing physically active things away from the persons' normal environment. (Hattie, 1997, p. 44)

Although there are many types of programs, influences, and motivations to participate in programs, one comprehensive description of AE is "a type of education that utilizes specific risk-taking activities, such as ropes courses and mountaineering, to foster personal growth" (Wurdinger, 1997, p. xi). Prescott College expands on this idea and defines AE as

an experiential process that takes place in challenging outdoor settings where the primary purpose is to build and strengthen inter- and intra-personal relationships, personal health, leadership skills, and environmental understanding. (Adventure Education, 2013, para 2)

Because of the wide array of different types of programs and definitions of AE, it is important to explore the benefits and detriments of programmatic differences, such as the length of time

participants spend in the AE program. These subtle changes between programs have the possibility to change certain benefits or outcomes for participants.

Long-Term Programs

The length of time that adventure-based programs may last has been researched as a variable that may contribute to positive outcomes. Although more research needs to be conducted to determine the specific influences of program length on outcomes, two studies (Hattie et al., 1997; Russell, 2003) have found that the length of a program significantly increases the positive outcomes for participants, thus correlating longer programs with greater increases in positive outcomes.

In a meta-analysis of expedition-style adventure-program research, Hattie et al. (1997) analyzed the influence these programs had on outcomes such as self-concept, locus of control, and leadership. The researchers examined 96 studies that analyzed the outcomes of adventure-based programs that were published between 1968 and 1994. School-based outdoor-education programs were not included in the study because of their short-term duration and their lack of challenge in activities. In these 96 studies, researchers identified 12,057 participants in 151 different samples. The majority of programs (72%) took place over 20 to 26 days; the range of all studies included in the analysis was from 1 day to 120 days, with a mean of 24 days. The majority of participants were adults or university students with an average age of 22.28 years (range from 11 to 42 years); 72% of the participants were male. Most studies analyzed the immediate effects of the adventure-based program (62%), and the others used preprogram tests (18%) and follow-up tests after a duration of time ($M = 5.5$ months) following the conclusion of the program (20%).

From the 96 studies, Hattie et al. (1997) identified 40 major outcomes of adventure-based programs that they then placed into the following six categories (see Figure 2-2): leadership, self-concept, academic, personality, interpersonal, and adventuresomeness. The academic category comprised direct (i.e., math, reading) and indirect academic (i.e., GPA, problem-solving) outcomes. The leadership category comprised conscientiousness, decision making, general leadership (task leadership), teamwork leadership (i.e., seek and use advice, consultative leadership), organizational ability, time management, and values and goals. The self-concept category comprised the outcomes of physical ability, peer relations, general self (i.e., self-values, self-general, self-esteem), physical appearance, academic, confidence, self-efficacy, family, self-understanding, well-being, and independence. The personality category comprised the outcomes of femininity, masculinity, achievement motivation, emotional stability, aggression, assertiveness, locus of control, maturity, and neurosis reduction. The interpersonal category comprised cooperation, interpersonal communication, social competence, behavior, relating skills, and recidivism. The adventuresomeness category was defined using the outcomes of accepting challenge, flexibility, physical fitness, and environmental awareness. These categories and subdomains are depicted in Figure 2-2.

Results from the Hattie et al. (1997) study indicated great variability between the 96 studies in several different outcomes. The greatest variation in program effects across AE studies was in the outcomes of independence, confidence, self-efficacy, self-understanding, assertiveness, internal locus of control, and decision making. For instance, in regard to self-esteem, Cohen's effect sizes were higher for individuals participating in AE programs ($d = .26$) than for other education programs ($d = .19$). Additionally, researchers found higher outcome scores immediately and after a duration of time for programs that were longer than 20 days

compared to those programs with a duration of less than 20 days. This result is not evident just in traditional AE programs, but in those programs with therapeutic goals for participants, as well.

Russell (2003) studied 858 adolescents in seven outdoor behavior-healthcare treatment programs that utilized wilderness therapy as one of the main aspects of the program. The majority of participants in the study were from 16 years to 18 years old (75%); 69% were male. Many participants had mental illnesses, including oppositional defiant disorder (29%) and depression disorders (15%), as well as substance-abuse problems (26%). The structure of the programs in the study varied, including longer (25-week) and shorter (3-week) programs that utilized the wilderness during day trips, only throughout a portion of the program, or through full immersion in the backcountry. The wilderness components for these programs differed in the following ways:

- A 3-week-long program with the group of adolescents and staff in the wilderness for the entire duration of their participation;
- An 8-week-long program with participants immersed in the backcountry, with continuous intake and outflow of adolescents, and staff rotating on expeditions;
- A 6-week-long program based at a residential camp and that included one 2-week wilderness expedition; and
- A 25-week-long residential program that went on daytime wilderness outings.

The Youth Outcome Questionnaire (YOQ) used in Russell's (2003) research study measured the seriousness of adolescents' emotional and behavioral symptoms. Individuals whose score was reduced by 13 points or more from admission to discharge showed significant symptom reduction, and a score of 46 may indicate that an individual has recovered. Three hundred and fifty-eight client self-reports and 210 parental assessments of the YOQ were

<i>Academic</i>	<i>Leadership</i>	<i>Personality</i>	<i>Self-Concept</i>	<i>Adventurousome</i>	<i>Interpersonal</i>
Academic—general	Conscientiousness	Femininity	Physical ability	Challengeness	Cooperation
Academic—direct	Decision making	Masculinity	Peer relations	Flexibility	Interpersonal communication
	Leadership—general	Achievement motivation	General self	Physical fitness	Social competence
	Leadership—teamwork	Emotional stability	Physical appearance	Environmental awareness	Behavior
	Organizational ability	Aggression	Academic		Relating skills
	Time management	Assertiveness	Confidence		Recidivism
	Values	Locus of control	Self-efficacy		
	Goals	Maturity	Family		
		Neurosis reduction	Self-understanding		
			Well-being		
			Independence		

Figure 2-2. Categories and subdomains of the major outcomes in AE research as identified by Hattie et al. (1997).

completed at admission and discharge. Follow-up assessments were sent 12 months' posttreatment to a random sample of clients. Three hundred randomly selected clients were asked to participate in a 12-month follow-up YOQ; of these, 271 parents and 139 adolescents participated.

In all programs, significant differences in admission and discharge scores related to the child's emotional and behavioral symptoms were evident for both the adolescent survey and the related parent survey. The shorter wilderness programs, however, resulted in the least amount of change from admission to discharge. The 8-week program showed a 25.51-point reduction in scores from admission to discharge for adolescents and a 63.44-point reduction in parent scores. This compares with the 7-week base-camp model, which had a greater reduction in adolescent scores (31.04 points) but a smaller reduction in parent scores (45.08 points). This shows a greater reduction of symptoms for youth in the longer programs compared to those in the shorter programs.

Although not statistically significant, slight decreases in scores (8.64 points) occurred in a random sample of 99 adolescents after discharge, 12 months posttreatment. This outcome indicates a slight reduction of symptoms from discharge to 12 months posttreatment. Again, although the results are not statistically significant, a random sample of 144 parents also reflected a slight increase in scores (3.73 points) from discharge to 12 months posttreatment. This increase means that these adults continued to see increases in negative emotional and behavioral symptoms in the adolescents, even 12 months after the program. The scores of younger adolescents (from 13 to 14 years old) dropped 25 points from discharge to 12 months' posttreatment, and female scores dropped more than males from admission to 12 months' posttreatment. This outcome, for students in all types of programs, indicates that younger

adolescents experienced greater decreases in negative emotional and behavioral symptoms, and at a greater rate, than older adolescents.

Because the sample size was so small for the 12-month posttest, results according to the different program lengths are not reliable. According to both the parent and adolescent surveys, the scores were higher (meaning more behavioral and emotional symptoms) at discharge for programs that were less than 21 days long than those programs that were longer (56 days). At the 12-month posttreatment marker, no differences between programs were evident in scores for either the parent or adolescent surveys. This outcome highlights an important recommendation of many researchers, which reflects the need for more methodologically rigorous, long-term-outcome studies.

In contrast to previous research (Hattie et al., 1997; Russell, 2003) that emphasized the benefits of longer programs, a study from Sibthorp et al. (2008) showed no significant differences between shorter and longer programs. In these researchers' analysis of the long-term effects of AE programming with National Outdoor Leadership School (NOLS), they observed no significant differences in the transfer of lessons from the field to home between semester-long courses and those that were typically one month in length. The study included two phases: the first to understand what individuals were gaining from NOLS courses, and the second to understand the importance of those lessons in the everyday life of the NOLS alumni. Researchers interviewed 41 NOLS alumni (aged 16 to 22) who participated in a one-month-long backpacking course between 1995 and 2005 (the interviews occurred from 3 years to 13 years after completion of the NOLS courses) to understand the lessons that the alumni had learned from a NOLS course and used in everyday life. These lessons included the following: appreciation of nature; desire to be in the outdoors; outdoor skills; cooking skills; taking care of oneself and

his/her needs; communicating effectively; working as a team member; managing conflicts with others; making informed and thoughtful decisions; serving in a leadership role; patience; ability to plan and organize; personal perspective on how life can be simpler; functioning effectively under difficult circumstances; getting along with different types of people; identifying one's own strengths and weaknesses; and self-confidence. The findings suggested that NOLS alumni learned important lessons in everyday life in both semester-long and month-long courses.

Using the results of the initial interviews, Sibthorp et al. (2008) then created a questionnaire to examine the importance of the learning areas identified in everyday life, and how NOLS and other settings influenced the learning area. The questionnaire included both Likert-scale statements and open-ended questions to examine the importance of the learning areas in everyday life as they relate to NOLS. The survey was completed by NOLS alumni who had been on a single NOLS course between 1997 and 2006, with a total of 458 participants. The average age of participants at the time of the survey was 30.3 years, and 53% were male. Thirty-one percent of participants were on short NOLS courses (approximately 2 weeks), 48% were on month-long courses, and 21% participated in semester-long courses.

Participants in all three courses of different duration indicated the greatest value in everyday life for the learning objectives of leadership, self-confidence, and teamwork. Results also revealed support for value in everyday life for outdoor skills, functioning effectively under difficult circumstances, changes in life perspective, group leadership, a desire to be in the outdoors, and an appreciation of nature. The length of time between when participants completed the NOLS course and when they took the survey made no difference in their use of the learning areas in everyday life. Individuals on the semester-long course did not have markedly different learning objectives from those on the 2-week or 1-month-long courses. This outcome

contradicted previous research that suggested that participants in longer courses typically have greater increases in several types of positive outcomes than those in short courses (Hattie et al., 1997; Russell, 2003). In light of this finding, the researchers suggested that

Thirty days in the backcountry includes the steepest learning curve for most of the transferable lessons, and that additional time involves less intense learning or covers academic content (e.g., ecology, wildland ethics), or more in-depth skill development, which remain less immediately relevant to most participants. (Sibthorp et al., 2008, p. 98)

These results indicate that many outcomes stem from AE programs, and further research needs to be conducted regarding the programmatic influences on long-term and short-term programs that lead to beneficial outcomes.

Short-Term Programs

Short-term expedition-style programs (less than 30 days) have been the focus of several studies in AE (Curtner-Smith & Steffen, 2009; Duerden et al., 2009). Few studies, however, focus specifically on outcomes of adventure-focused, semester-long, school-based programs. The programmatic emphases of these school-based programs vary from environmental outdoor education to AE and other academic areas. These programs tend to focus on half-day to multiday participation for children and youth. Programs that are less than 1 day are emphasized as standalone programs or as a support for other longer programs. Consecutive-day programs may immerse participants in experiential activities that may include expedition programs in which students are away from home participating in adventure experiences for successive days (Smith, Steel, & Gidlow, 2010). For example, students may participate in a 4-day outdoor education program in which they are immersed in experiential lessons on tree identification, team building, weather, outdoor living skills, and historical events.

Sibthorp and Arthur-Banning (2004) have emphasized the need for future studies in AE that have large sample sizes and that focus on program length as a variable. Many studies on

adventure-based programs within schools focus on short-term schedules, and few studies examine semester-long physical education (PE) programs. This finding mirrors the availability of these types of programs within schools, with short-term programs being more prevalent than semester-long (or longer) programs.

School-Based Adventure Programs

Although the majority of adolescent AE research has focused on expedition-style programs, several schools have a history of incorporating adventure-based programming into their daily curriculum. School districts have implemented AE into curricular offerings through PE courses, extracurricular activities, and other curricular and noncurricular offerings. PE programs have increasingly incorporated adventure-based activities since Project Adventure began implementing principles from Outward Bound programs into high schools in the 1970s (Neill, 2005). In 1972, Project Adventure built the first indoor ropes course at a high school; the course was used to teach students principles from Outward Bound programs (Neill, 2006). Throughout the 1970s and 1980s, more indoor ropes courses were built in high schools, and many schools throughout the United States used the Project Adventure curriculum (Neill, 2006). Although adventure-based programming gained momentum, traditional PE programs continued to be a way to meet many of the national, state, and local curricular requirements and the physical needs of students.

Expeditionary Learning Outward Bound (ELOB) schools began as a joint effort between Outward Bound and the Harvard Graduate School of Education in order to develop experiential, project-based programming in schools that met and exceeded academic standards (Expeditionary Learning: History, 2012a). ELOB schools utilize adventure activities, service projects, and other project-based learning expeditions to support academic content. Although the schools' programs

are not entirely AE based, many of the learning projects incorporate adventure, or key ideals shared by AE. For example, in Portland, Oregon a lesson about native and invasive species was conducted by having students help with the restoration of a wetland; the project included planting 300 native plants, trees, and shrubs; collecting trash; and testing water quality (Fong, 2011).

In the early 1990s, the nonprofit Academy for Educational Development (AED) evaluated 10 schools to assess the ELOB models created by the Harvard Outward Bound project. After a 3-year evaluation period, the evaluation team found positive impacts from the school programs in several areas, including student outcomes, quality of teaching, and school climate and relationships (Weinbaum et al., 1996). By 2008, 165 schools in 29 states had incorporated the Harvard Outward Bound model (Expeditionary Learning, 2012a).

ELOB schools emphasize five key dimensions of life in school: learning expeditions, instruction, culture and character, assessment, and leadership (Expeditionary Learning, 2012b). The design principles of ELOB schools emphasize core values of expeditionary learning: having wonderful ideas; demonstrating empathy and caring, collaboration and competition, diversity and inclusion, service and compassion; taking responsibility for learning; and experiencing success and failure, the natural world, and solitude and reflection (Expeditionary Learning, 2012b). While many ELOB schools have adopted engaging lessons to teach students, there are still many traditional schools where students do not feel engaged.

Rikard and Banville (2006) examined high-school students' attitudes toward PE class. Their study focused on 515 students in 17 PE classes from six high schools who participated in the study. The participating students completed questionnaires regarding their perceptions of their knowledge gained, their skill and fitness levels, and the duration of their time in activities

during PE classes. Additionally, 159 of the same participants partook in focus-group interviews. Results of the study indicated that youth enjoyed activities that were centered on play over those that were focused on fitness. They attributed much of their dislike of fitness activities to the limited and dull options available. Students also liked PE classes because they thought PE was fun. In identifying their dislikes for PE courses, individuals stated they did not like to run, they felt classes were boring, and they did not improve fitness levels. Students indicated that they yearned for more challenge and also more variety in the sports offered in PE classes. Many students indicated that they had played the same type of team sport (e.g., basketball) since elementary school, and they wanted to learn something new. Recommendations for activities from these students included the implementation of outdoor, adventure-based and PE activities in the curriculum, including rock climbing, rollerblading, bicycling, yoga, Tae Bo, roller hockey, disc golf, and step aerobics. These recommendations include several adventure-based activities that have been successfully implemented in many PE classes in schools.

One example of a school that has successfully implemented an ABPE curriculum is Fairview High School in Boulder, Colorado. This high school has implemented activities such as kickboxing, rock climbing, mountain biking, juggling, jumping rope, unicycling, and downhill skiing into its curriculum (Gard, 2002). Mary Ann Briggs, the head of the PE department, stated, “In traditional PE if you weren’t good at a sport you didn’t get a workout. Many kids stood around the whole period... [These classes] give students skills they can use throughout life” (Gard, 2002, p. 17).

Today, outdoor adventure-based curricula are common in many schools throughout the United States. In some schools, ABPE classes may be supported with structural foundations such as rock walls and ropes courses, while in other schools teambuilding activities or hiking may

help to support the curriculum. This research suggests clear interest for AE programs in PE classes at schools. As they create the curriculum and program aspect of these classes, it is important for educators to understand the benefits and outcomes of AE programs.

Benefits and Outcomes of Adventure-Education Programs

The benefits and outcomes of AE activities have been examined in the literature (Duerden et al., 2009; Paisley, Furman, Sibthorp & Gookin, 2008), and it is apparent that students in AE programs gain benefits in different contexts (Paisley et al., 2008) and through different activities (Duerden et al., 2009). Increasing our understanding of the benefits and positive outcomes AE experiences provide has been a vital piece of AE literature. For example, Rikard and Banville (2006) examined the process by which learning occurred in adventure-based programs at the National Outdoor Leadership School (NOLS). The research participants consisted of 1,200 students, ages 14 to 56 years (average age, 24.9 years), who were enrolled in various NOLS courses between May and August of 2005. Fifty-nine percent of the participants were male. At the end of their course, students completed a questionnaire, which consisted of questions that examined focus-group outcomes, demographics, and course characteristics. Additionally, there was an open-ended question for one learning objective of each student's choice: "Out of all of the ways you learned about this objective, which was the most effective and why?" (Paisley et al., 2008, p. 204).

Rikard and Banville (2006) identified six objectives that NOLS aims to teach on a course. NOLS identified these target outcomes for all courses as leadership, communication, small-group behavior, judgment in the outdoors, outdoor skills, and environmental awareness. Study results also indicated five specific contexts during the NOLS course in which students learned the six objectives NOLS had identified for each course. These contexts were related to the

structure of the course, the instructor, the students, the student and instructors together, and environmental qualities. Many objectives were met more frequently through only a few specific contexts, but others were met through several.

Learning outdoor skills was most frequently connected to experiences involving students, such as course experience (39%), practice (19%), and autonomous student action (7%). Learning leadership skills was most frequently connected to the structure of the course, including experiences that were connected to leadership opportunities (24%), leader of the day or independent student-group-travel experience (16%), and small-group expedition experience (9%). Judgment in the outdoors was most frequently connected to student and instructor experiences. Student experiences included the course experience (34%) and autonomous student action (9%). Instructor-experience domains included classes (15%), coaching (12%), role modeling (9%), scenarios (3%), and debriefing (2%). Learning small-group behavior was most frequently connected to student experiences, including course experience (37%) and social dynamics (21%). Learning communication skills was most frequently connected to experiences related to the student, instructor, and combined student and instructor experiences. Student experiences included course experiences (38%). Instructor-oriented domains included classes (21%), coaching (15%), feedback (13%), and debriefing (8%). Role modeling (5%) was evident in the student and instructor experiences. Results from this study suggest that there are several different ways in which students may learn the objectives that NOLS has for each of its courses (Rikard and Banville, 2006). This study also suggests that participants of different ages may gain similar outcomes, which emphasizes the need to continue to understand how specific developmental needs are met through adventure programming for persons of different ages.

Duerden et al. (2009) compared the link between the adventure-based activities of backpacking, white-water rafting, and exploration (e.g., mountain biking, leadership training, wilderness skill training, and environmental education) to identity development in 11- to 15-year-olds. There were 87 participants in the study, of whom 45 participated in a 2-week adventure program and the remainder were in the control group and did not participate in the adventure program. Researchers used the Erikson Psychosocial Stage Inventory (EPSI) to examine the participants' industry, identity, and intimacy. Participation in the adventure recreation program was found to positively impact identity development. Significant increases in the areas of industry, identity, and intimacy were observed in those in the program from the beginning to the end of their participation in the activities. Furthermore, Duerden (2006) found that, although adventure-based activities have different challenges, risks, and opportunities, all activities impacted participants' identity development to a similar degree; and no one activity stood out above the others as having a great impact on a participant's identity development. This study suggests that multiple AE activities positively influence youth development, and youths' identity may be enhanced through AE experiences.

Conclusion

From examination of the extant literature, it is clear that a need exists for a comprehensive research study that examines the Five Cs of PYD and adventure-based programming in schools. The connection between adventure-based programs and PYD has not been extensively examined in previous research studies. Having this information is vital at a time in which adventure-based programs have become more popular and are more ingrained in American culture.

PYD is a specific subtopic of the overarching subject of adolescent development. Research supports the concept that increased PYD is linked to healthy outcomes, including contribution (Lerner, 2004; Lerner et al., 2013). Youth who incorporate the Five Cs into their lives are more likely to contribute “to self, family, community, and to the institutions of a civil society” (Lerner et al. 2013, p. 10). Because research using the Five Cs of PYD measure is still in its infancy, there is a great need to increase our understanding of how different contexts influence youth development.

AE research, while not as robust as PYD research, has affirmed many benefits of adolescents participating in adventure-based programs. Included in the current published research studies are indications that there are greater positive outcomes for participants in longer-term adventure programming (Hattie et al., 1997; Russell, 2003), and positive impacts from implementing adventure curriculum into public schools (Weinbaum et al., 1996). Several adventure-based research studies have included certain variables of PYD theory. These include Duerden et al.’s (2006) findings that identity development was positively related to participation in adventure programs. Although many of the current research studies help us to understand the impact of adventure programs using one or two variables, they lack the use of comprehensive models that can also compare results across contexts.

Research suggests that there are many benefits of AE programs for a variety of participants, and that small, programmatic changes may influence the outcome of the experience for participants. Although several studies have examined AE, school-based AE programs, and PE, there are currently no studies that examine ABPE classes across an entire semester using the comprehensive Five Cs of PYD measure. Those findings are important to understand how

participation in an ABPE class may influence PYD in students, and also the loss of benefits to youth if such programs are cut.

This research study aimed to examine the relationship between a high-school, adventure-based physical education (ABPE) class and positive youth development (PYD) outcomes throughout the course of a semester. To gain the best understanding of how ABPE classes affect PYD in students, I examined the following questions in this study:

- (a) In comparing a comparison group and participants in a high-school ABPE class, what differences are found in pre- and post-PYD scores for each group?
- (b) Are there different changes in PYD scores between students in the Adventure 1, Adventure Leader Training, Adventure Outdoor Education, and Adventure Leader classes?
- (c) Are there differences in amounts and directions of change in PYD for different demographic variables (sex of participant and year in school)?

CHAPTER 3: METHOD

This research study aimed to examine the relationship between a high-school, adventure-based physical education (ABPE) class and positive youth development (PYD) outcomes throughout the course of a semester. The research study included a sample of students from an urban high school that is known for high academic standards. The measure used for the research study was the Five Cs of PYD measure, which has been shown to be an effective measure of PYD in adolescents.

Research Design

I conducted the research study using a quantitative research design in order to understand the effects of ABPE classes on the PYD of those students compared to the PYD in students who are not taking the ABPE classes. Additionally, I examined differences between students in different types of adventure classes. I used a pretest/posttest, quasi-experimental design in the study and examined both groups extracurricular activity participation prior to the analysis to control for confounds.

Research Context

I specifically selected the high school in this study because of the longevity of the adventure-education (AE) program within its physical-education (PE) department. Adventure-based programming at the high school began in 1977 with the inclusion of an Outdoor Education class. This class included content areas such as bicycling, backpacking, rock climbing, and Project Adventure teambuilding activities. The first rock-climbing wall was built for the program in 1982 out of wooden handholds, and low and high ropes courses were built and added to the program in 1994. Since then, several more structural additions have been built to support this

program, including outdoor gear sheds. The indoor rock wall also was updated, and an outdoor rock-climbing wall was built that supports both a top rope and lead climbing. The school also has added several other adventure-based classes, including adventure water sports (scuba and kayaking), a class on how to facilitate adventure activities, and a renewed outdoor-education class.

Students in the Adventure Leader class have typically been through at least two semesters of adventure classes prior to being enrolled in the Adventure Leader class. The prior two semesters consist of Adventure 1, where students partake in teambuilding, the ropes course, and rock-climbing activities; and Adventure Leadership Training, where students learn how to facilitate and manage participants in teambuilding, rock-climbing, and ropes-course activities. The Adventure Leader class requires students to act as student teachers in an Adventure 1 class, along with other peers who have the prerequisites to be adventure leaders. As adventure leaders, students are required to create lesson plans, facilitate activities, and complete processing sessions with the participants in the Adventure 1 class.

Participants

The sample for the study included students who were enrolled in ABPE classes offered at an urban high school as the intervention group, and students in general-education (GE) and other elective classes as the comparison group. The final list of classes from which I sought student participation was dependent on the assent of instructors to have their classes participate. The informational letter inviting teachers to have their classes participate in the research study can be found in Appendix A. Participants also were required to have parental consent to participate in the study.

Nineteen teachers agreed to have 54 different classes solicited for student participation in the research study. Forty-three of the classes were in the physical education (PE) or health department, seven were in the math department, two were in fine arts, and one was in special education. At the information session, approximately 1,000 Invitation to Participate in Research Study forms and sample surveys were given to students who were interested in participating in the research study. A copy of this form can be found in Appendix B.

At the time the pretest was administered, students submitted their completed Invitation to Participate in Research Study forms. Of the 54 classes that agreed to allow researchers to invite participation in the research study, 39 classes had students who did participate, and 15 classes had no students who agreed to participate in the study. Before students completed each survey, I read specific directions to them, which can be found in Appendix C. The number of students who participated in each class ranged from 1 to 13. Figure 3-1 shows the frequency distribution of students in each class who participated in the research-study throughout the survey.

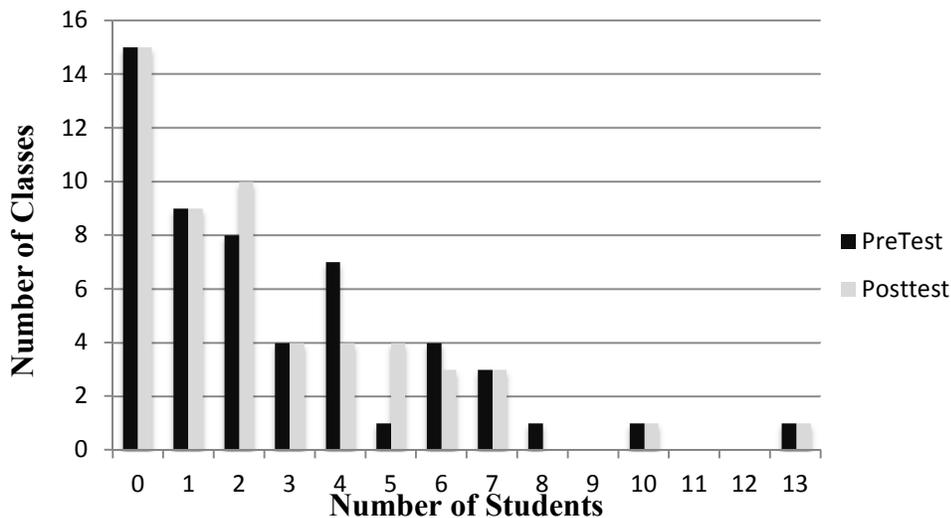


Figure 3-1. Number of students in each class who completed pretest and posttest surveys.

Fifteen classrooms that I visited during the Invitation to Participate in Research Study class period did not have any students who ended up participating in the study, which is

represented by the 0 in Figure 3-1. The majority of classrooms had from 1 to 7 students participate in the study during either the pretest or posttest, and two classrooms had high participation rates throughout the research study, with 10 and 13 students respectively completing both surveys.

In all, 148 students agreed to participate in the research study. Of those, 146 completed the pretest survey and 140 completed the posttest survey. From the nearly 1,000 students who showed interest in the research study by taking an informational packet during the time they were solicited to participate, these numbers represent an approximate 14.6% response rate for the pretest. Two missing students did not complete the pretest survey because they were absent during the day it was administered. I made several attempts to get the missing surveys completed, without any success. Forty-eight students represented the intervention group, which comprised those from students who were currently enrolled in at least one adventure class. Ninety-eight students represented students in the comparison group who were not currently enrolled in any adventure classes. One student in the intervention group and five students in the comparison group who completed the pretest were absent during the day the posttest was conducted. Therefore 47 students were in the intervention group and 93 students were in the comparison group that completed the posttest

For the posttest, 140 participants completed surveys. This number represents a 96% retention rate from the pretest to the posttest. Additionally, it represents a 14% participation rate from the original approximately 1,000 students who obtained information packets at the solicitation class. Two of the students who had completed the pretest survey withdrew their consent, and six students either were absent from class the day the posttest surveys were administered or dropped the class that the survey was administered in. In the posttest, 47

completed surveys represented students in the intervention group. Ninety-three completed surveys represented students in the comparison group.

Surveys completed by students in the Adventure Leadership Training and Adventure Leader class did not change from the pretest to the posttest, and one fewer survey was collected in the posttest from both the Adventure and Adventure Outdoor Education Class. I examined a total of 286 completed surveys, which included 146 students who completed the pretest and 140 students who completed the posttest, for the research study. This indicates a 96% attrition rate from pretest to posttest. Figure 3-2 shows the number of students in each type of adventure class who completed the pretest and posttest surveys.

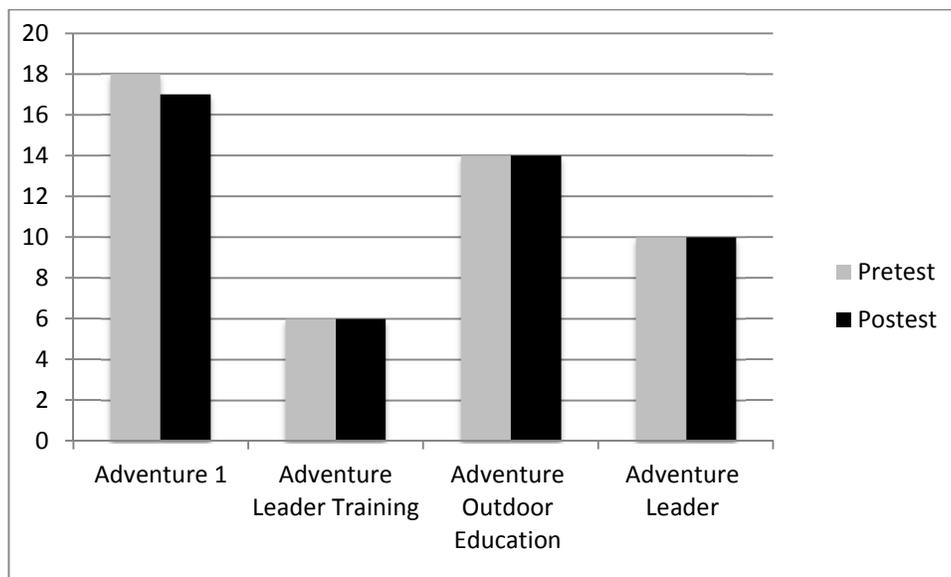


Figure 3-2. Pretest and posttest participation rates in adventure classes.

Measures

I used one survey instrument in the research study, the measure of PYD derived from the Five Cs of PYD (Lerner & Lerner, 2005a) model for grades 8 through 12 (Bowers et al., 2010). This measure will be herein referred to as the Five Cs of Positive Youth Development (PYD) measure. In addition to the 34 questions on the Five Cs of PYD measure, I added five questions. For example, to assess control-group contamination, the survey included one question about

students' participation in other activities and programs outside of school. Demographic questions included those about students' gender and year in school. And to identify the subject area and classes that students were taking, one question asked them to list the subject areas and specific classes they were enrolled in for the fall 2014 semester. A copy of the survey can be found in Appendix D.

Positive Youth Development Survey

Lerner, Lerner et al. (2005a) originally developed and used the Five Cs of PYD measure in a longitudinal study. The original Five Cs of PYD measure had 78 items on the questionnaire. Updates to the measure have included reducing the number of items, which has resulted in the Short Form (34 items) and Very Short Form (17 items). The Five Cs of PYD measure for grades 8 through 12 is a modified version of the original Five Cs of PYD measure for grades 5 through 7. The grade 8-through-12 version includes changes in scales to reflect appropriate developmental considerations for middle adolescence (Geldhof et al., 2012). Since its creation, both versions of the assessment have been used in several studies (Jones et al., 2011; Phelps et al., 2009) and modified to meet the needs of different populations and research studies (Geldhof et al., 2012). Each of the Five Cs (competence, character, confidence, connection, caring) is evaluated by subscales, as shown in the previously referenced Figure 2-1.

Items on the measure that are used to evaluate the Five Cs were adopted from other instruments, including the Search Institute's *Profiles of Student Life: Attitudes and Behaviors* survey (Search Institute, 1996), the *Self-Perception Profile for Adolescents* (Harter, 1988), *Teen Assessment Project (TAP)* survey (Small & Rogers, 1995), the Eisenberg Sympathy Scale (ESS) (Eisenberg et al., 1996), and the *Empathetic Concern Subscale of the Interpersonal Reactivity Index* (Davis, 1980, 1983). I discuss each of the Five Cs in this section, including examples of

items on the Five Cs survey and on the survey of origin for each item. I conducted the current research study using the short-form (34 items) Five Cs of PYD measure.

The Five Cs of PYD tool measures competence using six items that examine academic, social, and physical competence. The tool examines these subscales using items from the *Self-Perception Profile for Adolescents* (Harter, 1988). The items are in a structured alternative-response format, which asks participants to choose, between two different types of teenagers, which one they believe they are most like, and then whether the description is “sort of true for me” or “really true for me.” See Table 3-1 for examples of each subcategory of competence.

Table 3-1
Example of Alternative-Response-Format Items on the Five Cs Positive Youth Development (PYD) Instrument

Mark only one X for each pair of sentences:					
	Really True for Me	Sort of True for Me		Sort of True for Me	Really True for Me
Academic Competence		Some teenagers feel that they are just as smart as others their age.	BUT	Other teenagers aren't so sure and wonder if they are as smart.	
Social Competence		Some teenagers have a lot of friends.	BUT	Other teenagers don't have very many friends.	
Physical Competence		Some teenagers think they could do well at just about any new athletic activity.	BUT	Other teenagers are afraid they might not do well at a new athletic activity.	

The Five Cs tool measures character with eight items related to social conscience, values diversity, conduct behavior, and personal values. The tool uses items from the *Profiles of Student Life: Attitudes and Behaviors* survey (Search Institute, 1996) to measure values diversity, personal values, and social conscience. Participants are asked to rate the importance of each item in their daily lives with a Likert-scale range from 1 (*not important*) to 5 (*extremely important*). An example of a social-conscience item is “Helping to make the world a better place to live in.”

An example of a personal-values item is “Doing what I believe is right even if my friends make fun of me.” An example of a values-diversity item is “Knowing a lot about people of other races.”

The Five Cs of PYD tool measures conduct behavior using items from the *Self-Perception Profile for Adolescents* (Harter, 1988), which has the structured alternative-response format previously described. An example of an item of this type is “Some teenagers usually act the way they know they are supposed to BUT Other teenagers often don’t act the way they are supposed to.”

For evaluating caring, the tool includes six modified items from the ESS (Eisenberg et al., 1996) and items from the *Empathetic Concern* subscale of the *Interpersonal Reactivity Index* (IRI) (Davis, 1983). These items use a Likert-scale response format to measure how well statements describe the individual, using values ranging from 1 (*not well*) to 5 (*very well*). An example of a caring item is “When I see someone being picked on, I feel sorry for them.”

For evaluating connection, the Five Cs of PYD tool includes eight items related to connection to family, neighborhood, school, and peers. These items come from the Search Institute’s *Profiles of Student Life: Attitudes and Behaviors* survey (Search Institute, 1996). Each item includes a statement followed by a Likert (1 to 5 scale) to determine how much the student agrees or disagrees with the statement. An example of a connection-to-neighborhood item is “Adults in my town or city listen to what I have to say.” An example of a connection-to-school item is “Teachers at school push me to be the best I can be.” An example of a connection-to-family item is “In my family I feel useful and important.”

Items from the *Self-Perception Profile for Adolescents* (Harter, 1988) provide the tool’s assessment for students’ connection to peers. The related items ask students how true a statement

is for them, with answers ranging from 1 (*never true*) to 5 (*always true*). An example of an item for connection to peers is “My friends care about me.”

The Five Cs tool uses six items with the subscales of self-worth, positive identity, and appearance to examine confidence. Items from the *Self-Perception Profile for Adolescents* (Harter, 1988) facilitate assessment of self-worth and physical appearance; in a structured-response format, they ask students to identify from two choices which item is either “sort of true” or “really true” for them. An example of a self-worth item is “Some teenagers are happy with themselves most of the time BUT Other teenagers are often not happy with themselves.” An example of an appearance item is “Some teenagers really like their looks BUT Other teenagers wish they looked different.” The Five Cs tool uses items from the *Profiles of Student Life: Attitudes and Behaviors* survey (Search Institute, 1996) to assess students’ positive identity. Students are asked how much they agree or disagree with a statement using a scale that ranges from 1 (*strongly disagree*) to 5 (*strongly agree*). An example of an item measuring positive identity is “All in all, I am glad I am me.”

Validity and reliability. Researchers have previously examined the validity and reliability of the PYD measure for individuals in grades 8 through 12 (Bowers et al., 2010; Geldhof et al., 2012). Two separate research studies measured internal consistency using Cronbach’s alpha for both the Five Cs as a measurement of PYD and each of the domain scores for the Five Cs (Bowers et al., 2010; Geldhof et al., 2012). Results indicate that using the full measure with youth grades 5 through 12 produced a range of Cronbach’s alphas that fell in the good or excellent ranges for the Five Cs: competence ($\alpha = .80-.86$), confidence ($\alpha = .80-.92$), character ($\alpha = .89-.93$), caring/compassion ($\alpha = .80-.88$), and connection ($\alpha = .89-.92$) (Geldhof et al., 2012). Bowers et al. (2010) examined the domains for each of the Five Cs with youth in 10th

grade; this study also revealed acceptable or better Cronbach's alphas. The study included the subconstructs for the following:

- (a) Competence: academic ($\alpha = .81$), social ($\alpha = .80$), athletic ($\alpha = .86$)
- (b) Confidence: self-worth ($\alpha = .82$), positive identity ($\alpha = .88$)
- (c) Character: social consciousness ($\alpha = .87$), values diversity ($\alpha = .81$), conduct behavior ($\alpha = .77$), personal values ($\alpha = .87$)
- (d) Caring and compassion: caring ($\alpha = .84$)
- (e) Connection: family ($\alpha = .90$), neighborhood ($\alpha = .90$), school ($\alpha = .82$), peers ($\alpha = .97$)

Reliability was also measured using stability coefficients across three measurement occasions (grade 8, grade 9, and grade 10). The results showed correlations of .55 for grade 8 to grade 10 measurements, .66 for grade 8 and grade 9 measurements, and .67 for grade 9 and grade 10 measurements.

Bowers et al. (2010) also conducted a longitudinal analysis of measurement invariance and confirmatory factor structure with youth from early adolescence to midadolescence. They examined validity for the full measure and found convergent and discriminant validity of the constructs. Results indicate that all domains had factor loadings that were greater than .70, which suggests high associations for predictor variables of the Five Cs and PYD (Gliner, Morgan, Leech, 2009).

Geldhof et al. (2012) used confirmatory factor analysis to ensure that the factor structure of PYD stayed the same with the existence of certain outcomes that included contribution, depression, risk behaviors, substance abuse, and delinquency. Previous research and literature suggest that PYD scores may be positively correlated with contribution and negatively correlated

with depression, risk behaviors, substance abuse, and delinquency. In the short form and very short form, PYD scores associated positively with contribution and negatively with risk and depression (Geldhof et al., 2012; Jelicic et al., 2007). Therefore, the short and very short form are both appropriate instruments for measuring PYD.

Geldhof et al. (2012) also used longitudinal confirmatory factor analysis to examine the short and very short form to establish factorial invariance throughout different models, each of which evaluated different grade-level spans (model 1: grades 5 through 7; model 2: grades 7 through 9; model 3: grades 9 and 10; and model 4: grades 10 through 12). The short-form evaluation showed invariance across ages. The very short form, however, showed partial invariance across all models, which gives researchers the capability to approximate the developmental paths students typically make throughout adolescence, with the exception of the character construct, which was shown to change in high school. Additionally, the Five Cs were shown to be good measures of PYD; however, the domains of social competence, physical competence, and physical appearance were weakly correlated with PYD. This weak correlation indicates that although the main constructs are good indicators of PYD, some of the subconstructs do not have consistently high loadings with the other PYD measures. To obtain answers from students in a shorter period of time, the current study used the short form for the evaluation of the Five Cs for students in ABPE classes.

A panel of 13 researchers who are familiar with the Five Cs theory and PYD also examined the validity of the Five Cs of PYD measure to independently examine each domain's relevance to one of the Five Cs (Bowers et al., 2010). There was an 80% agreement among the researchers regarding the domains' overall relevancy to the Five Cs. Slight changes were made to the instrument by the publishers of the original instrument after this examination, and the

updated instrument was assessed for goodness of fit. This comprehensive evaluation process indicates that each of the Five Cs is an effective indicator of PYD.

Procedures

I solicited teachers to encourage student participation in the research study by allotting a short period of time, during one class period at the beginning of the semester, for me to dispense information regarding the research project, including the consent forms. I also went to those classes twice throughout the semester to administer the surveys, once at the beginning of the semester and once at the end.

Letters inviting students' participation in the research study, one informed consent form, and a copy of the survey were sent home with students interested in participating in the research study. This informational session took approximately 5 to 10 minutes in each class during the week of Monday, August 18, 2014 through Friday, August 22, 2014. To be included in the study sample, each student and at least one parent or guardian had to complete and sign an informed-consent form. Students who were age 18 or older did not have to obtain parental consent and could sign for themselves. The students returned the signed consent forms to the teachers in the selected classes. These consent forms were given to me during the class period in which the pretest was administered.

Once at the beginning of the semester and once at the end, I visited each classroom that agreed to participate in the research study to administer the survey. The pretest survey took place between Monday, August 25, 2014, and Tuesday, September 2, 2014. The posttest took place at the end of the semester, between Thursday, January 8, 2015, and Friday, January 16, 2015. I gave instructions to students and dispersed and collected surveys during their regular classroom hour. During the posttest survey session, I disbursed a copy of each student's Agreement to

Participate in Research Study form, completed with my signature on it so students could retain the document for their records.

The location where the surveys took place varied from classroom to classroom depending on the teachers' preference and space available. Although my preference was that one quiet and isolated location would be available for surveys to be completed, this was not possible because of space limitations, time constraints, and teachers' preferences. Locations in which the surveys were completed included meeting rooms, teacher offices, outdoors, a separate space within the classroom, and in the hallway.

Student confidentiality was of utmost concern throughout the research study. To track participants and to comply with district privacy rules, two teachers worked together to recode students' names to numbers on the survey. A district teacher retained a copy of a master code sheet for each student and the original copies of all informed-consent forms. I compiled information for all surveys and results on my computer, which is password protected.

Descriptive Analysis

One hundred and forty six students participated in the pretest (51%) and 140 students participated in the posttest (49%). Of the 146 students participating in the pretest, 48 (33%) were in the experiential group, and 98 (67%) were in the comparison group.

Examination of the variable of students' year in school revealed that students from every class level participated in the study, with the greatest overall response from sophomores ($n = 115$) and the least response from freshman ($n = 20$). Within the comparison group, the greatest overall response rate was from sophomores ($n = 89$). Within the intervention group, the greatest overall response rate was from seniors ($n = 32$).

Students from all years in high school were included in the overall sample, which included freshman (7%), sophomores (40%), juniors (23%) and seniors (29%). Similar rates of participation were seen based on students' year in school in both the pretest and the posttest. The frequency distribution of year in school is not representative of the sample population; however, there was sufficient representation from each group to make general comparisons. The low rate of freshmen in the sample may be a result of a greater number of required courses that they must take compared to students in other class levels. Freshman students are required to be enrolled in all core subject areas and also a freshman seminar. In comparison to other class levels this schedule decreases the number of open class periods available for freshman students to choose to take an elective. Table 3-2 shows the frequency distribution of students' year in school for the pretest, Table 3-3 shows the frequency distribution for the posttest, and Table 3-4 shows the total distribution for the full year in school.

Table 3-2
Pretest Frequency Distribution Based on Year in School

Year in School	Pretest Frequency					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Freshman	4	4%	6	13%	10	7%
Sophomore	46	47%	13	27%	59	40%
Junior	21	21%	13	27%	34	23%
Senior	27	28%	16	33%	43	29%
Total	98	100%	48	100%	146	99%

I also examined students' gender, which revealed a greater overall participation rate from females (63%) than males (36%). Within the comparison group, there was a greater overall response rate from females in both the pretest ($n = 65$) and the posttest ($n = 62$). The lowest response rates for both the pretest ($n = 21$) and the posttest ($n = 20$) were from males in the intervention group. Table 3-5 shows the frequency distribution of students' gender for the

comparison and intervention groups for the pretest, Table 3-6 shows the frequency distribution for the posttest, and Table 3-7 shows the total frequency distribution.

Table 3-3
Posttest Frequency Distribution Based on Year in School

Year in School	Posttest Frequency					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Freshman	4	4%	6	13%	10	7%
Sophomore	43	46%	13	28%	56	40%
Junior	21	23%	12	26%	33	24%
Senior	25	27%	16	34%	41	29%
Total	93	100%	47	100%	140	100%

Table 3-4
Total Frequency Distribution Based on Year in School

Year in School	Total Frequency					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Freshman	8	4%	12	13%	20	7%
Sophomore	89	47%	26	27%	115	40%
Junior	42	22%	25	26%	67	23%
Senior	52	27%	32	34%	84	29%
Total	191	100%	95	100%	286	100%

Table 3-5
Pretest Frequency Distribution Based on Gender

Gender	Pretest Frequency					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Male	32	33%	21	44%	53	36%
Female	65	66%	26	54%	91	62%
No Answer	1	1%	0	0%	1	1%
Missing Data	–	–	1	2%	–	–
Total	98	100%	48	100%	146	99%

The survey inquired about the types of classes that students were taking, specifically focusing on classes and subject areas that were not required each semester by the school. The school required that students take a minimum of four core-area classes per semester. The school

Table 3-6
Posttest Frequency Distribution Based on Gender

Gender	Posttest Frequency					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Male	30	32%	20	43%	50	36%
Female	62	67%	27	57%	89	64%
No Answer	1	1%	0	0%	1	1%
Missing Data	–	–	–	–	–	–
Total	93	100%	47	100%	140	101%

Table 3-7
Total Frequency Distribution Based on Gender

Gender	Total Frequency					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Male	62	32%	41	44%	103	36%
Female	127	66%	53	56%	180	63%
No Answer	2	1%	0	0%	2	1%
Missing Data	–	–	1	1%	1	0%
Total	191	99%	94	101%	286	100%

recognized core subject areas as English, math, science, social studies, and world language.

Students must also take four semesters of physical education (PE) classes, which included one semester of health and three semesters of fine-arts or career and technical-education classes. For this research study, I treated health as a core subject because it was required for all students before graduation. Elective subject areas that I examined included physical education, fine arts, and other (e.g., business, peer ambassador, consumer sciences, teacher aid, debate, criminal justice).

For the entire sample examined during the study, the number of elective classes that students were taking decreased from the pretest to the posttest, while the number of students enrolled in GE courses only increased. This result may have been due to students' need to drop a course throughout the semester and their decision to drop an elective because it was not required,

as opposed to a core course, which was. For the entire sample, the majority of students (48%) were enrolled in one elective class only. Sixty-seven students (23%) were enrolled only in GE courses (including health) and had no elective courses.

Further examination of the demographic differences between the comparison group and the intervention group in the pretest revealed that the comparison group had a greater frequency of students in one elective class ($n = 47$) and in GE-only classes ($n = 32$) than the intervention group. Students in the intervention group had a greater frequency of students in two ($n = 14$) and three ($n = 11$) elective classes. This outcome may be due to the fact that students were required to be enrolled in at least one elective class to be in the intervention group. In the posttest, similar frequencies occurred, with a greater frequency of students in the comparison groups with one elective class ($n = 41$) and GE-only classes ($n = 35$), whereas the intervention group had a greater frequency of students in two ($n = 12$) and three ($n = 9$) elective classes. Table 3-8 shows the frequency distribution of the number of elective classes students in the comparison and intervention groups respectively were enrolled in during the pretest, Table 3-9 shows the frequency distribution for the elective-class enrollment numbers during the posttest, and Table 3-10 shows the total frequency distribution for elective-class enrollment for both groups.

Table 3-8
Pretest, Frequency Distribution for Student Enrollment in Elective Classes

	Pretest					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1 Elective	47	48%	23	48%	70	48%
2 Electives	12	12%	14	29%	26	18%
3 Electives	6	6%	11	23%	17	12%
GE Only (Includes Health)	32	33%	0	0%	32	22%
Missing	1	1%	0	0%	1	1%
Total	98	100%	48	100%	146	101%

Table 3-9

Posttest, Frequency Distribution for Student Enrollment in Elective Classes

	Posttest					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1 Elective	41	44%	26	55%	67	48%
2 Electives	11	12%	12	26%	23	16%
3 Electives	3	3%	9	19%	12	9%
GE Only (Includes Health)	35	38%	0	0%	35	25%
Missing	3	3%	0	0%	3	2%
Total	93	100%	47	100%	140	100%

Table 3-10

Total Frequency Distribution for Student Enrollment in Elective Classes

	Total Frequency					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1 Elective	88	46%	49	52%	137	48%
2 Electives	23	12%	26	27%	49	17%
3 Electives	9	5%	20	21%	29	10%
GE Only (Includes Health)	67	35%	0	0%	67	23%
Missing	4	2%	0	0%	4	1%
Total	191	100%	95	100%	286	100%

During the research study, I examined the specific type of elective class that students were enrolled in. The majority of students were enrolled in at least one type of elective class (82%). The greatest numbers of students were enrolled in more than one elective class from at least two different subject areas ($n = 87$). Because the courses being examined were elective courses, the intervention group did not have any students in the “none” category, which represented students who were not enrolled in any elective classes. The fewest students were enrolled in an “other” elective (12%), such as business, family and consumer studies, and so on. Further examination of the intervention and comparison groups revealed that the intervention group had a greater frequency of students in the PE ($n = 44$) and combination ($n = 50$) categories, while the comparison group had a greater frequency of students in the fine arts ($n =$

45), other ($n = 34$), and none ($n = 47$) categories. Because students must be enrolled in a PE course to be in the intervention group, the differences in frequencies for the PE and none categories were not surprising. There were 26 students who were in the comparison group who were enrolled in PE classes other than adventure, such as dance, weight lifting, and team sports. These values show that there was a good representative sample from students in different types of elective classes. Table 3-11 shows the frequency distribution for the comparison and intervention groups in terms of the different types of elective courses students were enrolled in during the research study.

Table 3-11
Type of Elective Courses in Which Students Were Enrolled

	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Physical Education (PE)	26	14%	44	46%	70	24%
Fine Arts	45	24%	1	1%	46	16%
Other	34	18%	0	0%	34	12%
Combination	37	19%	50	53%	87	30%
None	47	25%	0	0%	47	16%
Missing	2	1%	0	0%	2	1%
Total	191	100%	95	100%	286	100%

I also examined participation in activities outside of school, which included students' participation in different types of extracurricular activities. A majority of students participated in at least one type of extracurricular activity (82%), and several students participated in more than one type of extracurricular activity (39%).

Further examination of the comparison and intervention groups revealed that in the pretest the comparison group had greater participation rates in athletics and adventure (24%), special interest (20%) and none (20%). The intervention group had greater participation rates in the arts and humanities (19%), academic (4%) and more than one (40%) categories. The posttest showed similar participation rates among the comparison and intervention groups, with a greater

rate of participation in the comparison group for athletics and adventure (24%), special interest (15%), and none (15%). In the posttest, the comparison group had greater rates in participation than the intervention group in the academic (1%), more than one (42%) and none (15%) categories, which were different results than in the pretest. In the posttest, the intervention group had greater rates of participation in arts and humanities (23%). Table 3-12 shows the frequency distribution for both the comparison group and the intervention group in terms of the types of extracurricular activities the students participated in during the pretest, Table 3-13 shows frequency distribution for these same groups and activities for the posttest, and Table 3-14 shows the frequency distribution for the entire sample.

Table 3-12
Pretest, Frequency Distribution for Extracurricular Activities

	Pretest					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Athletics and Adventure	24	24%	6	13%	30	21%
Special Interest	13	13%	3	6%	16	11%
Arts and Humanities	4	4%	9	19%	13	9%
Academic	1	1%	2	4%	3	2%
More Than One	36	37%	19	40%	55	38%
None	20	20%	9	19%	29	20%
Total	98	99%	48	101%	146	101%

Table 3-13
Posttest, Frequency Distribution for Extracurricular Activities

	Posttest					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Athletics and Adventure	22	22%	9	19%	31	21%
Special Interest	14	14%	4	8%	18	12%
Arts and Humanities	3	3%	11	23%	14	10%
Academic	1	1%	0	0%	1	1%
More Than One	39	40%	18	38%	57	39%
None	14	14%	5	10%	19	13%
Total	93	94%	47	98%	140	96%

Table 3-14
Total Frequency Distribution for Extracurricular Activities

	All Surveys					
	Comparison		Intervention		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Athletics and Adventure	46	24%	15	16%	61	21%
Special Interest	27	14%	7	7%	34	12%
Arts and Humanities	7	4%	20	21%	27	9%
Academic	2	1%	2	2%	4	1%
More Than One	75	39%	37	39%	112	39%
None	34	18%	14	15%	48	17%
Total	191		95		286	100%

In all, 48 students who completed the pretest and 47 students who completed the posttest were in the intervention group, who were enrolled in at least one class in the adventure program. Ninety-eight students who completed the pretest and 93 students who completed the posttest were in the comparison group, who were not enrolled in any adventure classes. Of the students who were in the adventure program, the majority of students were enrolled in the first course of the adventure sequence, Adventure 1 (18 in pretest & 17 in posttest). The least number of surveys was collected from students in the Adventure Leader Training Class ($n = 12$). Table 3-15 shows the frequency distribution by class type of students enrolled in the adventure program who completed the pretest and posttest.

The demographics analysis suggests that the overall sample is not equally representative of the school population. Although the population of the school has traditionally had a fairly equal rate of males to females (52% males, 48% females in 2012), a greater number of females participated in the research study (63%) (*US News*, 2012). As a representative sample of the population of the entire school, the comparison group had a greater gender discrepancy. Women in this group comprised 66% of the total sample, while men represented 32%, and those who

Table 3-15

Frequency Distribution of Pretest and Posttest Surveys of Students in Classes Within the Adventure Program

	Pretest		Posttest		Total	
	N	%	N	%	N	%
Adventure 1	18	12%	17	12%	35	12%
Adventure Leader Training	6	4%	6	4%	12	4%
Adventure Outdoor Education	14	10%	14	10%	28	10%
Adventure Leader	10	7%	10	7%	20	7%
None	98	67%	93	66%	191	67%
Total	146	100%	140	99%	286	100%

provided no answer totaled 1%. The intervention group was closer to a representative sample of the population, with 56% of the sample being women, 44% being men, and 1% reflecting those who skipped the question. In all, neither the intervention group nor the comparison group were precisely representative in gender of the entire population.

Additionally, the year that students were in school was not representative of the population because the entire sample had a high rate of responses from sophomores (40%) and a low response rate from freshmen (7%). The intervention group was more closely representative of the population than the comparison group, but not close enough to be an accurate representative sample. Each class type in the high school traditionally makes up of approximately one fourth of the population (*US News*, 2012). Within the comparison group in the current study, there was low response from freshmen (4%) and high response from sophomores (47%). Within the intervention group, there was also a low response from freshmen (13%) and a high response from seniors (34%). Therefore, although the intervention group was more closely representative of the population, it was not a representative sample in the year that students were in school.

Small sample sizes were reflected in each type of adventure class because a limited number of classes were offered each semester. The total sample of students who were taking any kind of adventure class ($n = 90$) was large enough to be representative of the population.

Analysis

I analyzed the data from the pre-/posttest results of the Five Cs of PYD measure using the *Statistical Package for Social Sciences (SPSS)* software. Prior to analyzing the research questions, I examined any differences in extracurricular activity participation between the intervention and comparison groups to ensure they had similar baseline levels for activity preferences. I used a Chi-square test for this analysis. I also examined frequency distributions for the demographic variables to compare the actual sample with the population of the school.

The first research question focused on the differences in pretest and posttest scores between the intervention and the comparison groups. The research question was “In comparing a comparison group and participants in a high-school ABPE, what differences are found in pre- and post-PYD scores for each group?” This preliminary analysis helped me to determine whether the groups differ at baseline PYD levels. I examined the difference between pretest and posttest scores on PYD variables for the comparison and intervention groups. I examined the data to determine whether the distribution was approximately normally distributed and whether assumptions were markedly violated. I used a mixed ANOVA to examine parametric and nonparametric data because there is not a good nonparametric mixed ANOVA test.

The second research question examined the differences in PYD pretest and posttest scores of students enrolled in specific adventure classes. The research question was “Are there different changes in PYD scores between students in the Adventure 1, Adventure Leader Training, Adventure Outdoor Education, and Adventure Leader classes?” I examined data that

was parametric using a one-way ANOVA and nonparametric data using a Kruskal-Wallis test and post hoc Mann-Whitney test.

The third research question focused on changes in PYD scores for different demographic variables. This question asked “Are there differences in amounts and directions of change in PYD for different demographic variables (sex of participant and year in school)?” I examined this question using complex and basic difference inferential statistics, evaluating it to see whether the data was approximately normal. For parametric data, I employed a one-way ANOVA. I examined nonparametric, two-independent-variable group data using a Mann-Whitney test and nonparametric data with more than three groups in the independent variable using a Kruskal-Wallis test.

CHAPTER 4: RESULTS

The purpose of this research study was to understand the relationship between students' participation in a semester-long Adventure Based Physical Education (ABPE) course at a public high school and Positive Youth Development (PYD) outcomes. Although there is not enough research on this topic to make solid recommendations for programmatic change, the aim of the current research study was to identify and develop an understanding of any difference between ABPE participation and PYD. The comparison group included students who did not participate in ABPE classes, and the experimental group included students who participated in ABPE classes.

Preliminary Analyses

Before investigating the research questions, I examined the relationship between adventure-program participation and extracurricular activities. I did this primarily to understand whether the intervention group had any baseline-activity differences that might influence PYD throughout the semester when compared to the PYD of the comparison group. I examined the differences between the intervention and comparison groups and their participation in extracurricular activities. I did this instead of breaking down the specific activities that students participated in, because the N would be too small in many of the activity types. I employed a Chi-square test, and results indicated no significant relationships between the intervention and comparison groups and extracurricular activity participation [$\chi^2 = .056, N = 146, p = 0.81$].

To effectively examine adventure participation and PYD variables, I wanted to ensure that there were initially no significant differences in extracurricular-activity participation between the groups that might explain any change in PYD scores. Since extracurricular-activity

participation was found to have no significant relationship to adventure-program participation, I was able to examine the research questions without having to account for any extracurricular-activity differences. It is important, however, to note that there are likely many other routine activities that may impact the PYD levels of youth.

The research questions primarily focused on the differences between the intervention and comparison groups and PYD variables. To analyze the results, I first examined the intervention and comparison groups, pretest and posttest scores, and PYD variables. The dependent PYD variables were mean scores of questions related to the five PYD variables of competence, confidence, caring, connection, and community, as well as the sixth C, contribution. Contribution was calculated by finding the overall mean score of the Five Cs. After examining the mean scores of all PYD variables, I examined the difference between pretest to posttest scores for the intervention and comparison groups. I continued a more in-depth analysis into different types of adventure activities and PYD scores, followed by an analysis of demographics and PYD scores. The results of the entire examination follow.

Research Question 1

The first research question was “In comparing a comparison group and participants in a high-school ABPE class, what differences are found in pretest and posttest PYD scores for each group?” This question focused on the difference between the intervention and comparison groups’ scores on the pretest and posttest within the PYD variables. There was one attribute independent variable that was between groups (intervention and comparison) and one independent variable that was a repeated measures, within-subjects independent variable (pretest and posttest). The dependent variables, PYD scores, was a scale variable and examined students’ confidence, competence, character, caring, and connection, and also the sixth C, contribution.

Table 4-1 shows the mean PYD scores for each PYD variable in the pretest and posttest for students in the intervention and comparison groups. Although 286 total surveys were completed, only 140 were included in the mixed ANOVA because the students the included surveys represent completed both the pretest and posttest surveys. The six students who completed the pretest and not the posttest were not included in this analysis.

Table 4-1
Intervention and Comparison Pretest & Posttest Mean PYD Scores

	Pretest				Posttest			
	Intervention		Comparison		Intervention		Comparison	
	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>
Character	8.6	46	8.39	94	8.78	46	8.54	94
Competence	6.72	46	6.86	94	6.83	46	6.7	94
Confidence	8.22	46	8.03	94	8.56	46	8.23	94
Caring	10.01	46	9.61	94	9.96	46	9.66	94
Connection	8.68	46	8.52	94	8.8	46	8.24	94
Contribution	8.45	46	8.28	94	8.59	46	8.27	94

I analyzed the dependent variables to determine whether the data were approximately normal. I found the data for four of the dependent variables to be approximately normal: confidence (skew = -.634), character (skew = -.509) and competence (skew = -.584) and contribution (skew = .665). I found that two of the dependent variables had violated parametric assumptions: caring (skew = -1.206) and connection (skew = -1.209).

I conducted a mixed ANOVA to assess whether there were differences between the comparison and intervention groups on pretest and posttest scores for PYD variables. I used the mixed ANOVA to examine the variables of confidence, character, competence, and contribution because I found them to be approximately normal. Additionally, although I found caring and connection to be skewed, I conducted a mixed ANOVA for these variables because there is not a good nonparametric mixed ANOVA test and ANOVA is robust. Three main questions are being asked in the mixed ANOVAs: (a) Do PYD scores differ between the intervention and

comparison groups (between groups' main effect); (b) Do PYD scores differ between the pretest and posttest (within groups' main effect)?; and (c) Is there an interaction between group (intervention and comparison) and time (pretest and posttest) on PYD scores, which would indicate differential change over time?

For contribution, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results indicated no significant adventure participation \times time interaction [$F(1, 138) = .743, p = .39$]. There was not a significant difference for the within-subjects' main effect, pretest, and posttest scores [$F(1, 138) = .6, p = .44$]. For the comparison and intervention groups, there was not a significant difference for the between-subjects main effect, comparison and intervention group [$F(1, 138) = 1.134, p = .289$].

For caring, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results indicated no significant adventure participation \times time interaction [$F(1, 138) = 1.11, p = .74$]. There was not a significant difference for the within-subjects main effect pretest and posttest scores [$F(1, 138) = .001, p = .997$]. There was not a significant difference for the between-subjects main effect, comparison, and intervention groups [$F(1, 138) = 1.165, p = .282$].

For competence, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results indicated no significant adventure participation \times time interaction [$F(1, 138) = .69, p = .409$]. There was not a significant difference for the within-subjects main effect, pretest, and posttest scores [$F(1, 138) = .037, p = .848$]. There was not a significant difference for the between-subjects main effect, comparison, and intervention groups [$F(1, 138) = .001, p = .996$].

For confidence, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results indicated no significant adventure participation \times time interaction [$F(1, 138) = .17, p = .682$]. There was not a significant difference for the within-subjects main effect, pretest, and posttest scores [$F(1, 138) = 2.53, p = .114$]. There was not a significant difference for the between-subjects main effect, comparison, and intervention groups [$F(1, 138) = .386, p = .536$].

For connection, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results indicated no significant adventure participation \times time interaction [$F(1, 138) = 1.49, p = .23$]. There was not a significant difference for the within-subjects main effect, pretest, and posttest scores [$F(1, 138) = .243, p = .62$]. There was not a significant difference for the between-subjects main effect, comparison, and intervention groups [$F(1, 138) = 1.06, p = .305$].

For character, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results indicated no significant adventure participation \times time interaction [$F(1, 138) = .018, p = .894$]. There was not a significant difference for the within-subjects main effect, pretest, and posttest scores [$F(1, 138) = 1.99, p = .161$]. There was not a significant difference for the between-subjects main effect, comparison, and intervention groups [$F(1, 138) = .726, p = .396$].

This indicates that there are no significant main-effect differences between the intervention and comparison groups on pretest or posttests or on any of the PYD variables.

Research Question 2

The second research question, "Are there different changes in PYD scores between students in the Adventure 1, Adventure Leader Training, Adventure Outdoor Education, and

Adventure Leader classes?” more closely examined the experiences of students in different types of adventure classes. To answer this question, I employed a one-way ANOVA for the change variables of confidence, character, competence, and caring because I found them to be approximately normal, and because there was one independent variable with three or more groups and one scale dependent variable. Table 4-2 shows the means and standard deviations for the adventure class type and change scores in confidence, competence, character, and caring.

Table 4-2
Means and Standard Deviations Comparing Intervention and Comparison Groups and Change Scores in Character, Competence, Confidence, and Caring

	Character			Competence			Confidence			Caring		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Adventure 1	17	0.3862	1.0170	17	0.1559	1.574	17	0.4900	1.868	17	0.0588	1.32
Adventure Leader Training	6	-0.3133	2.4320	6	-0.3333	1.620	6	0.0267	1.781	6	0.09167	1.63
Adventure Leader	14	0.2229	0.9894	14	0.5707	2.870	14	0.4771	2.157	14	0.4286	2.82
Adventure Outdoor Education	10	0.2140	1.2290	10	-0.5350	2.431	10	0.6330	2.257	10	-0.3000	1.58
None	93	0.1413	1.3500	93	-0.1505	1.520	93	0.1433	1.864	93	0.5838	1.71
Total	140	0.1627	1.3210	140	-0.0765	1.770	140	0.2488	1.900	140	0.0179	1.79

I checked the assumptions for the one-way ANOVA and they were met. Levene’s test for homogeneity of variances showed that the assumptions for equal variances were met for confidence [$F(4,135) = .270, p = .897$], competence [$F(4,135) = 1.495, p = .207$], character [$F(4,135) = 1.215, p = .307$], and caring [$F(4, 135) = .253, p = .907$], but not for contribution [$F(4, 135) = 2.647, p = .036$]. Results indicated no significant differences among the different types of adventure programs and the change variables of character [$F(4,135) = .309, p = .872$], competence [$F(4,135) = .776, p = .543$], confidence [$F(4,135) = .307, p = .873$], or caring [$F(4, 135) = .679, p = .607$]. Table 4-3 shows the results from the one-way ANOVA for adventure class type and the change scores of character, competence, confidence, and caring.

Table 4-3

One-Way ANOVA Summary Comparing Adventure-Class Type on Change Scores of the Five Cs Character, Competence, Confidence, and Caring

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>P</i>
Character					
Between groups	4	2.20	0.549	0.309	0.872
Within groups	135	240.20	1.779		
Total	139	242.40			
Competence					
Between groups	4	9.79	2.448	0.776	0.543
Within groups	135	425.87	3.155		
Total	139	435.66			
Confidence					
Between groups	4	4.53	1.130	0.307	0.873
Within groups	135	497.62	3.690		
Total	139	502.14			
Caring					
Between groups	4	8.79	2.200	0.679	0.607
Within groups	135	436.91	3.240		
Total	139	445.71			

Because I found that the sixth C, contribution, had assumptions of homogeneity of variances violated, I employed a Kruskal-Wallis test. The Adventure Leader class had the highest mean rank ($M = 87.61$) and Adventure Leadership Training had the lowest mean rank ($M = 61.50$). However, results indicated no significant differences between type of adventure class and contribution [$\chi^2 = (4, N = 140) = 4.671, p = .323$].

To understand the relationship between the type of adventure class and the change variables of caring and connection, I employed a Kruskal-Wallis test. There was one independent variable with three or more groups and one scale dependent variable, and the dependent variable's parametric assumptions were markedly violated. The test results indicated no significant differences in the change variable of connection [$\chi^2 = (4, N = 140) = 10.552, p = .032$]. Using post hoc Mann-Whitney tests, I compared the type of adventure class to the change

score of connection; I used a Bonferroni corrected p value of .005 to indicate statistical significance. I conducted 10 different Mann-Whitney tests to examine the possible significant relationships between the different types of adventure classes. Results indicated significant differences between the Adventure Leader-class mean rank (75.89, $n = 14$) and the no-adventure-classes mean rank [(50.70, $n = 93$), $Z = -2.860$, $p = .004$, $r = .276$], which according to Cohen (1988) indicates a small to medium effect size. Table 4-4 shows p values for each of the 10 Mann-Whitney comparisons, examining the relationship between different class types and the connection change variable.

Table 4-4
*Mann-Whitney U Test P-Values for Different Types of Adventure Classes**

	Adventure 1	Adventure Leadership Training	Adventure Outdoor Education	Adventure Leader	None
Adventure 1	–				
Adventure Leadership Training	0.101	–			
Adventure Outdoor Education	0.604	0.428	–		
Adventure Leader	0.200	0.026	0.235	–	
None	0.202	0.224	0.809	0.004	–

*Corrected Bonferonni p value of .005

Therefore, results from the analysis indicate only one significant relationship between the adventure-class type and PYD variables, which is the relationship between connection and students in the Adventure Leader class when compared with those students who were not in any adventure classes. Figure 4-1 shows the mean pretest and posttest scores for students in the Adventure Leader and the no-adventure class groups for the connection variable.

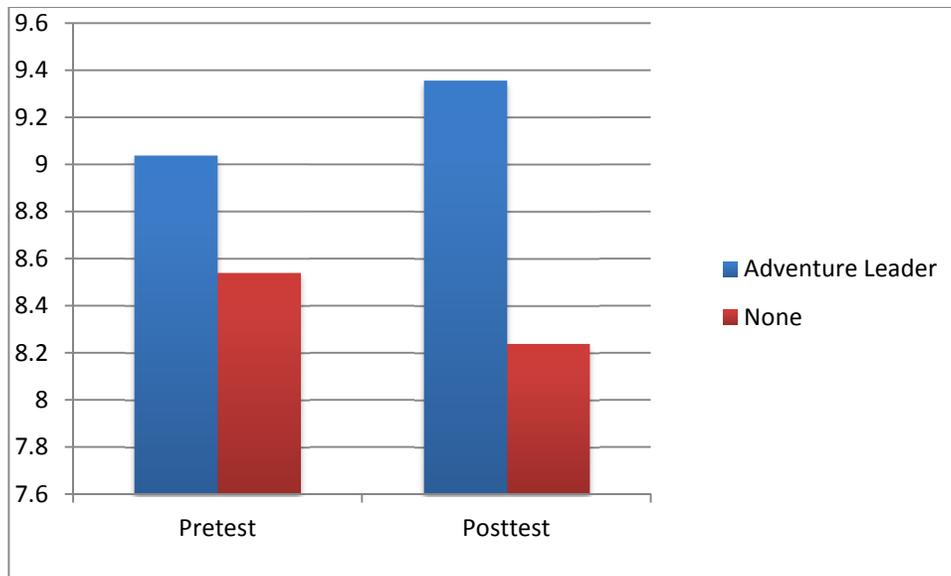


Figure 4-1. Pretest and posttest scores of comparison and intervention groups (Adventure Leader and no-adventure class groups).

Research Question 3

Research question three was “Are there differences in amounts and directions of change in PYD for different demographic variables (sex of participant and year in school)?” To examine pretest and posttest, demographic variables and differences in PYD scores, I employed a mixed ANOVA because there were two independent variables, an attribute-independent variable, demographics, and the other attribute-independent variable, time. The dependent variable PYD scores was a scale variable and examined students’ confidence, competence, character, caring, and connection, and also the sixth C, contribution.

First, I examined gender, pretest and posttest, and PYD scores. One survey, in which “No Answer” was selected for gender, was removed from this analysis because the n was so low; and six surveys that had no posttest scores also were not included in the analysis.

I examined all PYD variables using a mixed ANOVA because there is not a good nonparametric mixed ANOVA test. For confidence, Levene’s test of equality of variances showed that the assumption was met. Box’s test of equality of covariates showed that the

assumption was met ($p > .001$). Results indicated no significant gender \times time interaction [$F(1, 136) = .785, p = .377$]. There was not a significant difference for the within-subjects' main-effect pretest and posttest scores [$F(1, 136) = 3.34, p = .07$]. There was a significant difference for the between-subjects' main-effect gender results [$F(1, 138) = 6.45, p = .012$]. Eta was .21, which according to Cohen (1988) is a small to medium effect size. This outcome indicates that, although gender does not have a significant interaction with pretest and posttest scores, males and females scored differently on confidence. Males had higher overall mean scores of confidence ($M = 8.764$) than females ($M = 7.805$). Figure 4-2 shows the mean confidence levels for males and females in the pretest and the posttest.

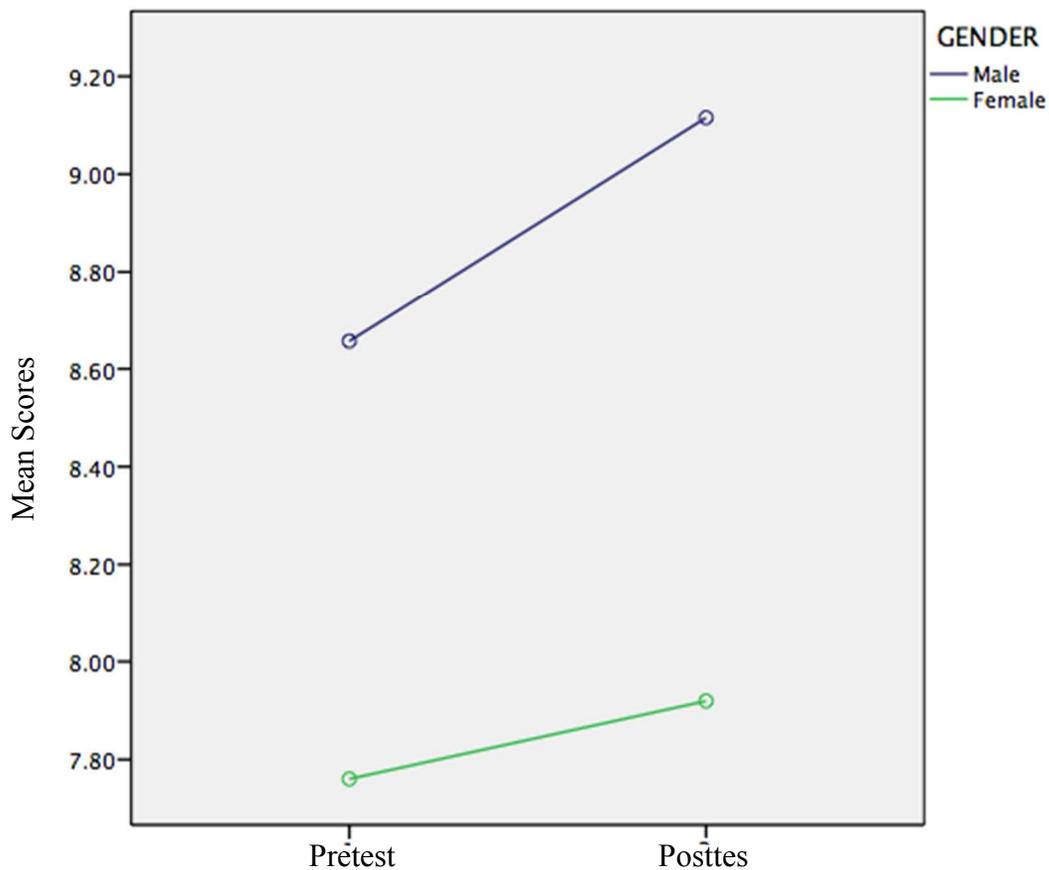


Figure 4-2. Mean confidence scores by gender in pretest and posttest.

For competence, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results indicated no significant gender \times time interaction [$F(1, 136) = 1.785, p = .184$]. There was not a significant difference for the within-subjects' main-effect pretest and posttest scores [$F(1, 136) = .017, p = .897$]. There was a significant difference for the between-subjects' main-effect gender results [$F(1, 138) = 6.706, p = .011$]. Eta was .2, which according to Cohen (1988) is a small to medium effect size. This outcome indicates that, although gender did not have a significant interaction with pretest and posttest scores, males and females scored differently on competence. Males had a higher mean competence score ($M = 7.24$) than females ($M = 6.53$). Figure 4-3 shows the mean competence levels for males and females in the pretest and the posttest.

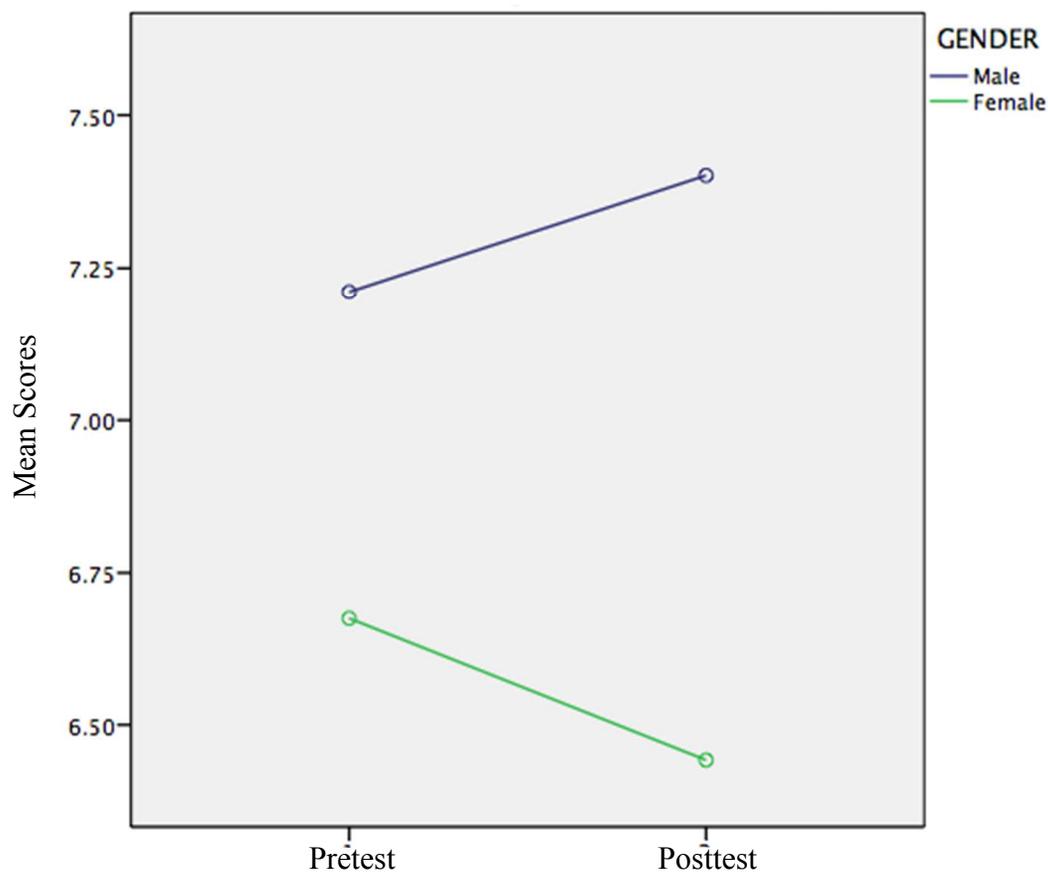


Figure 4-3. Mean competence levels by gender in the pretest and posttest.

For character, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results indicated no significant gender \times time interaction [$F(1, 136) = .471, p = .494$]. There was not a significant difference for the within-subjects' main-effect pretest and posttest scores [$F(1, 136) = 1.442, p = .232$]. There was not a significant difference for the between-subjects' main-effect scores for gender [$F(1, 138) = .381, p = .538$]. This result indicates that for character there were no significant interactions between gender and time.

For caring, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results indicated no significant gender \times time interaction [$F(1, 136) = 1.38, p = .242$]. There was not a significant difference for the within-subjects' main-effect pretest and posttest scores [$F(1, 136) = .052, p = .82$]. There was not a significant difference for the between-subjects' main-effect scores for gender [$F(1, 138) = 2.43, p = .121$]. This outcome indicates that for caring there were no significant interactions between gender and time.

For connection, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results indicated no significant gender \times time interaction [$F(1, 136) = .266, p = .607$]. There was not a significant difference for the within-subjects' main-effect pretest and posttest scores [$F(1, 136) = 1.203, p = .275$]. There was not a significant difference for the between-subjects' main-effect scores for gender [$F(1, 138) = 3.736, p = .055$]. This outcome indicates that for connection there were no significant interactions between gender and time.

For contribution, Levene's test of equality of variances showed that the assumption was met. Box's test of equality of covariates showed that the assumption was met ($p > .001$). Results

indicated no significant gender \times time interaction [$F(1, 136) = .001, p = .987$]. There was not a significant difference for the within-subjects' main-effect pretest and posttest scores [$F(1, 136) = .256, p = .614$]. There was not a significant difference for the between-subjects' main-effect scores for gender [$F(1, 138) = 2.628, p = .107$]. These results indicate that for contribution there were no significant interactions between gender and time.

Therefore, results from the mixed ANOVAs indicate that there were no significant interactions between the main effects and any of the PYD variables. There were, however, significant differences for the between-groups variable of gender and confidence, with males having higher mean levels of confidence than females. There were also significant differences for the between-groups variable of gender and competence, with males having higher levels of competence than females.

I examined gender differences and change scores from pretest to posttest. I examined confidence, character, competence, caring, and contribution change scores and gender using a one-way ANOVA because parametric assumptions were not markedly violated. One survey in which the student selected "No Answer" for gender was removed from this analysis because the n was so low. Levene's test of homogeneity of variances indicated that assumptions were markedly violated for character [$F(1, 137) = 4.8, p = .03$], but not for confidence [$F(1, 137) = 1.332, p = .251$], competence [$F(1, 137) = .295, p = .588$], caring [$F(1, 137) = 2.300, p = .132$], or contribution [$F(1, 137) = .904, p = .343$]. Table 4-5 shows means and standard deviations for the change scores of character, confidence, competence, caring, and contribution, and for gender. No significant differences were found for gender and the change variables of competence [$F(1,137) = 1.798, p = .182$], confidence [$F(1,137) = .512, p = .476$], caring [$F(1, 137) = 1.45, p = .231$], or contribution [$F(1, 137) = .004, p = .947$]. Table 4-6 shows the results from the

ANOVA test for gender and the change variables of confidence, competence, caring, and contribution.

Table 4-5
Means and Standard Deviations Comparing Gender and Change Scores of Competence, Confidence, Caring, and Contribution

	Competence Change			Confidence Change			Caring Change			Contribution Change		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Male	50	0.1868	1.9566	50	0.4004	1.73	50	-0.230	2.12	50	0.030	1.11
Female	89	-0.2328	1.6578	89	0.1589	2.00	89	0.152	1.58	89	0.041	0.85
Total	139	-0.0765	1.7700	139	0.2488	1.90	139	0.014	1.80	139	0.041	0.94

Table 4-6
One-Way ANOVA Summary Comparing Gender and Competence, Confidence, Caring, and Contribution

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>P</i>
Competence					
Between groups	1	5.640	5.640	1.800	0.182
Within groups	137	429.460	3.140		
Total	138	435.100			
Confidence					
Between groups	1	1.870	1.868	0.512	0.476
Within groups	137	500.100	3.650		
Total	138	502.000			
Caring					
Between groups	1	4.670	4.660	1.450	0.231
Within groups	137	440.800	3.220		
Total	138	445.500			
Contribution					
Between groups	1	0.004	0.004	0.004	0.947
Within groups	137	123.140	0.899		
Total	138	12.140			

Because assumptions were violated for Levene's test of homogeneity of variances for character, I used a Mann-Whitney U test for the analysis. Results indicated no significant mean rank differences between mean rank for males ($M = 63.18$) and mean rank for females ($M = 73.83$) for the character change variable ($U = 1884$, $p = .134$, $r = -.127$).

To evaluate the change variable of connection and the relationship to gender, I employed a Mann-Whitney U test because parametric assumptions were violated. Females were not found

to have significantly higher mean ranks ($M = 70.96$) than males ($M = 68.29$) on the change variable of connection ($U = 2139.5$, $p = .705$, $r = .032$). These results suggest that there were no significant differences between any PYD change scores and gender.

To examine the effect of year in school and PYD change scores, I employed a one-way ANOVA because the independent variable was between groups with three or more levels and the dependent variable was scale. I conducted the one-way ANOVA for the change variables of confidence, character, competence, caring, and contribution because parametric assumptions were not markedly violated. All assumptions were checked and met. Table 4-7 shows the means and standard deviations for year in school and the change variables of confidence, character, competence, caring, and contribution. Levene's test of homogeneity of variances indicated no violations for the assumption of equal variances for confidence [$F(3, 136) = .549$, $p = .65$], character [$F(3, 136) = .1828$, $p = .145$], competence [$F(3, 136) = 1.454$, $p = .23$], caring [$F(3, 136) = .393$, $p = .759$], or contribution [$F(3, 136) = 1.152$, $p = .331$].

Results from the one-way ANOVA indicated no significant relationships between year in school and the change variables of character [$F(3, 136) = .416$, $p = .742$], competence [$F(3, 136) = 1.534$, $p = .209$], confidence [$F(3, 136) = .785$, $p = .504$], caring [$F(3, 136) = .473$, $p = .701$], or contribution [$F(3, 136) = 1.138$, $p = .336$]. Table 4-8 shows the results of the one-way ANOVA for year in school and the change scores of competence, confidence, character, caring, and contribution.

I examined the relationship between year in school and the change-variable connection using the Kruskal-Wallis test because the independent variable had three or more levels and the dependent variables had markedly violated parametric assumptions. Results indicated no

significant differences in the change-connection variable between mean ranks of freshman [$M = 60.75$], sophomores ($M = 69.72$), juniors ($M = 79.42$) and seniors ($M = 66.76$), $p = .460$]. These

Table 4-7

Means and Standard Deviations Comparing Year in School and Change Scores of Confidence, Competence, Character, Caring, and Contribution

	Character Change			Competence Change			Confidence Change			Caring Change			Contribution Change		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Freshman	10	0.251	1.12	10	-0.668	2.47	10	0.483	2.32	10	0.2000	1.80	10	-0.0468	1.30
Sophomore	56	0.165	1.33	56	-0.131	1.66	56	-0.051	1.75	56	-0.0980	1.76	56	-0.0730	0.99
Junior	33	0.337	0.96	33	0.444	2.11	33	0.495	2.13	33	-0.1520	2.20	33	0.2979	0.90
Senior	41	-0.002	1.59	41	-0.277	1.34	41	0.403	1.82	41	0.2783	1.47	41	0.4010	0.79
Total	140	0.163	1.32	140	-0.077	1.77	140	0.249	1.90	140	0.0179	1.79	140	0.0406	0.94

Table 4-8

One-Way ANOVA Summary Comparing Year in School and Change Scores of Competence, Confidence, Character, Caring, and Contribution

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>P</i>
Competence					
Between groups	3	14.26	4.750	1.534	0.209
Within groups	136	421.40	3.100		
Total	139	435.66			
Confidence					
Between groups	3	8.60	2.850	0.785	0.504
Within groups	136	493.60	3.630		
Total	139	502.10			
Character					
Between groups	3	2.20	0.734	0.416	0.742
Within groups	136	240.20	1.766		
Total	139	242.40			
Caring					
Between groups	3	4.60	1.540	0.473	0.70f 1
Within groups	136	441.10	3.240		
Total	139	445.70			
Contribution					
Between groups	3	3.02	1.007	1.138	0.336
Within groups	136	120.33	0.885		
Total	139	123.35			

results indicate that there were no significant differences in change in scores from pretest to posttest for any of the different levels in school.

Next, I examined the intervention and comparison groups, year in school, and change scores of PYD variables. Because there is not a good test to examine nonparametric data with two independent variables, I used a factorial ANOVA to examine all PYD variables. There were no significant relationships between intervention and comparison groups, year in school, and contribution [$F(3, 132) = .055, p = .983$], connection [$F(3, 132) = .659, p = .579$], caring [$F(3, 132) = .932, p = .427$], character [$F(3, 132) = .399, p = .754$], confidence [$F(3, 132) = .165, p = .92$], or competence [$F(3, 132) = 1.073, p = .363$]. Therefore, there were no significant

differences between the intervention and comparison groups and year in school on any of the PYD variables.

I examined the intervention and comparison groups, gender, and PYD change variables using a factorial ANOVA. There were no significant relationships between competence [$F(1, 135) = .08, p = .778$], confidence [$F(1, 135) = .021, p = .884$], character [$F(1, 135) = 2.213, p = .139$], caring [$F(1, 135) = .551, p = .459$], connection [$F(1, 135) = 3.218, p = .075$], or contribution [$F(1, 135) = 2.079, p = .152$]. Therefore, there were no significant relationships between the intervention and control groups, gender, and PYD variables.

I examined type of adventure class, year in school, and PYD change variables using a factorial ANOVA. Results indicated that there were no significant relationships between adventure class, year in school, and contribution [$F(7, 125) = 1.393, p = .214$], connection [$F(7, 135) = 1.079, p = .381$], caring [$F(7, 135) = .562, p = .786$], character [$F(7, 135) = .711, p = .662$], confidence [$F(7, 135) = 1.335, p = .239$], or competence [$F(7, 135) = 1.477, p = .181$].

I examined type of adventure class, gender and PYD change variables using a factorial ANOVA. Results indicated that there were no significant relationships between type of adventure class and gender on competence [$F(4, 129) = .327, p = .86$], confidence [$F(4, 129) = .142, p = .966$], character [$F(4, 129) = .998, p = .411$], caring [$F(4, 129) = 1.202, p = .313$], connection [$F(4, 129) = 2.113, p = .083$], or contribution [$F(4, 129) = 1.251, p = .293$].

The examination of demographic differences and PYD variables revealed several noteworthy findings. First, in examining gender, pretest and posttest, and PYD scores, I identified a significant difference for the main effects of gender and the PYD scores of confidence and competence, with males scoring higher on both. There were no significant

differences between either gender or year in school and change scores. When examining the intervention and comparison group, I found no significant interactions between each group, year in school, or gender and PYD change scores. In examining the different types of adventure classes, demographics, and PYD variables, I found no significant differences between type of class, gender or year in school, and PYD variables. These findings continue to suggest that there were no significant differences between students in the intervention and comparison groups in terms of PYD scores, regardless of their demographic variables. There were, however, significant differences between gender and students' confidence and competence, which were not related to students' standing in either the intervention or comparison group.

Conclusion

In conclusion, this research study aimed to examine the differences between a comparison and intervention group, and the PYD variables of caring, connection, confidence, competence, and community, and also the sixth C, contribution. The sample population differed slightly from the actual population at the school, with a greater rate of females completing the survey than males, a greater representation of sophomores, and a low rate of representation from freshmen.

Results indicated no statistically significant differences between pretest scores and posttest scores for the comparison and intervention groups. When I examined the change in scores from pretest to posttest, I noted that students in the intervention group had higher increases of every PYD variable, except for caring, compared with those students not in the adventure program. I found this increase, although interesting, not statistically significant. Additionally, although this result also was not statistically significant, the intervention group decreased in caring while the comparison group increased in caring.

When I examined each type of class in the adventure program, I found none of the classes except for Adventure Leader to reflect any significant differences in PYD from other classes. I found Adventure Leader to have significantly greater increases in the change score of connection than that for students who were not in any adventure classes.

On further examination of demographic variables and PYD variables, I noted several significant differences. Males had significantly higher levels of competence, connection, and confidence than females. Females had significantly higher levels of caring than males. There was no significant difference between male and female scores for character. When I examined the difference between males and females related to the change of scores from pretest to posttest, I saw no significant differences. In examining year in school and change scores for the PYD variables, I also found no significant differences. Finally, I compared demographic variables, intervention and comparison groups, and PYD change variables and saw no significant differences between any of the groups.

CHAPTER 5: DISCUSSION

The purpose of this research study was to examine the relationship between students' participation in adventure-based physical-education classes (ABPE) and positive youth development (PYD). The study was conducted using pretest and posttest surveys, which were administered at the beginning and end of the fall 2014 semester at a grade 9–12 high school. The survey consisted of questions that examined students' demographics and class schedules, and also items that examined PYD variables. This chapter includes participant demographic information, a summary of the results of each research question, discussion of findings, limitations and delimitations of the study, and recommendations for future research.

Demographics of Participants

I examined 286 completed surveys throughout the research study, including 146 pretest surveys (51%) and 140 posttest surveys (49%). The comparison group included 191 completed surveys (67%), and the intervention group included 95 surveys (33%). Six students who completed the pretest did not take the posttest, which resulted in 140 students who completed both the pretest and posttest surveys.

Prior to examining the research questions, I explored the demographics of the participants in the research study. I found that the sample was not representative of the actual population at the school, but it did have adequate representation from all demographic groups that were examined. A greater overall rate of females (63%) participated in the research study than males (36%). Males and females had similar rates of participation in the pretest and posttest. Although several research studies in adventure programming had greater participation rates from males (Hattie et al., 1997; Russell, 2003; Sibthorp et al., 2008), the current study had participation rates

more closely related to those studies in which greater participation rates were seen from females than males (Jones et al., 2011; Lerner et al., 2013). This outcome suggests that, although participation rates were not equivalent to the population of the school, there was sufficient representation from the male and female genders to make overall comparisons. I am uncertain as to why there was higher participation from females than males throughout the study. Many adventure-based programs have greater overall participation rates from males than females; however, since the program is an elective course within a public high school, there may be a greater rate of females.

Students from all four years in school were represented in the sample, with a high rate of participation from sophomores (40%) and a low rate of participation from freshmen (7%). All students in the sample were involved in many elective courses, with 48% of the sample being enrolled in one elective class and 23% not taking any elective classes.

Students in the sample were highly involved in extracurricular activities, with the majority of students in the overall study involved in some type of out-of-school activity (82%) and few students who were not involved in any out-of-school activities (17%). The greatest rate of students participated in more than one extracurricular activity (39%), and several students were involved in adventure or athletic extracurricular activities (21%). The smallest rate of participation was seen in academic extracurricular activities (1%). There was a greater rate of students who participated in no extracurricular activities in the pretest (20%) compared to that set of students (13%) in the posttest.

The participation rates in extracurricular activities in the current study contrast with McNeal's (1999) analysis of school effects and participation in extracurricular activities, in which schools with higher socioeconomic status were seen to have lower extracurricular-activity

participation rates. McNeal also found that schools that had a greater emphasis on academic achievement had lower extracurricular-activity participation rates. Students in the school examined during the current research study had higher-than-average socioeconomic status. The school also places a high emphasis on academic achievement, with approximately 87% of senior students in the school district graduating, compared to the statewide rate of 75% and the national rate of 72% (CCSD, 2012); and 95% of the school's graduates are accepted to college (Silva, 2012).

An examination of the demographics of students who participated in the current research study revealed that the sample was not equivalent to the population of the school or of an average high school in the United States in that regard. Because the current research study had a greater rate of female responses, an imbalance of representation relative to students' year in school, and had students who were highly involved in extracurricular activities, the results of the research cannot be generalized to other schools. This limitation is a result of the sample not being demographically representative of other schools. Demographics from students in the current research study differ from students in the general population of the school that was examined. Therefore, any results should be interpreted with caution for students in the general population of the school. Overall, while enough demographic groups were represented in the research study to reflect larger group differences, the sample is not equivalent to either the general population of the school that was examined or the general population of students in high school across the United States.

Summary of Research Question Findings

The research questions primarily examined the relationship between participation in ABPE courses and PYD variables. The research questions I examined were

- a) In comparing a comparison group and participants in a high-school ABPE, what differences are found in pre- and post-PYD scores for each group?
- b) Are there different changes in PYD scores between students in the Adventure 1, Adventure Leader Training, Adventure Outdoor Education, and Adventure Leader classes?
- c) Are there differences in amounts and directions of change in PYD for different demographic variables (sex of participant and year in school)?

Research Question 1

The first research question, “In comparing a comparison group and participants in a high-school ABPE, what differences are found in pre- and posttest PYD scores for each group?” examined the differences between students in the comparison and intervention groups, pretest and posttest, and PYD variables. There were no significant interactions between the intervention and comparison groups, the pretest and posttest, and any of the PYD variables. These results suggest that there were no differences in PYD scores between students in the intervention and comparison groups who completed the pretest and the posttest.

Research Question 2

The second question, “Are there different changes in PYD scores between students in the Adventure 1, Adventure Leader Training, Adventure Outdoor Education, and Adventure Leader classes?” more closely examined the different types of adventure classes and PYD scores. Results indicated no significant differences between adventure-class participation on students’ character, competence, confidence, or caring. There were, however, significant differences between students in the Adventure Leader class and students who were not in any adventure classes in terms of the connection PYD variable. Students in the Adventure Leader class had

greater change scores in connection ($M = .3214$) than students not in any adventure classes ($M = -.2849$). The overall connection PYD variable comprised several subconstructs including family, school, neighborhood, and peer connection.

Research Question 3

The third research question, “Are there differences in amounts and directions of change in PYD for different demographic variables (sex of participant and year in school)?,” examined the relationship between different demographics and PYD scores. The initial examination focused on demographic differences, regardless of adventure-class participation. Results indicated no significant interactions between gender and time for any of the PYD variables. There were, however, significant main effects between gender and confidence, and gender and competence, both with a small to medium effect size; these results indicate that males had significantly different scores than females on both variables.

I then examined student participation in the adventure program with different demographic variables in relation to PYD change scores. In examining the interactions between the intervention and comparison groups with demographics and PYD variables, I found no significant differences. This outcome suggests that, regardless of the gender or year in school of a student who was enrolled in the adventure program, there were no significant PYD differences from others who were not enrolled in adventure classes.

Discussion of Findings and Comparison to the Literature

The following section includes a discussion of findings from the research study and a comparison of the results from the research study to current literature. The main topics include demographic examination, length of program, similar outcome variables in other research, PYD research, and other types of classes.

Demographic Examination

Although other research studies that have examined gender together with any related PYD variables are not equivalent in methodology, the results from the current study support other studies that suggest that females have lower self-confidence scores than males throughout adolescence (Schoen et al., 1997). The current research study showed that males had higher confidence scores on both the pretest ($M = 8.58$) and the posttest ($M = 9.12$) than females on the pretest ($M = 7.69$) and the posttest ($M = 7.92$). Additionally, other research studies on competence (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002) have shown that males have reported higher competence levels in male-oriented domains (i.e., sports), whereas females have reported higher competence levels in female-oriented domains (i.e., language arts). Jacobs et al. (2002) completed a longitudinal study on competence that included a gender-neutral domain, math, and found that males and females scored similarly in high school on their perceived competence scores.

The current research study showed that males had higher competence scores on both the pretest ($M = 7.2$) and the posttest ($M = 7.4$) compared to females on the pretest ($M = 6.61$) and the posttest ($M = 6.44$). The current research study did not examine gender-specific domains, but instead examined experiences using the subcategories of academic, physical, and social competence to measure an overall competence score. The results of the current study suggest that males had significantly higher scores in competence, but with a small to medium effect. Therefore, although the current research study's methodology is not equivalent to previous research studies, the results from the current research support the assertion that adolescent males and females have different overall competence and confidence scores, with males having higher scores than females on both variables.

Last, the current research study examined demographic differences between the comparison group and intervention group on PYD variables. No significant interactions were seen between the comparison and intervention groups and gender on change scores of PYD variables. This outcome supports Hattie et al.'s (1997) study, which found that both males and females had similar effects from participation in adventure-based programs. The current research study supports this finding because its results also indicate no significant differences between genders of those who participated in the adventure program and PYD scores.

Length of Programming

Several research studies have examined length of programming for adventure activities (Hattie et al., 1997; Russell, 2003), in which researchers have seen significant increases in outcomes for participants in long-term adventure programs. One important distinction between Hattie et al.'s (1997) research study and the current research study is that most of Hattie et al.'s participants were completely immersed in adventure programs for long periods of time ($M = 24$ days). Whereas students in the current research study participated in the adventure classes for approximately 50 minutes per day, every day throughout an entire semester. Since the research study was conducted over a relatively short period of time (5 months), it is not surprising that no significant interactions were seen between pretest scores and posttest scores for students in either the intervention or comparison group. This important distinction, between programs that fully immerse students in adventure activities and those that are more long-term but happen less frequently, may be important in our understanding of programmatic differences that may influence outcomes for participants.

Russell's (2003) research study examined wilderness therapy programs that utilized adventure programming for all or a portion of an overarching therapy program, including the

range of adventure experiences from daytime outings to 8-week-long immersion programs. Results from Russell's (2003) study indicate that students in the programs that utilized adventure for shorter durations had the least amount of change between the time of program admission to discharge.

The current research study is more closely comparable with the programs that utilized adventure as a small portion of the program instead of with full immersion. Simply stated, students in the current study participated in adventure programs at a frequent rate throughout a long-term timeframe, but they were not fully immersed in adventure activities. These students had other primary objectives during their participation in a school day, including other academic goals. The results from the current research study, compared with those of others in the literature, suggest that outcomes for participants in long-term and fully immersed adventure-based programs are different from those for individuals who participate in long-term adventure-based activity but with less time focused on that activity. This difference may help to explain the lack of significant difference in the changes in scores between the intervention and comparison groups in this study, which was different from the findings of both Hattie et al. (1997) and Russell's (2003) research. Those studies indicated greater changes in outcomes for students who were in longer-term, adventure-based immersion programs.

The results from the current research study may suggest a difference in outcomes from and experiences within long-term immersion and nonimmersion programs. The outcomes may imply that participation in long-term but frequent programs may have less of an impact on outcomes for participants than for those in immersion programs. This suggestion would indicate that participants in long-term immersion adventure programs have the opportunity to be fully engrossed in the activity, and therefore not as highly influenced by other unrelated activities.

Participants who are involved in adventure for only 1 hour a day may lack the depth of experiences of those who are in immersion programs. Individuals in long-term but frequent programs (such as those in this research study) may experience lesser impacts because their participation in the activity is only a fraction of their day, and they may be influenced by many other experiences outside of adventure activities.

Similar Outcome Variables in Other Research

In comparing the current research study to previous studies in adventure education (AE), I examined several similar outcome variables. Sibthorp et al. (2008) identified learning points for participants in a NOLS course, which I also examined in the current research study—confidence and competence. Although these similar outcome variables were examined in Sibthorp et al. (2008) and in the current study, it is important to note three important differences between the two studies that may have influenced results. First, Sibthorp et al.'s (2008) sample population was different from the current research study because the Sibthorp et al.'s study focused on adults (M age = 30.3), while the current study examined adolescents. Sibthorp et al. (2008) used a questionnaire that examined with Likert statements past NOLS students' learning areas from their courses that they used in everyday life, and the current research study used the Five Cs measurement. Additionally, participants in Sibthorp's research study were in immersion-type adventure programs, whereas the current study examined participants in a long-term, frequent-participation program.

Although the outcomes were not statistically significant, the current research study found greater increases in change scores of confidence and competence in students in adventure ($M = .457$ and $M = .07$, respectively) compared to those students in the comparison group ($M = .143$ and $M = -.151$, respectively). Sibthorp et al.'s (2008) research suggests that students in

immersion-based adventure programs gained certain outcomes from their experiences, including self-confidence and areas of competence. In the current study, although slightly larger gains in confidence and competence were made in the intervention group compared to the gains in the comparison group, those gains were not found to be significantly different. Therefore, these current findings indicate that the reason for changes in the confidence and competence scores are not due to participation in the adventure program.

Duerden et al. (2009) examined the link between adolescent identity development and participation in a 2-week adventure program. The program in Duerden et al.'s (2009) research study was a 2-week immersion program, which was found to positively impact identity development. In terms of outcome similarities between the two, Duerden et al. (2009) specifically focused on identity, while the current study examined positive identity as a subconstruct under the confidence variable. In the current research study, although greater overall positive increases were evident for the confidence variable in students in adventure programs ($M = .457$) compared to those not in adventure programs ($M = .143$), the difference was not statistically significant.

Positive Youth Development Research

In comparing the current research study with Lerner et al.'s (2013) comprehensive study of 4-H programs and PYD, I found some similarities and some differences. First, both programs evaluated were nonimmersion, periodic, long-term participation activities. In both the 4-H study and the current study, participants were not fully immersed in the activity for the entire duration of the research study. Instead, participation in the activity took place during small fractions of time throughout the study. The 4-H study spanned across grades 5 through 12, while the current research took place across one semester. Lerner et al.'s (2013) study also took place across a

long timeframe, which offered researchers the ability to evaluate differences between the intervention and comparison groups from year to year; whereas the current research took place during a limited timeframe, across a 5-month semester. Lerner et al.'s (2013) study indicated that students in the 4-H program had higher levels of contribution from grades 7 through 12 than those students not in the program. The current research study showed no significant differences in contribution scores between the intervention and comparison groups.

The 4-H study results also indicated higher levels of PYD for students in the intervention group during grades 8 and grades 11. The current research study found that students in the intervention group did not have any significant differences from the comparison group in PYD scores, regardless of year in school. The 4-H study also found differences in PYD development between genders in the intervention and comparison groups, whereas the current research study did not find any significant PYD differences between genders in the intervention or comparison groups. The current study did, however, find differences between overall gender and competence and confidence scores.

Lerner et al.'s (2013) research study did not break down each of the Five Cs scores for participants, but instead used the overall score of contribution to examine PYD development. Therefore, I am unable to make any direct comparisons between the current research study and that of Lerner et al. (2013) on any of the Five Cs PYD variables separately. Lerner et al.'s (2013) research examined several other outcome variables more in depth, including risk behaviors, academic engagement, depression, and other long-term outcomes. The current study solely examined the Five Cs, contribution, and adventure participation. And although Lerner et al. (2013) and the current research study were not equivalent in methodology or design, the current

study does not show support for a significant increase in PYD scores for participants in a periodic but long-term, adventure-based program.

Different Types of Classes

There is no current research that evaluates several different types of adventure-based classes that are similar to those in the current research study, but the results of the current research show that this is an important area to examine. A finding that came out of the research, but that was not a primary area of focus for the current study, was the identification of significant differences between students in the Adventure Leader classes and those in no adventure classes. This finding came from breaking the adventure program down into subcategories for examination.

As we examine the cause for a significantly higher connection change score for participants in the Adventure Leader class compared with the equivalent score for those in no adventure classes, it is important to understand the possible influence of the subconstructs in the adventure classes. Connection was examined using the subconstructs of family, school, neighborhood, and peer connections. Students in the Adventure Leader class typically have been through at least two semesters of adventure classes prior to their being enrolled in the Adventure Leader class. Experiences in the two previous semesters typically include participation in teambuilding, the ropes course, rock-climbing activities, and also advanced leadership skills such as facilitating and managing participants in adventure activities.

The Adventure Leader course requires students to be a student teacher for one of the previous classes (Adventure 1 or Adventure Leadership Training). The students in the Adventure Leader class have progressed through the entire adventure curriculum with their other peers who also have the qualifications to be in the Adventure Leader class. As a participant in the

Adventure Leader course, students are required to create lesson plans, facilitate activities, and complete processing sessions with the participants in the other adventure classes.

It is important to understand that the connection change variable looks at the difference from pretest to posttest, not the overall mean connection score at the end of the term. This distinction indicates that, although several semesters and years may have influenced changes in students' overall connection score, the change from the mean score from the beginning to the mean score at the end of the semester was significantly different from the beginning and ending mean scores of those not in any adventure programs. Students in the Adventure Leader class started with mean connection scores of 9.18, which increased to 9.46 by the end of the semester. The mean connections scores for students in no adventure classes were 8.4 at the beginning of the semester and decreased to 8.24 by the end of the semester.

As previously stated, connection may be defined as “Positive bonds with people and institutions that are reflected in bidirectional exchanges between the individual and peers, family, school, and community in which both parties contribute to the relationship” (Lerner et al., 2005a, p. 23). The Five Cs measure examines connection using the subconstructs of family, school, neighborhood, and peers. It is quite possible that students in the Adventure Leader program are gaining greater connection change scores through the deeper interactions and relationships that are found with peers and teachers, and also through the students viewing themselves as contributing members to the community of adventure. This scenario is in stark contrast to many students in high school who take classes each semester with different teachers and different peers. It may, however, be a similar relationship to that of students who participate in extracurricular or curricular activities with the same mentor or teacher for several years.

The difference in connection change scores between students in the Adventure Leader course and students not in any adventure classes may help us to understand the difference between long-term participation (over the course of three-plus semesters) in nonimmersion programs and PYD variables. In examining this assertion, I suggest that students in the Adventure Leader course should have significantly greater mean PYD scores in several variables if long-term participation was equated with greater positive outcomes, which the results of the current study do not support. There were several PYD variables for which students in the Adventure Leader class had higher mean scores in the pretest and posttest than students in other types of classes; however, I found none of the differences to be significant. Students in the Adventure Leader class had higher mean scores than students any other type of class for connection in the pretest ($M = 9.18$) and the posttest ($M = 9.46$), confidence in the pretest ($M = 8.6$) and the posttest ($M = 9.17$), contribution in the pretest ($M = 8.64$) and the posttest ($M = 8.87$), and character in posttest scores only ($M = 9.18$). Although it is interesting to note that students in the Adventure Leader class had higher mean scores in several PYD variables for both the pretest and the posttest, I found none of those differences to be statistically significant.

In examining change scores from pretest to posttest, instead of mean scores, I found that students in the Adventure Leader class had a greater positive change score than students in any other class in competence ($M = .5707$), and the score was not shown to be statistically significant. Students in the Adventure Leader class had the greatest negative change score in caring ($M = -.4286$). This result suggests that, although the change in connection was significant throughout the semester during the Adventure Leader class, the posttest mean connection score was not significantly different from that of students in any other types of classes. The number of students in the sample that represented each of the adventure classes, including the Adventure

Leader class, was lower than desired to make concrete comparisons, and this small sample size may have increased the chance of a type I error.

In examining other class types, I found it interesting to note that students in the Adventure 1 class had the greatest positive change scores ($M = .2793$) for contribution, which were not statistically significant. The high level of change may possibly be due to a ceiling effect in the other groups who have more accumulated experience. These students were also the only ones to have positive mean change scores for all PYD variables and no negative change scores from pretest to posttest. Students in the Adventure Leader Training class had the greatest positive change score in caring ($M = .9167$) and the greatest negative change score for connection ($M = -.75$), although neither score was statistically significant. In examining contribution scores, three of the four adventure classes (Adventure 1, Adventure Leader, and Adventure Outdoor Education) had positive mean changes and one class (Adventure Leadership Training) had negative mean changes, although none of the changes were statistically significant. The negative change scores in Adventure Leadership Training may be due to them reaching a ceiling on the measures at the time of the pretest. Students not in any adventure classes had a small, but negative contribution score.

It is important to point out that the sample size for each class type was relatively small, which thereby increases the chance of a type I or type II error. The results from the analysis of PYD change scores in each type of class should be considered with caution because each sample size was small. In the current research study, the most rigorous test was the examination between the comparison and intervention groups because the sample populations were sufficient enough to make accurate comparisons.

Limitations

There were several limitations to the current research study. There may have been a sampling bias for participants who agreed to participate in the research study since participation was voluntary within a convenience sample, and the sample was not randomized. Although every effort was made to ensure the intervention and comparison groups were similar in demographic variables, there may have been other variables that were not queried that may have influenced baseline differences between the groups.

The study took place at one high school in a western US state. This school has been honored for academic excellence and performance by the Department of Education, and is known for high ACT scores (average of 25.6 compared with the state average of 20.6). It also offers many advanced-placement classes (28) and has a high graduation rate (87%) and a high college attendance rate (94%), a highly educated faculty (75% have master's degrees or higher), and a wide variety of extracurricular activities. Therefore, another limitation of the study is that the high school is not representative of the average national high school.

The Five Cs research instrument is a self-reported, subjective questionnaire; therefore, students' answers may not accurately portray their Five Cs score, but rather the students' expectations for themselves on the score. This self-report response bias may skew the actual results as the result of social desirability. Some of the most commonly skipped questions on the survey may indicate that students were uncomfortable with some topics of the questionnaire. For example, three students skipped each of the items that examined social competence, valuing diversity (under the character variable), and appearance and self-worth (both under the confidence variable). One of the most commonly skipped items was the alternative-response item "Some teenagers really like their looks BUT other teenagers wish they looked different."

Therefore, questions may be skewed regarding how students thought they should answer based on societal pressure, as opposed to what their honest answer might be.

Last, even though the sample size was large enough for a thorough examination of the intervention and comparison groups, other comparisons may not have been as accurate because of the small sample sizes. When breaking down the actual sample into different types of adventure classes, for example, the sample size for each group was quite small, which thereby increased the chances for a type I or type II error.

Delimitations

I chose the research site knowing that the following delimitations would occur. First, the research study took place over a relatively short period of time, 5 months, from the pretest to the posttest. Although conducting the research study using a pretest and posttest survey was beneficial to gaining an understanding of changes in PYD scores throughout the semester, the timeframe was not long enough to determine whether changes were sustained long term.

Many research studies on adventure-participation outcomes focus on immersion programs, whereas students in the current study spent 50 minutes each day of the week throughout the semester in the adventure program. Therefore, some of the changes in PYD scores in the current research study may have been influenced by a variety of variables outside of the adventure program.

The current study took place at one urban high school that has high academic standards and a high average socioeconomic status when compared to the average high school in Colorado and others nationally. Therefore, results from this research study should not be generalized to the greater population of high schools in Colorado or the entire nation.

Recommendations for Future Research

Future research should examine differences in PYD scores between different types of elective classes and also extracurricular activity programs. To enable a full understanding of the benefits of students participating in semester-long elective classes, specific types of different elective courses should be targeted for participant selection, such as theater, arts, and so on. Doing this will help administrators and teachers to learn what youth may be gaining, if anything, from different types of activities. In addition, longer-term but frequent participation in activities, both curricular and extracurricular, should continue to be examined.

Future research studies in the curricular realm might examine whether students who participate in long-term frequent activities, such as band or choir, see similar increases in certain PYD variables (such as Adventure Leader class participants in the current study showed in the connection variable). For instance, could students who are adventure leaders be gaining similar outcomes to students who are drum majors for band? Both types of students are participating in long-term but frequent activities that provide greater levels of leadership with increasing years of participation.

Future research studies should also examine participation in extracurricular activities. Lerner et al.'s (2013) research suggests that youth who participate in 4-H programs have significantly higher PYD scores than individuals not in 4-H. Participation in long-term but frequent extracurricular activities should be examined to see whether different types of extracurricular activities such as music, academic, or athletic programs have any significantly different PYD scores.

Future research studies should be conducted for long-term frequent participation programs using follow-up surveys at least 6 months and a year after the semester has ended.

Doing this will help professionals in the field to understand whether any changes in PYD scores were sustained over the long term, instead of just at the beginning and the conclusion of students' participation in the program. Previous research in immersion adventure programs has suggested that some outcome effects of adventure participation diminish after the program ends (Russell, 2003), and also that some participants use lessons from adventure programs many years after the course has ended (Sibthorp et al., 2008). There are currently no research studies that have examined the long-term outcomes of long-term but frequent participation in adventure programs such as the one in the current research study. Therefore, data that would increase our understanding of the long-term benefits of frequent participation in adventure programs, even years after participation, would be beneficial. Results from these research studies would assist administrators in understanding how to improve long-term but frequent programming to best impact youth.

Future research should also include qualitative research for a mixed-methods approach. This might include interviews with students in the intervention and comparison groups to increase our understanding of significant influences in the youths' lives that may have contributed to PYD score changes. In addition, students may be able to more specifically clarify how the adventure classes influenced their PYD scores. This approach may help us to understand the difference in PYD score changes reflected by students across all different class types.

To enable generalization of the results across high schools, future research should be conducted at multiple schools with differing demographics that have long-term, frequent-participation ABPE classes. This approach would assist administrators in understanding the actual outcomes of nonimmersion, adventure-based programs, regardless of the programmatic differences between schools.

Conclusion

Using the Five Cs model, this study aimed to provide an evaluation of student participation in ABPE classes at a public high school and the relationship of that participation to PYD variables. Results from the research study showed no significant differences in PYD scores between students who participated in the adventure program and those who did not. This outcome suggests that, although participation in the adventure program may be a great elective choice for students to meet curricular requirements for the school, participation for one or two semesters is not enough to make any significant changes in their PYD scores when compared to students who do not participate in adventure classes.

No significant differences were seen for participants in the comparison and the intervention groups for any of the PYD variables, which suggests that the adventure program may be providing an ordinary experience for youth as they progress down their developmental path. The evidence of PYD scores for the intervention group that were not significantly higher or lower than the PYD scores for students in the comparison group emphasizes an important distinction: Although students in the intervention group did not gain any significant increase in PYD scores, their scores weren't significantly lower either, which would have indicated that the students' PYD was negatively impacted by their participation. Therefore, participation in adventure programs may help to support an average trajectory for PYD.

In the deeper examination of different types of adventure classes, the research study results provide insight into the significant finding that students in the Adventure Leader class gained greater levels of connection throughout a semester than those students who were not in any adventure classes at all. This finding may help to support the assertion that students in longer-term adventure programs gain greater outcomes from those programs.

The results from this study also highlight the need for further research to examine the outcomes for students who participate in different types of long-term, nonimmersion, adventure-based programs. The majority of current research in AE has been focused on immersion-type adventure programs. With many schools adopting adventure-based activities in PE classes, administrators and teachers need to understand what students are gaining from different types of long-term, nonimmersion, adventure programs, and how those gains are similar to or different from other types of activities. As participation in adventure programs becomes more of a familiar curricular activity, an examination of the outcomes of different types of classes would be beneficial.

In conclusion, the results from the current research study did not indicate any significant differences between students who participate in adventure classes compared to those who did not participate in adventure classes; it did, however, bring up many more questions regarding outcomes from different types of adventure-based classes. The current study predominantly examined adventure as one broad variable, with a smaller emphasis on breaking down the broad category into each different class type. Much like “athletic activities” encompass a variety of different activities including archery, rock climbing, running, or football, perhaps breaking down the different types of adventure programs or activities will help us to better understand how these variations influence youth differently, since the various activities have vast programmatic differences. The results from this research study suggest that although students in adventure classes do not have significantly different PYD scores than those who are not in adventure classes, participation in the adventure program does provide a standard experience for youth on their developmental path.

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APPENDIX A

Teacher Invitation to Participate

Hello; my name is Sally Palmer and I am a doctoral student at Colorado State University. I am here today to ask for your assistance in gathering data for a research project that focuses on the effects of participation in certain classes here at [REDACTED] on Positive Youth Development. Your participation in the research study includes allowing a minimal amount of time to be used during three class periods throughout the spring semester. I will conduct these classroom sessions, which includes

- 5 to 10 minutes at the beginning of the semester to inform students about the research project and distribute informed consent documents;
- collection of informed-consent documents from students; and
- 10 to 30 minutes of two \ class periods (one at the beginning of the semester and one at the end) to administer the survey to students who agreed to participate in the research.

Students in the class who do not participate in the research study should work on class projects, assignments, homework, or other classroom content that you approve while the other students are completing the survey.

A summary of the results of the study will be available to you at the completion of the project, if requested of me.

If you have questions about the research study and the participation requirements of teachers, please feel free to contact me at sally.palmer@rrcc.edu or by phone at 303-914-6238.

Thank you for your time.

Sally Palmer

APPENDIX B

Subject Informed-Consent Form

Colorado State University, Fort Collins, CO

You are invited to participate in a research project conducted by Sally Palmer, a doctoral student at Colorado State University, faculty member at Red Rocks Community College, and alumni of [REDACTED]. This project is conducted under the direction of Dr. Sharon Anderson, Professor of Education at Colorado State University.

This research study focuses on the effects of students' participation in an adventure-based physical education courses, electives, and other general studies classes on the students' positive youth development. This research study will specifically take place at [REDACTED] during the fall 2014 semester.

Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled. In addition, your individual privacy will be maintained in all published and written data resulting from this study. To the extent we are able, within the requirements of applicable laws and/or the Board of Education policies, all information gathered in this research will be kept confidential. For this study, a teacher will assign a code to your data (such as John Smith = 4859) so that the only place your name will appear is in a coding sheet that the teacher will keep in a secure location. This coding sheet will be destroyed after the research report is completed. Only the teacher will have access to the link between you, your code, and your data. The only exceptions to this are if we are asked to share the research files for audit purposes with the CSU Institutional Review Board ethics committee,

if necessary. I am required to inform you that there are exceptions to the promise of confidentiality. Any information revealed concerning suicide, homicide, or child abuse or neglect is required by law to be reported to the proper authorities.

You will be asked to complete a 36-item survey during two class periods throughout the semester. A copy of the survey is attached to this form. You have the right to refuse to answer or skip any questions for any reasons and end the survey.

The survey will take approximately 10 to 30 minutes during two class periods (20 to 60 minutes total) throughout the course of the semester. There is a possibility that some of the questions on the survey may cause you to feel sad or uncomfortable. You may skip questions that you don't want to answer, and you may stop taking the survey at any time. If you continue to feel sad or emotional, you should talk to your school counselor. It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential, but unknown, risks. There will be no benefits for people participating in this study but we hope to learn more about positive youth development in the school environment. A summary of the results of the study will be available to you at the completion of the project, if requested of me.

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions about the study, you can contact me, Sally Palmer, at sally.palmer@rrcc.edu If you have any questions about your rights as a volunteer in this research, contact Janell Barker, Human Research Administrator at 970-491-1655. Please retain one copy of this consent form for your records.

Your signature acknowledges that you have read the information stated and willingly sign this consent form. Your signature also acknowledges that you have received, on the date signed,

a copy of this document containing two pages. One signed copy of this document should be submitted to the student's teacher listed on the top of this form. The student will receive a copy of the consent form with the researcher's signature on the day that he/she takes the second survey. This signed copy should be retained for your records.

Signature of person agreeing to take part in the study

Date

Printed name of person agreeing to take part in the study

Student ID of person agreeing to take part in the study

Obtain your parent's permission (next page) ONLY if you are under 18 years of age.

PARENTAL SIGNATURE FOR MINOR

As parent or guardian I authorize _____ [print name] to become a participant for the described research. The nature and general purpose of the project have been satisfactorily explained to me by Sally Palmer and I am satisfied that proper precautions will be observed.

Minor's date of birth

Parent/Guardian name (printed)

Parent/Guardian signature

Date

This consent form was approved by the CSU Institutional Review Board for the protection of human subjects in research on January 14, 2014.

APPENDIX C

Pretest/Posttest Wording

During the classroom periods in which students are being administered the questionnaire, the following was read by the researcher:

Hello; my name is Sally Palmer and I am a doctoral student at Colorado State University. You have each volunteered to participate in a research study by submitting a completed Agreement to Participate in Research Study form. Your participation in this research is voluntary; you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

In a few minutes you will receive a 36-item questionnaire. Please make sure you write your name clearly on the top of the page. After you complete the survey, your teacher will change your name to a code (such as John Smith = 3985) so that all the information that we, the researchers, receive is anonymous. Twelve items on the questionnaire are structured alternative-response format, asking participants to choose between two different types of teenagers that they believe they are most like, then whether the description is “sort of true for me” or “really true for me.” An example of a structured alternative-response-format item is [write on board if possible or bring a laminated $8\frac{1}{2} \times 11$ sheet with the item on it] “Some teenagers feel that they are pretty intelligent BUT other teenagers question whether they are intelligent.” Twenty-two items are statements with corresponding numbers on a Likert scale (1–5). An example is [write on board if possible or bring a laminated $8\frac{1}{2} \times 11$ sheet with the item on it] “It bothers me when bad things happen to any person.” You have the right to refuse to answer any questions for any reasons and

end the questionnaire. You may also choose to skip a question if it is too personal or difficult to answer.

When you are done with the questionnaire you may hand it to me and then join the rest of your class.

Are there any questions?

APPENDIX D

PYD Survey Short Form

Student Name: _____ Student Code [Teachers only] _____
Teacher Name: _____
Period: _____

1. What specific classes are you taking this semester? Please check the box next to each subject in which you are enrolled in classes and write the name of the course(s) you are enrolled in. If you are unsure of the subject type, just write the course(s) under the heading "Other."

- Business: _____
 - English: _____
 - Fine Arts: _____
 - Foreign Language: _____
 - Mathematics: _____
 - Physical Education and Health: _____
 - Post Grad: _____
 - Science: _____
 - Social Studies: _____
 - Other: _____
-

2. Are you involved in any after school activities, clubs, programs, or organizations throughout the school year? If so, please list them below.

3. Are you currently enrolled in [circle all that apply]

- (a) Adventure Education I
- (b) Adventure Leader
- (c) Adventure Leadership Training
- (d) Adventure Outdoor Education
- (e) None of the above

4. Do you identify as

- Male Female No Answer

5. What year are you in school?

- Freshman Senior
 Sophomore Other:
 Junior _____

The following pairs of sentences are talking about two kinds of kids. We'd like you to decide whether you are more like the kids on the left side, or you are more like the kids on the right side. Then we would like

you to decide whether that is only sort of true for you or really true for you and mark your answer.

Mark only one *X* for each pair of sentences:

	Really True for Me	Sort of True for Me			Sort of True for Me	Really True for Me
	1	2			3	4
3.			Some teenagers feel that they are just as smart as others their age.	BUT	Other teenagers aren't so sure and wonder if they are as smart.	
4.			Some teenagers have a lot of friends.	BUT	Other teenagers don't have very many friends.	
5.			Some teenagers think they could do well at just about any new athletic activity.	BUT	Other teenagers are afraid they might not do well at a new athletic activity.	
6.			Some teenagers do very well at their class work.	BUT	Other teenagers don't do very well at their class work.	
7.			Some teenagers feel that they are better than others their age at sports.	BUT	Other teenagers don't feel they can play as well.	
8.			Some teenagers are happy with themselves most of the time.	BUT	Other teenagers are often not happy with themselves.	
9.			Some teenagers are popular with others their age.	BUT	Other teenagers are not very popular.	
10.			Some teenagers think that they are good looking.	BUT	Other teenagers think that they are not very good looking.	
11.			Some teenagers do things they know they shouldn't do.	BUT	Other teenagers hardly ever do things they know they shouldn't do.	
12.			Some teenagers really like their looks.	BUT	Other teenagers wish they looked different.	
13.			Some teenagers usually act the way they know they are supposed to.	BUT	Other teenagers often don't act the way they are supposed to.	
14.			Some teenagers are very happy being the way they are.	BUT	Other teenagers wish they were different.	

How much do you agree or disagree with the following?

	Strongly agree [5]	Agree [4]	Not sure [3]	Disagree [2]	Strongly disagree [1]
15. All in all, I am glad I am me.					
16. When I am an adult, I'm sure I will have a good life					

How important is each of the following to you in your life?

	Not important [1]	Somewhat important [2]	Not sure [3]	Quite important [4]	Extremely important [5]
17. Helping to make the world a better place to live in.					
18. Giving time and money to make life better for other people.					
19. Doing what I believe is right even if my friends make fun of me.					
20. Accepting responsibility for my actions when I make a mistake or get in trouble.					

Think about the people who know you well. How do you think they would rate you on each of these?

	Not at all like me [1]	A little like me [2]	Somewhat like me [3]	Quite like me [4]	Very much like me [5]
21. Knowing a lot about people of other races.					
22. Enjoying being with people who are of a different race than I am.					

How well do each of these statements describe you?

	Not well [1]	[2]	[3]	[4]	Very well [5]
23. When I see someone being taken advantage of, I want to help them.					
24. It bothers me when bad things happen to any person.					

25. I feel sorry for other people who don't have what I have.					
26. When I see someone being picked on, I feel sorry for them.					
27. It makes me sad to see a person who doesn't have friends.					
28. When I see another person who is hurt or upset, I feel sorry for them					

How much do you agree or disagree with the following?

	Strongly agree [5]	Agree [4]	Not sure [3]	Disagree [2]	Strongly disagree [1]
29. I get a lot of encouragement at my school					
30. Teachers at school push me to be the best I can be.					
31. I have lots of good conversations with my parents.					
32. In my family I feel useful and important.					
33. Adults in my town or city make me feel important.					
34. Adults in my town or city listen to what I have to say.					

How true is each of these statements for you?

	Always true [5]	Usually true [4]	Somewhat true [3]	Seldom true [2]	Almost never true or never true [1]
35. I feel my friends are good friends					
36. My friends care about me.					

1st Survey

On the date listed above, Sally Palmer will visit your classroom to distribute the 1st survey to students whose parents have signed the Informed Consent form. *Please make sure to bring this folder along with all Informed Consent forms and the copy of your class list to this class period.* Sally Palmer will call the students aside who can participate in the research study. She will give the students the survey to complete, which will take approximately 10 to 20 minutes. The students may be taking the survey in the hallway or in a corner of the classroom. As individual students complete the survey, they will return with the rest of the class. Sally Palmer will take the completed surveys, the Informed Consent form, your class list, and this folder after the last student has finished taking the survey. All of the materials will then be given to [REDACTED].

2nd Survey

On the date listed above, Sally Palmer will visit your classroom to distribute the second survey to the students who have completed the first survey and have submitted the Informed Consent form. Similar to the first survey, Sally will call the students aside to participate; this may take place in the hallway or in the classroom. Again, this survey should take 10 to 20 minutes, and students will rejoin the class after they have completed the survey. Sally Palmer will take the completed surveys, the Informed Consent form, your class list, and this folder after the last student has finished taking the survey. All of the materials will then be given to [REDACTED].

Thank you for participating in the research study! If you have any questions, please don't hesitate to call me at 303-914-6238 or e-mail me at sally.palmer@rrcc.edu