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THE EFFECTS OF AN INDOOR ROCK CLIMBING PROGRAM ON HIGH SCHOOL AGED STUDENTS WITH DEVELOPMENTAL DISABILITIES

**A Master's Thesis Presented to the
Faculty of the Graduate Program in Occupational Therapy
Ithaca College**

In partial fulfillment of the requirements for the degree of Master of Science

By

Nicole Biatowas

SEPTEMBER 2018

Ithaca College
School of Health Sciences and Human Performance
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CERTIFICATE OF APPROVAL

This is to certify that the thesis of

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Submitted in partial fulfillment of the requirements of the degree of Master of Science in
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Abstract

Finding and keeping employment is an area that is particularly difficult for people with disabilities (Erickson, von Schrader & Lee, 2017). Buttimer & Tierney (2005) found that participation in leisure and recreation activities predicts quality of life and promotes inclusion in the community for youth with mild to moderate developmental disabilities. Serious leisure engagement among people with disabilities has been found to develop increased levels of confidence, skills and self-esteem (Patterson & Pegg, 2009). Serious leisure activities can include indoor rock climbing. The purpose of this study was to examine the effects of participating in an indoor rock climbing program on high school aged students diagnosed with developmental disabilities who were simultaneously enrolled in a career skills program. The program outcomes were retrospectively analyzed in a sample of eight high school students engaged in an indoor rock climbing program for a six-week period at an Ivy League university in the Northeast region of the United States. The outcome measures consisted of qualitative and quantitative data collected in the form of semi-structured interviews, global quality of life scale, and a Likert-scale style questionnaire that were administered to the eight students. Students reported that the indoor rock climbing program had positive effects on them. The overarching positive themes found in the data were related to vocational benefits and social emotional benefits. There were some minor unfavorable effects identified which included that the program caused stress and there was dislike for the rock climbing experience. These are novel themes when compared to the findings in the literature. Though the sample size was very small, the outcomes from this program were quite positive and as such, it can serve as an exemplar for indoor rock climbing gyms and occupational therapy programs that may want to use similar methods to promote confidence, new learning, goal achievement, socialization, trust, enjoyment, and improved mental well-being.

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Dedication

To the people who have always supported me: Mom, Dad, Kristen, Lauren, Gramma, Grampa, Uncle Jim, Aunt Marge, Roxy, Patty and more. I love you all very much and would not be able to help others through my career as an occupational therapist without you!

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Chapter 1: Introduction

Preamble:

The number of people who reported a disability was estimated to be 12.8 percent in the United States (Erickson, von Schrader & Lee, 2017). In 2015, according to data from the American Community Survey (ACS), 35.2% of working age (ages 21 to 64) people with disabilities were employed, compared to 78.3% of those without disabilities (Erickson, von Schrader & Lee, 2017). These disability statistics were collected by professionals at Cornell University and are reflective of the United States (Erickson, von Schrader & Lee, 2017). This disparity in employment translates into lower annual median earnings, lower household income rates and therefore higher poverty rates for people with disabilities (Erickson, von Schrader & Lee, 2017).

Poverty is indicated by making less than 50% of the median household income (Emerson, 2007). Poverty is linked to poor mental health and well-being (Emerson, 2007). Health disparities are more likely to be experienced by individuals with intellectual disabilities than typically developing individuals (Ervin & Merrick, 2014). People with intellectual disabilities experience a high cost of healthcare (Ervin & Merrick, 2014). The costs vary depending on the severity of the disability, which include higher overall disability costs, health related expenditures, assistance with daily cost, and transportation costs (Mitra, Palmer, Kim, Mont & Groce, 2017). People with intellectual disabilities likely access the healthcare system when care and treatment are more extensive, which causes it to be costlier (Ervin & Merrick, 2014). People diagnosed with intellectual disabilities are more likely to experience health disparities and have higher rates of chronic disease (Ervin & Merrick, 2014). They have less access to preventative

primary care and health promotion resources which results in later access of the system which is more costly (Ervin & Merrick, 2014).

People with developmental disabilities often rely on government benefits, face extremely high unemployment rates, and have difficulty becoming part of a community (Migliore & Butterworth, 2008). Employment can provide social validity, economic independence, and self-sufficiency for those with intellectual disabilities (Monteleone, 2016). Improved quality of life and well-being has been linked to employment for those with disabilities (Monteleone, 2016). The benefits of employment for people with disabilities are not only socio-economic gains, but also the sense of personal self-worth and value. The benefits of employment for individuals with intellectual disabilities includes “the sense of feeling productive and staying busy, having relationships with coworkers feeling important, increased income, and having the opportunity for continued growth and advancement” (Burge, Ouellette-Kuntz & Lysaght, 2007, p. 29). Increased career interests may be cultivated by enhancing self-efficacy beliefs and outcome expectations through persistent academic or vocational experiences (Hackett, Betz, Casas & Rocha-Singh, 1992).

For five years, a class of high school students with a variety of developmental disabilities have participated in a Career Skills Program (CSP) at a university in the northeast of the United States of America. The students are given different opportunities to learn vocational-related skills and work towards acquiring a Career Development Occupational Studies Commencement Credential or the Skills and Achievement Commencement Credential. The Skills and Achievement Commencement Credential was established. It can replace an individualized education program diploma and is only available to students with disabilities (DeLorenzo, 2013). Students must be provided instruction in Career Development and Occupational Studies

standards (DeLorenzo, 2013). The students must be between the ages of 14 and 21 to participate in the Career Skills program (CSP). The CSP aims to help students with disabilities develop employable skills that will give them the potential to support themselves in the future. This program is designed to ease the transition for these adolescents from school into the work force and economic independence.

The students explore a variety of realistic career options at the university's campus such as working in the greenhouse, cafes, and kitchens. The students work on campus two days a week and develop skills with college student mentors three days a week. In addition to the vocational training, this program partnered with the outdoor education program to provide a six-week indoor rock climbing program for eight students who have developmental disabilities and were in the Career Skills Program. The goals of the rock climbing experience were to help students develop confidence, self-esteem, problem solving skills, gain physical strength, and have fun while they challenged themselves. These goals have been supported in rehabilitation and physical education literature (Halliday, 1999; Herbert, 1996). In addition to the indoor rock climbing program, the students had been participating in the CSP through which they are provided opportunities to work on career skills and also provided opportunities to enhance feelings of self-efficacy.

Research about the effects of indoor rock climbing on students with disabilities is not plentiful. Researchers Mazzoni, Purves, Southward, Rhodes, and Temple (2009) developed a study that explored the effect of a six-week indoor wall climbing on self-efficacy and self-perceptions of children with developmental disabilities. The researchers found that children's self-efficacy improved significantly, however overall confidence in athletic ability and global self-worth did not change over time or differ from the wait-listed control group (Mazzoni et al.,

2009). The researchers felt the students needed more experiences that enhance the feelings of self-efficacy than could be accomplished in the six-weeks of climbing (Mazzoni et al., 2009).

Bandura's classic theory of self-efficacy may be considered as a rationale for pursuing a rock climbing program. According to Bandura (1977), perceived self-efficacy is one's thoughts about their ability to perform a behavior successfully. Perceived self-efficacy is shaped by four elements which include: performance accomplishments, vicarious learning, verbal persuasion, and emotional arousal (Bandura, 1977). All of these occurred in the indoor rock climbing program. For example, performance accomplishment could be viewed as reaching the top of the 30-foot rock climbing wall or tying a figure eight knot. Vicarious learning was included in the program through the students witnessing their peers accomplishing their goals. Verbal persuasion was incorporated through encouragement from peers. Emotional arousal was visible when students reached their goal and were excited by their accomplishment.

Problem statement: Active participation in serious leisure pursuits can enhance an individual's sense of self-efficacy. There is limited research to support the use of rock climbing programs for adolescents with disabilities.

Statement of purpose:

The purpose of this study was to analyze the outcomes of the rock climbing program in order to gain an understanding of the effects that the program had on the students with disabilities.

Hypothesis:

Based upon the review of the literature and theory related to the project, three hypotheses were developed. They were:

1. At the conclusion of the indoor rock climbing program, students will record a higher global quality of life compared to their initial score.
2. Students will express positive effects of the indoor rock climbing program at its conclusion.
3. The global quality of life mean for these students will be significantly different from the pretest to the posttest.

Research question:

What effect did an indoor rock climbing program have on high school students with developmental disabilities?

Chapter 2: Review of Literature

This literature review contains four main sections. Section one examines the current literature regarding the programs that assist the social and emotional capabilities of people with developmental disabilities. The second section discusses current literature relating to vocational opportunities and skills for people with developmental disabilities. The third section includes literature pertaining to occupational therapy and theory as it relates to these programs and population. The fourth includes literature pertaining to rock climbing programs and outdoor education programs.

Section One: Programs that Assist the Social and Emotional Capabilities of People with Developmental Disabilities

According to the Center for Disease Control (2017), developmental disabilities can be defined as autism spectrum disorder, developmental delay, emotional disturbance, hearing impairment, intellectual disability, speech or language impairment, or specific learning disability. The Center for Disease Control (CDC) is the U.S. government health protection agency. Individuals who have been diagnosed with a developmental disability may experience difficulty understanding social rules and emotional expression (CDC, 2017). For example, they may avoid eye contact and have difficulty understanding others and their own emotions. This can cause difficulty with functioning and independence (CDC, 2017). Also, people with developmental disorders frequently experience deficits in executive functioning (Costanzo et al., 2013). Executive functioning skills are the ability to problem solve, plan, establish goals, monitor work, and initiate and terminate tasks (Radomski & Morrison, 2014). Coping with workplace obstacles and barriers requires executive functioning skills such as being able to take control and making conscious decisions (Gerber, Ginsber & Reiff, 1992).

According to Law, King G., King S. et al., (2006), participation in activities is how people form friendships, develop skills and competencies, express creativity, achieve mental and physical health, and determine meaning and purpose in life. Children with disabilities tend to be restricted in what activities they can participate in (Murphy & Carbone, 2008). Lower levels of participation in physical activities for children with disabilities have been linked to poor health and social isolation (Rimmer, Rowland & Yamaki, 2007). Buttimer and Tierney (2005) found that participation in leisure and recreation activities predicts quality of life and promotes inclusion in the community for youth with mild to moderate developmental disabilities. There is research that indicates levels of confidence and self-esteem can increase due to activity participation for individuals with developmental disabilities (Caldwell & Gilbert, 1990; Murphy & Carbone, 2008).

Health and well-being have been linked to social exclusion and inclusion. It is essential for the well-being of people with Intellectual Disabilities (ID) to develop meaningful relationships and participate in social activities within a community (Thorn, Pittman, Myers & Slaughter, 2009). Accessing and becoming part of the community can facilitate developing and engaging in meaningful and intimate social relationships as well as experiencing acceptance for individuals with ID (Hall, 2005; Milner & Kelly, 2009). O'Brien (1989) identified five interdependent dimensions of human experience that scholars and practitioners have used to identify enablers and barriers to adults with ID (Van Asselt, Buchanan & Peterson, 2015). These dimensions include: "(a) grow in their relationship via community participation, (b) exercise choice & control, (c) experience dignity in occupying valued social roles, (d) share ordinary places through community presence, (d) contribute to community through discovery and/or expression of their gifts and/or capacities" (Van Asselt, Buchanan & Peterson, 2015, p. 38).

Researchers investigated the enablers and barriers of social participation of adults ages 18-30 with ID (Van Asselt, Buchanan & Peterson, 2015). These adults participated in an inclusive community leisure program, SocialUS, in order to facilitate opportunities to develop connections (Van Asselt, Buchanan & Peterson, 2015). Members with and without disability engaged in occupations that support community engagement (Van Asselt, Buchanan & Peterson, 2015). Participants and family members were interviewed and observational data were collected (Van Asselt, Buchanan & Peterson, 2015). Across the five dimensions identified by O'Brien (1989), researchers identified that community participation and contribution facilitated by SocialUS optimized participants' movement toward social inclusion (Van Asselt, Buchanan & Peterson, 2015).

Section Two: Vocational Barriers and Necessary Employable Skills for People with Developmental Disabilities

Employment is an important factor to physical and psychological well-being (Chan Leahy & Saunders, 2005).

There are over 240 post-secondary education (PSE) programs that exist on college and university campuses for students with intellectual disabilities in the United States (Scheef, 2016). These programs address the struggles that these students face in finding and maintaining work (Scheef, 2016). Providing work experience is an important component of career development for individuals with intellectual disabilities (Grigal, Hart & Weir, 2011). A study investigated the barriers that PSE employees face when trying to place students with disabilities in paid work experiences. Some of the barriers that were identified by PSE employees were individual skill deficits of students, poor workplace behavior of students, lack of transportation, insufficient student employment training, employer perceptions about individuals with intellectual

disabilities, safety concerns, and lack of employer disability awareness (Scheef, 2016). These are barriers that PSE employees face, but also some of the barriers people with disabilities face when seeking employment (Scheef, 2016).

Employment is a sign of success in American society and allows individuals to be self-sufficient (Szymanski, Enright, Hershenson & Ettinger, 2003). Overall, self-esteem and personal satisfaction can also be influenced by employment status (Szymanski et al., 2003). However, people with developmental disabilities face a lack of limited employment opportunities which causes financial instability (Lindstrom, Doren & Miesch, 2011). According to research, self-esteem, self-efficacy, and career expectations contribute to higher wage employment and career satisfaction over time (Wehmeyer & Schwartz, 1997). Research has found that self-identified career goals were achieved by young women with learning disabilities who demonstrated high levels of personal determination and motivation (Gerber, Ginsber & Reiff, 1992). A study followed a sample of individuals with intellectual disabilities for 7 to 10 years after exiting high school (Lindstrom, Doren & Miesch, 2011). These researchers found that higher levels of self-efficacy and motivation and more advanced coping skills equated to more successful employment (Lindstrom, Doren & Miesch, 2011). People with disabilities need training in coping skills, self advocacy, and communication in order to be successful in employment (Lindstrom, Doren & Miesch, 2011). This training can enhance personal attributes and strengthen persistence and self-efficacy, which are beneficial when seeking employment (Lindstrom, Doren & Miesch, 2011).

Section Three: Occupational Therapy and Theory

Occupational therapists seek to support a client's participation in daily living (AOTA, 2014, p. S4). Occupational therapy is defined as "the therapeutic use of everyday activities" in

order to support and improve an individual or groups' participation in roles, habits, routines in home, school, workplace, community, and other settings (AOTA, 2014 p. S1). Occupational therapists consider client factors and skills in order for successful participation in their activities of daily life (AOTA, 2014, S1). Client factors may include values, beliefs, spirituality, and body functions. For example, it was important to consider the students' temperament and personality, attention, memory, processing level, perceptions, and emotional functioning when the students were learning how to rock climb. These are all client factors that an occupational therapist may consider in addition to client performance skills. Some of these performance skills may include social interaction skills, processing skills, and motor skills. For example, one of the students had difficulty with his fine motor abilities, so the instructor modified the task by choosing a section of the rock climbing wall with larger holds that were easier to grip. The instructor also challenged the student's fine motor abilities by teaching him how to tie the knot into his harness in order to be secure and safe to climb. The Occupational Therapy Practice Framework: Domain and Process (OTPF) outlines the scope and domain of practice of occupational therapy (AOTA, 2014). It is published by the American Occupational Therapy Association, which updates and publishes professional documents for practitioners. The OTPF is embedded with the "profession's core belief in the positive relationship between occupation and health and its view of people as occupational beings" (AOTA, 2014, p. S3).

The OTPF defines different skills and roles of clients (AOTA, 2014). The OTPF defines self-concept as "the composite of beliefs and feelings about oneself" (AOTA, 2014, p. S35). Social interaction skills are defined as "occupation-based performance skills observed during the ongoing stream of social exchange" by the OTPF (AOTA, 2014, p. S26). Throughout the rock climbing experience, the students exhibited more social behaviors with one another and the

instructors as demonstrated by cheering each other on and developing relationships with their climbing buddies. Some of the students reported talking about the program at home with family or at school with friends and classmates.

The profession of occupational therapy has many theories that can organize information and which guides practice. These theories can be broad or specific to a population or setting. A theory helps practitioners “describe, explain, and predict behavior and/or the relationship between concepts or events” (Cole & Tufano, 2008, p. 55). Occupation-based models are also referred to as theories which organize ideas and structure thoughts about problems (Cole & Tufano, 2008, p. 61). Occupation-based models “attempt to incorporate every area of OT practice and to explain the relationship of occupation, person, and environment” (Cole & Tufano, 2008, p. 61). Theories and models are terms that are used interchangeably. Models or theories guide an occupational therapist as they gain perspective about the systems and context of clients (Cole & Tufano, 2008). Models or theories help an occupational therapist find meaningful roles for a client and consider options for goals as well as barriers (Cole & Tufano, 2008).

The Person-Environment Occupational Performance (PEOP) Model is a broad theory that emphasizes the interaction of three components. It is one of the most widely used contemporary occupation-focused models (Lee, 2010). The first belief of this theory is that the want to explore and demonstrate success in one’s world is innate (Christiansen & Baum, 1997). This may require adaptation to challenges in daily life which require the use of resources such as emotional maturity and problem solving skills (Christiansen & Baum, 1997). Adaptation to a situation can measure the success of demonstrating mastery (Christiansen & Baum, 1997). The second belief of the model is that settings in which people are successful make them feel good about

themselves (Christiansen & Baum, 1997). Therefore, people are able to face challenges with confidence (Christiansen & Baum, 1997).

PEOP is a client-centered model which focuses on individual's needs and goals rather than their diagnosis and impairments (Christiansen & Baum, 1997). It was important to consider the students' needs and goals before their diagnosis and impairments. The needs of these students included skill development in order for the goal of employment. Occupational therapists use the PEOP model to identify and consider factors that influence performance which are characteristics of individuals, unique environments in which they function, nature and meaning of actions, tasks & roles of person, existing ideas and traditions in occupational therapy based research and that are accepted and easy to understand (Christiansen & Baum, 1997). Occupations help a person to develop self-identity and feelings of accomplishment (Christiansen & Baum, 1997).

According to PEOP theory, occupational therapy facilitates adaptation with clients (Christiansen & Baum, 1997). In order to adapt, a person must develop or use resources from a collection of strategies which enable successful performance of the necessary and meaningful occupations in their lives (Christiansen & Baum, 1997). People are occupational beings and have many influences that affect motivation (Christiansen & Baum, 1997). The way an individual views themselves can affect their motivation (Christiansen & Baum, 1997). Identity can assert motivation (Christiansen & Baum, 1997). Motivation can be expressed through a decision to choose one activity over another or initiating an activity (Christiansen & Baum, 1997). There are two theories of motivation that guide PEOP which are intrinsic theories of motivation and cognitive theories of motivation. Intrinsic motivation is the internal drives and needs of a person (Christiansen & Baum, 1997). The role of thought processes which influence goal setting and

self-control are influenced by cognitive motivation (Christiansen & Baum, 1997). Many of the students set their goal to be reaching the top of the rock climbing wall which could have caused by cognitive or intrinsic motivation. The goals of the students progressed over the weeks. For example, some of the students wanted to get halfway up the wall in the initial week and then climb the wall three times to the top during the final week.

Self-efficacy is another factor which influences the occupational performance of an individual (Christiansen & Baum, 1997). In 1994, researchers, Gage and Polatajko, found that people who have higher self-efficacy tend to view their overall well-being as more favorable and will likely continue pursuing a task even if they experience multiple setbacks. Those that experience repeated failures may have lower confidence in themselves (Gage & Polatakjo, 1994). According to researchers, work engagement and self-efficacy lead to higher personal initiative which then leads to higher performance (Lisbona, Palaci, Salanova & Frese, 2018). Two foundational elements of personal initiative are engagement and self-efficacy (Lisbona, Palaci, Salanova & Frese, 2018). “Helplessness” has been used to describe people whose failures have caused them to have low self-efficacy (Seligmann, 1991; Maier & Seligman, 1976). Feelings of helplessness can be triggered by a traumatic event or condition (Christiansen & Baum, 1997). Self-efficacy has been found through research to influence the performance of individuals. For example, in a research study where people received training for increased competence showed greater success than people who didn’t receive training (Kilpatrick-Tubak & Ross, 1978; Wool, Siegal & Fine, 1980). The students were trained how to rock climb and found success in the goals they set to achieve. Some of the students reported that they felt that their successes in the rock climbing program made them believe they were capable of more than they previously thought.

Within the PEOP theory, it is stated that personality influences choice of occupations (Christiansen & Baum, 1997). Researchers found that personality traits influence activity preferences and levels in both children and adults (Buss & Block 1980; Frese, Stuart & Hannover, 1987; Furnham, 1981; George, 1978). The five major dimensions of personality include problem-solving skills, emotional adjustment, interactions with others, acceptance of group values and norms, and activity levels (Christiansen & Baum, 1997). Another component of an individual is their values which influence choice, conduct and meaning in daily life. People interpret meaning through interpretation of life events (Christiansen & Baum, 1997). Intentions and actions are filled with meaning and are socially and culturally influenced (Christiansen & Baum, 1997). Spiritual meaning is an individual's sense of self and his or her beliefs about power, control and meaning in life, as these are formulated in thought and experience (Christiansen & Baum, 1997).

Occupational performance is defined as the doing of occupations that are broken up into work, pleasure, or self-maintenance (Christiansen & Baum, 1997). Occupations have a purpose and entail social dimensions (Christiansen & Baum, 1997). Environment always influences occupational performance and our inclination to interact with our environment (Berlyn, 1960). There are different types of environments, such as physical and cultural environment, which are impacted by societal factors (Christiansen & Baum, 1997). People are social beings; therefore, social support also affects occupations and contributes to health and well-being (Christiansen & Baum, 1997).

The goal of occupational therapy is to prevent, remediate, or reduce dysfunction that impairs or limits occupational performance (Christiansen & Baum, 1997). The PEOP model gives therapists a framework to carry out this goal by organizing information and creating

interventions for clients (Christiansen & Baum, 1997). There are no specific intervention guidelines or techniques defined by the PEOP model (Lee, 2010). Rather the PEOP model serves as a general framework for occupational therapists devising interventions and designing outcome measures (Lee, 2010). The PEOP model has guided interventions for adults who have experienced a stroke (Hartman-Maeir, Soroker, Ring, Avni & Katz, 2007; Hartman-Maeir et al., 2007) as well as children with development coordination disorder (Taylor, Fayed & Mandich, 2007).

Occupations are defined in many ways but the overarching theme is that they are activities that are meaningful to an individual (Law, Polatajko, Baptise & Townsend et al., 1997). Engagement in occupations contribute to living a meaningful life (Hammell, 2004). Competence in occupational engagement is followed by subsequent feelings of self-empowerment (Radomski & Latham, 2014). Occupational therapists use occupation as a therapeutic change agent (Gillen, 2009). Occupational therapists use occupation-based interventions and evaluations to promote engagement in life tasks (Fisher, 2013).

Section Four: Rock Climbing, Outdoor Education Programs and Leisure Activities

Published research about the effects of indoor rock climbing and outdoor education programs on people with developmental disabilities is sparse. However, according to the literature, rock climbing programs for people with disabilities dates back to 1984 (McClung). Much of the literature focuses on the physical benefits and the effect on their ability to rock climb rather than the psychosocial effects. The literature that has been included pertains to individuals diagnosed with disabilities. Indoor rock climbing has been shown to improve muscular strength, mobility, and aerobic fitness according to the literature (Lirgg, Di Brezzo, & Gray, 2006; Watts & Drobish, 1998; Cheng, Ressurreccion, Tzeng, & Diamond, 2004).

In addition to the physical benefits of serious leisure engagement among people with disabilities has been found to develop increased levels of confidence, skills and self-esteem (Patterson & Pegg, 2009). Serious leisure may be considered a “non-traditional” therapy. Non-traditional therapies are emerging trends that have been recorded to improve physical and social domains of learning (Cavanaugh & Rademacher, 2014).

Researchers surveyed 10 individuals with mild to moderate intellectual disabilities who participated in leisure activities through community-based agencies (Patterson & Pegg, 2009). There were a wide range of leisure activities that the participants were engaged in which included lawn bowls, ten pin bowling, track and field athletics, tennis, guitar playing, singing and volunteering (Patterson & Pegg, 2009). Their ages ranged from 19 years to 57 years with half of those interviewed being aged between 20 and 29 years (Patterson & Pegg, 2009). The major themes that the researchers identified were “the importance of serious leisure; the positive benefits of serious leisure; making new friends; joining a serious leisure association and volunteering as a serious leisure activity” (Patterson & Pegg, 2009, p. 395). The researchers found that leisure involvement helped individuals with disabilities to “gain the necessary confidence to communicate with a range of people, and to assist each of them to develop new skills that provided them with a sense of accomplishment, self-esteem, dignity and pride which, in turn had facilitated their social inclusion in community settings” (Patterson & Pegg, p. 399).

The involvement of leisure and recreation activities of students over the age of 16 years attending a full time special education school for students with mild intellectual disabilities was investigated (Buttimer & Tierney, 2005). The most commonly reported leisure activities were “television, music, eat out, walk, listen to radio, make telephone calls, shop, read a magazine, receive telephone calls, visit family, travel in a car, watch movie, play computer” (Buttimer &

Tierney, 2005, p. 31). The participants of this study reported low levels of social interaction during the leisure activities of their participation (Buttimer & Tierney, 2005). The researchers also identified barriers to leisure participation (Buttimer & Tierney, 2005) which included “access to” and “location of” of leisure activities as reported by the students and parents.

Literature has identified some other barriers to leisure participation as “lack of friendship, deficit in skill and independence, deficient social skills (self-care and communication) as well as cognitive deficits associated with games and hobbies skills including picture recognition, numeracy, time and money recognition” (Buttimer & Tierney, 2005, p. 27).

Researchers have collected data regarding the effects of a surf skills program on children diagnosed with autism spectrum disorder (Cavanaugh & Rademacher, 2014). The camp was two days in length in addition to an orientation and a social for the families (Cavanaugh & Rademacher, 2014). Social competence, social skills and self-concept of students with ASD were the outcomes that were investigated during this study (Cavanaugh & Rademacher, 2014). There was no statistical significance recorded in the outcome scores; however there was an observable difference in assertion, responsibility, engagement, interaction, and confidence (Cavanaugh & Rademacher, 2014).

Research has been performed regarding the psychosocial effects of scuba diving for individuals with acquired physical impairments (Carin-Levy & Jones, 2007). Interviews were conducted with three participants who experienced a spinal cord injury or an amputation. Four overarching themes were found in the data which were freedom from impairment, enhancement of social experiences, enhancement of self-concept and optimal experience (Carin-Levy & Jones, 2007). The researchers found that diving may have great potential for enjoyment and self-fulfillment for people with disabilities (Carin-Levy & Jones, 2007). Carin-Levy and Jones (2007)

concluded that “diving as an occupation also seems to have huge potential for personal and social transformation” (p. 12). The researchers (Carin-Levy & Jones, 2007) cited that occupations that offer the ability to exercise choice and control over the body, mind, and environment can help people find meaning (Townsend, 1997).

Challenge activities are defined as those in which students learn through group and individual reflection on an activity such as games, trust exercises, communication activities, and ropes course activities (Halliday, 1999). These experiences have been found to increase self-esteem (Halliday, 1999). Rope course activities are an example of challenge education experiences and are performed on structures of various heights. These activities have been found to develop self-confidence, extend limits of perceived competence, and develop cooperation with others (Schoel, Prouty & Radcliffe, 1989). A group of occupational therapy students led an adventure-based challenge program for adolescent girls (Lauer, Bathurst & Richardson, 2017). The goal of this ten-week program was to include the girls in activities that improved social interaction skills and self-concept (Lauer, Bathurst & Richardson, 2017). The students found the data to be statistically significant and there was a positive impact to be found on the girls involved in the program (Lauer, Bathurst & Richardson, 2017). Groups of college students participated in a high ropes course and their self-efficacy was assessed before and after the program (Cordle, Van Puymbroeck, Hawkins & Baldwin, 2016). The researchers found that high ropes courses can impact self-efficacy development (Cordle, Van Puymbroeck, Hawkins & Baldwin, 2016).

In Canada, a six-week rock climbing program was provided to 46 children that were ages 6- 12 years old (Mazzoni, Purves, Southward, Rhodes & Temple, 2009). Each child that was recruited for the study had a physical, developmental and/or emotional behavior challenge and

was referred for the program by an occupational therapist or a physiotherapist due to difficulties in physical education classes (Mazzoni et al., 2009). The students climbed after school for one hour for 6 weeks and the ratio of belayers (occupational therapists, physiotherapists, volunteers) to climbers was 1:1 or 1:2 (Mazzoni et al., 2009). Mazzoni et al. (2009) collected data about belayers' ratings of children's climbing efficacy, height climbed and route difficulty, children's self-efficacy toward climbing, and for children's self-perceptions of athletic and social competence, self-worth. The results showed a significant improvement in the children's climbing efficacy and height climbed as recorded by the belayers. The children's ability to complete more difficult routes had no effect by the program. Rock climbing routes are graded on a scale system that is defined by how difficult the climber's moves are to complete a route and reach the top of the climb. The children's self-efficacy toward climbing was significantly improved. Mazzoni et al. (2009) found that the children's conclusions about their athletic and social competence and global self-esteem did not change over time or differ from the control group. All of the children wanted to continue rock climbing after the program (Mazzoni et al., 2009). It is important to note that the children in this study had a wide range of disabilities and were mostly boys (Mazzoni et al., 2009). There was no evidence that generalized efficacy was developed during this program and its suggested additional programs aimed at developing self-efficacy may be necessary in order for children to generalize self-efficacy to other situations. Mazzoni et al. (2009) suggested additional programming related to self-efficacy so the students could make gains in the areas of athletic, social and global self-esteem.

The impact of an indoor rock climbing program on 26 high school students was investigated by a graduate student, Patrick Boudreau (2017). The program took place 5 days a week for 75 minutes for 5 months (Boudreau, 2017). He was interested in measuring the

effectiveness of learning activities and instructional strategies during the indoor rock climbing program on student's climbing efficacy (Boudreau, 2017). Climbing self-efficacy was defined as "an individual's confidence to climb a vertical wall successfully with efficient techniques" (Boudreau, 2017, p. 17). Boudreau (2017) found that while climbing self-efficacy did increase, it was not significant. This study found evidence that providing meaningful, diversified, individualized, and progressively challenging learning activities in a safe and collaborative environment developed climbing self-efficacy (Boudreau, 2017). In this program, the students were provided an indoor rock climbing program with elements suggested by Mazzoni, Purve, Southward, Rhodes and Temple (2009). These researchers recorded self-efficacy of students who participated in an indoor rock climbing program and suggested another element of the program to boost self-efficacy in addition to six weeks of rock climbing. The students were also enrolled in the CSP which has a goal of increasing students' confidence in relation to employment.

A study which was published in 1984, investigated the impact of a rock climbing program on people who were mental health clients from a local hospital and outpatient program (McClung). Many of the clients were diagnosed with schizophrenia (McClung, 1984). Six participants completed the program and were deemed "chronically mentally ill" according to the definition by the State of Arizona (McClung, 1984). The study included four weeks of baseline data collection, six weeks of rock climbing and counseling, and four weeks of post-program data collection (McClung, 1984). The participants went on a day trip each week and this program provided the participants with outdoor rock climbing experiences (McClung, 1984). The researcher was interested in determining whether the rock climbing program could effect change on certain personality characteristics and behaviors assessed by the Minnesota Multiphasic Personality Inventory, The Tennessee Self Concept Scale, and Interview Assessment and

Questionnaire, self-reported behavioral data, goal achievement, and case study techniques (McClung, 1984). Through an analysis of the results, the researcher concluded that the study suggested that the six participants in the study benefitted from the rock climbing experiences (McClung, 1984). The results had some conflicting information which could be due to the situational and cyclical natures of the conditions of the participants in the study (McClung, 1984).

A more recent rock climbing program in Denmark focused on the possible functional and cognitive benefits of an intensive 3-week rock climbing program for 11 children with cerebral palsy (CP) ages 11-13 years and six typically developing peers (Christensen, Jensen, Voigt, Nielson, & Lorentzen, 2017). The children with CP showed significant improvements in the sit to stand test, increased force development in the least affected hand during a pinch test (Christensen et al., 2017). No improvements were found in maximal hand or finger strength, and cognitive abilities or psychological well-being (Christensen et al., 2017). The cognitive and psychological tests that were performed were the Cogstate and a questionnaire called the “Sadan er jeg” (Christensen et al., 2017). The questionnaire included five domains which were physical abilities, skills and abilities, mental well-being, relation to parents, and relation to others. This study concluded that it is feasible to use climbing to make children with CP more physically active (Christensen et al., 2017). The children had improved motor abilities, attributed to an increased synchronization between brain cortex and the muscles (Christensen et al., 2017). Therefore, the researchers surmised that this could be transferred to daily functional abilities (Christensen et al., 2017).

The first research study regarding the effects of indoor rock climbing (bouldering) as a new treatment for depression was published in 2015 (Luttenberger, Stelzer, Först, Schopper,

Kornhuber & Book). The bouldering took place once a week for three hours for eight weeks (Luttenberger et al., 2015). The results of the study indicated positive effects on the measures that recorded depression (Luttenberger et al., 2015). Kleinstäuber, Reuter, Doll, and Fallgatter (2017) also researched the relationship of acute emotion regulation in patients with major depressive disorder and rock climbing in the psychological inpatient setting. They found that short-term emotion regulatory effects are associated with sports that require a high level of concentration and coordination such as rock climbing (Kleinstäuber et al., 2017). Forty inpatients could voluntarily choose to participate in a two hour and 30 minute climbing session or an active control training, which was relaxation training. The positive and negative affect scale was administered before and after the sessions for the patients who were diagnosed with major depressive disorder and/or bipolar disorder. Rock climbing was significantly more related to positive emotion regulatory effect in comparison to the relaxation intervention.

There has been research regarding the effects of rock climbing on depression (Luttenberger et al., 2015), schizophrenia (McClung, 1984), cerebral palsy (Christensen et al., 2017), typically developing high school students (Boudreau, 2017), children with developmental, emotional, or physical behavior challenges (Mazzoni et al., 2009). However, there has not been research into the effects of a rock climbing program on high school students with developmental disabilities. It is important to note that the research discussed in this literature review of indoor rock climbing, bouldering, or outdoor rock climbing either had neutral or positive effects on its participants. The research to date was completed with varying populations with many different outcomes measures which make drawing any conclusions difficult.

Chapter 3: Methodology

Approval from the International Review Board (IRB) was obtained to complete this research study. Informed consent was obtained by the individuals who collected the data for this rock climbing program. See Appendix A and B for the IRB approval and the letter of permission for obtaining informed consent.

To better understand the effect of an indoor rock climbing program on students with developmental disabilities mixed methods were used as the outcome measures. Qualitative and quantitative data were collected using a pretest and a posttest design. The students' names were removed from the surveys and coded by a research assistant in order for the results to be blind to the researcher.

Participants

The participants in this study were included based on their concurrent enrollment in a Career Skills Program at a local high school. Each student was part of a special education class that teaches and reinforces employability skills. Six male students and two female students were included in this program. In order to maintain confidentiality, participant names have been changed in the results. The students ranged in age from 18 to 21 years of age. Seven students in the study were Caucasian and one student was African American. The students' diagnoses are classified as developmental disabilities, which are due to impairment in physical, learning, language, or behavior areas (Centers for Disease Control & Prevention, 2017). The impairments are typically lifelong and impact one's functional abilities (CDC, 2017). Diagnoses of the students included other health impairment, autism, learning disability, intellectual disability, and multiple disabilities. Refer to Table 1 for further information regarding age, diagnosis, race, and gender of participants.

Table 1*Demographics of Participants*

Student	Age	Race	Gender	Diagnosis
Logan	19	Caucasian	Male	Other Health Impairment
Aaron	21	Caucasian	Male	Autism Spectrum Disorder
Jesse	20	Caucasian	Male	Autism Spectrum Disorder
Alice	18	Caucasian	Female	Learning Disability
Cate	21	Caucasian	Male	Intellectual Disability
Patrick	19	Caucasian	Male	Intellectual Disability
Tristan	20	Caucasian	Male	Multiple Disabilities
Luca	19	African American	Male	Autism Spectrum Disorder

Note. The names of the students have been changed.

Data Collection

During the six-week rock climbing experience, participants consented to complete a Global Quality of Life Scale, semi-structured interviews and an author-designed Likert scale survey. Data was collected as a means to report on this experience and contribute to developing evidence in support of similar programs.

Three instruments were used in order to measure outcomes for this indoor rock climbing program. A pre and posttest were administered using the Global Quality of Life Scale (Hyland & Sodergren, 1996). This was a self-rated measure of quality of life. Quality of life was defined as your general well-being and satisfaction/happiness with physical health, mental health, family, friends, education, employment, and environment, which was modeled from the definition of health-related quality of life by the initiative Healthy People 2020. This measure was administered to the students in their classroom by their special education teacher a week before the program and a week after the program ended. Their special education teacher clarified any questions the students had regarding the general concept of their overall quality of life prior to administration. The Global Quality of Life Scale (Appendix C) has been found through research to slightly improve consistency of performance on quality of life scales compared to other measures (Hyland & Sodergren, 1996). Therefore, it is a common measure used to accurately record an individual's reported quality of life.

Data was also collected in a semi-structured interview at the conclusion of the program. Refer to Appendix D to see interview questions. All interviews were completed within three weeks of the program conclusion. The same eight open-ended questions were posed to each student. The interviewer clarified any questions the students had regarding the information that was being asked of them. The interviewer also repeated the student's answer back to them for

clarification purposes. Some of the students were difficult to understand to an unfamiliar listener. The interviews were videotaped. The interviewer asked follow-up questions to the students when necessary to provide additional information.

Lastly, the students completed a Likert scale questionnaire that was designed specifically for this program. The five questions were rated by the students on a scale from one to five with five being greatly affected. The students were given the questionnaire verbally and the scale was clarified by the interviewer as needed. The questionnaire was developed based on the questionnaire given to typically developing college age students who take the rock climbing course at this university. However, the questionnaire was tailored specifically to this program in order to account for the students' cognitive differences that might affect their ability to complete the test items. The students' special education teacher who has a certification in instructing students with disabilities, reviewed and approved the questions considering the students' comprehension abilities. Refer to Appendix D to see the Likert scale.

Data Analysis

The data that was collected for this program was retrospectively analyzed with permissions from the program organizers. The instruments for the program were chosen by the researcher and the program organizers.

Quantitative analysis

The GQOLS results were analyzed using IBM SPSS Statistics 25. A paired t-test was chosen to analyze the ratings from the scale because the researcher was interested in the difference between the global quality of life mean scores before and after the rock climbing program with the same set of eight students.

The researcher set the alpha value to 0.10 for this paired t-test. As suggested by Pallant (2016), a higher alpha can be used to increase statistical power when the sample size must be very small. As noted above, the sample size of this program was eight students as that was the number that were enrolled in the program. This small sample size increases the likelihood of a type II error (when the null hypothesis is falsely rejected). Though the increased alpha compensates for this higher error potential, the results of the study should be interpreted with caution.

In addition, the researcher also analyzed the data by finding Cohen's *d*, which is the effect size of the measured outcome. The size of the effect can be classified as to large, small or moderate. The effect size can be used to describe the difference between outcomes and is able to quantify whether the difference between variables may be clinically significant. .

Qualitative analysis

Qualitative methods were chosen for this program to capture the opinions and thoughts of the students and gain a better understanding of the effects of the program. Overall, one semi-structured formal interview was conducted individually with each student at the conclusion of the climbing program. Each participant was interviewed once and the interview was videotaped. The interviews lasted between six and eighteen minutes in length. The questions were the same for each participant, however the interviewer also asked clarification questions based on the students' responses. The interviewer was also an instructor for the rock climbing program, so she was familiar with the students.

Continuous reading and annotation of the interview scripts by the researcher and a second reader with experience in qualitative research, highlighted the emergent themes of data collected (Dey, 1993). The researcher and the second reader analyzed the data separately and compared

and synthesized the themes that were identified. Due to the small sample size, computer software was not necessary to analyze the transcripts.

The first phase of data analysis was transcription of the data. The interviews were transcribed verbatim with the use of a foot pedal and Express Scribe software. Hard copy transcriptions were read through to collect an overall sense of the data. This was the second phase of data analysis (Creswell, 1998). The third phase of data analysis for the qualitative data included two researchers who read through the interviews to identify themes. The researchers independently read through the interviews and highlighted themes. In the fourth phase of data analysis the themes were compared and the major ones were identified..

Assumptions

It is important for researchers to identify their assumptions throughout the research process in order to be aware of how they may influence the research process and outcomes. This researcher believes that humans inherently want to connect with others and be active beings. People with disabilities can be disadvantaged at social engagement and occupational engagement. Through undergraduate and graduate courses, this researcher was exposed to the disparities that occur for individuals with disabilities to access employment. This relevant coursework helped create a foundational knowledge about people with disabilities.

Limitations and Bias factors

Although efforts were made to ensure validity and bracket biasing factors, the data was collected by a novice researcher, which could have left it vulnerable to leading questions and researcher bias (Patton, 2002). The researcher worked with the students throughout the program, therefore relationships formed with the students, which could have clouded the data and analysis. One of the students was paired with the researcher throughout the multiple weeks of the

program. There was a potential for data misinterpretation or loss of data due to the fact that this was the researcher's first attempt at retrospectively analyzing data. Also, the small sample size of eight students and the nature of convenience sample selection means this data should not be used to make generalized statements about the broader population. Also, the results of the study limit the generalizability to a greater population due to the narrow involvement of students from one specific class at a specific school. The rock climbing program was included into the career skills program curriculum for the students. As with all self-reported measure, outside influences, such as financial, family, school, may have had an impact on the students' responses to the quality of life scale, Likert scale questionnaire, and interview questions. .

The researcher retrospectively analyzed the data and did not design the method in which data was collected. Therefore, there are limitations to this research study. There was no control group and the study was not randomized. The students also had various levels of functioning due to their varied diagnoses. The understanding of the research tools could have been misinterpreted by the students due to their level of cognition.

The program occurred over six Wednesdays, however these days were not consecutive. The students had two weeks off due to snow and spring break between the fifth and sixth week of the program. Several students were absent throughout the program and did not participate in all six weeks. Absences were not recorded.

This study did not control for variables that could be influencing their quality of life which is why a correlation cannot be assumed between GQOLS and the indoor rock climbing program.

Bias can never be fully eliminated but the effects can be minimized. Several strategies were used to increase the reliability of the measurements and the trustworthiness of the data. For

example, many individuals were consulted to help to identify the best collection measures. The student's special education teacher and job coaches were consulted for their thoughts on the best collections measures as well as two undergraduate students at the University the program took place at who had taken courses on disability studies. The advisor for this thesis project Melinda Cozzolino was consulted as well who has experience with qualitative and quantitative research. Also the interviews were analyzed by a faculty member with expertise in the world of occupational therapy. As noted above, the the primary researcher was an instructor for the rock climbing program which is a bias for this study and data analysis. The researcher attempted to keep this bias in check by consulting committee members with the analysis of the data and when suggesting outcome measures for the program. The organizers of the program were also consulted and approved the final outcome measures for the rock climbing program.

Chapter 4: Results

The following section present the results of the data, which was collected in three ways as described in the previous chapter: A pre- and post-experience Global Quality of Life scale (Appendix C), a post experience author-designed Likert scale style questionnaire (Appendix D), and videotaped semi structured interviews (Appendix D).

Global Quality of Life Scale

The Global Quality of Life Scale (GQOLS) was administered to the students before and after the rock climbing program. The surveys were administered to the students in their classroom at school by their special education teacher. She explained the survey to the students and clarified any questions they had regarding the scale. The GQOLS is a self-reported measure. For this scale, the students define their quality of life by a number on a scale from 0 to 100. A zero on the scale is defined as no quality of life and a moderately good quality of life is between a 55 and 60 on the scale. See Appendix C for more details about how this scale is presented.

The students range of self-reported quality of life on the scale before the indoor rock climbing program was 55 to 95 (See Table 2). The students range of self-reported quality of life on the scale after the indoor rock climbing program was 65 to 90 (See Table 2). The mean value from the pretest was 70 and the mean value from the posttest was 78.13.

A paired t-test was used to compare the GQOL scores. The alpha level was set at 0.10. The p value was found to be 0.055. This value is less than alpha, therefore the null hypothesis was rejected. The alternative hypothesis was that there is a significant difference in the means from pretest to posttest.. There is enough evidence to support the claim that GQOLS means increased after the rock climbing program. The researcher is 90% confident that the mean

difference from pretest to posttest would be found in the range of -14.808 and -1.442. However, these results should be interpreted with caution due to the small sample size.

The Cohen's *d* value was also calculated using IBM SPSS 25. The Cohen's *d* value was found to be 0.4310, which indicates that there was a large effect on the mean from the pretest to the posttest. This can be interpreted as the mean difference from pretest to posttest is large and could be clinically meaningful. As noted in the previous section, this is preliminary data collected from a small sample, and as such should be interpreted with caution.

As noted in Table 2, seven students showed an increase in quality of life on this scale and one student showed a decrease in quality of life on the scale from pre-test to post-test.

Table 2*Global Quality of Life Scale Results*

Student number	Pretest Self-Reported GQOLS	Posttest Self-Reported GQOLS	Difference of GQOLS
1	55	65	10
2	80	85	5
3	95	85	-10
4	55	70	15
5	85	90	5
6	65	70	5
7	70	80	10
8	55	80	25
Average difference of GQOLS			8.125

Note. GQOLS is Global Quality of Life Scale

Author-Designed Questionnaire

An author-designed questionnaire was administered verbally to the students after the rock climbing program. See Appendix D for more details about the questions included in the survey. The researcher administered the questionnaire orally and explained any clarifying questions that the students had regarding the survey. Responses were video-recorded. Participants selected a number response for each question with one representing “not at all” and five representing “greatly.” This survey asked the students questions about the effect the program had on things they never thought they could do (Mean (M)= 3.5; Standard Deviation (SD)= 1.3093), confidence talking to new people (M= 3.8125; SD= 0.9234), personal growth (M= 3.5625; SD= 1.2374), mental well-being (M= 3.8125; SD= 0.8425), and managing stress in their life (M= 2.9375; SD= 1.3212). The results from the survey are displayed in Table 3. The average answers to the questions were on the “somewhat to greatly” part of the scale except for the last question which the average response of the students was “somewhat”.

Table 3*Self-Designed Likert Scale Style Questionnaire Results*

Student	Q1	Q2	Q3	Q4	Q5
Tristan	4	4	4	4	3
Logan	1	4	1	2	1
Luca	3	2	3	4	3
Jesse	3	4	5	4	3
Alice	5	5	4.5	4	4.5
Cate	3	4	4	4	4
Patrick	5	4.5	4	3.5	1
Aaron	4	3	3	5	4
Mean	3.5	3.8125	3.5625	3.8125	2.9375
Standard Deviation	1.3093	0.9234	1.2374	0.8425	1.3212

Note. The names of the students have been changed

Note. Q stands for Question

Question 1: To what extent did this program help you do things you never thought you could do?

Question 2: To what extent did this program increase your confidence talking to new people?

Question 3: To what extent did this program expand your personal growth?

Question 4: To what extent did this program help your mental well-being?

Question 5: To what extent did this program help you manage stress in your life?

Not at all		Somewhat		Greatly
1	2	3	4	5

Semi-structured interview results

The following sections present the information obtained from student interviews. The student interviews ranged from 5 to 17 minutes in length. Emergent themes and subthemes were highlighted in the interview transcriptions. The three overarching themes discovered in the interviews were vocational benefits, interpersonal and social emotional benefits, and unfavorable effects. Each had several sub-themes that will be described below.

Theme 1: Vocational benefits

Sub-theme: Confidence

Confidence was a subtheme that was identified through analysis of the student's interviews. For the purposes of this study, the confidence sub-theme was defined as the belief in oneself or others due to abilities or qualities. In regards to how Luca felt when he first started the program, he said, "I think at first I was terrified" and he described himself as a "nervous wreck." When asked about how he felt about rock climbing at the end of the program Luca said, "I did feel more confident. I didn't quite conquer my fear because I still have a fear of roller coasters." When asked what the best things about the rock climbing were Cate said, "It helped me build my confidence in myself." Cate said she became more confident in "climbing on the wall and being able to make it to the top." When asked how she felt about rock climbing at the end of the program, Cate said, "I feel more confident in myself and it helped me become more independent as well." Aaron said that the program made him more confident in his abilities. Alice felt that the program gave her a lot more confidence. Alice said, "[The program] gave me more confidence that when I feel I can't do something, just don't give up." Alice said she has become more confident in "people telling [her, she] can't do something and [she does] it anyways." Jesse said

“[The program] has built some confidence in myself...It’s helped me improve my confidence.”

Tristan said, “[The program] increased my confidence so I would understand what I was supposed to do and how I was supposed to climb.” At the start of the program, Patrick said “I was scared that I was going to fall off.” Patrick said that he felt stressed and scared about going to the rock climbing program at first. He said that his stress level about the program changed over time and that he became less stressed. Patrick said, “I felt anxious [on the first day] and I felt okay on the second [day]...and I felt quite well on the third day ‘cause I built experience.” Patrick had prior rock climbing experience at an army camp. He said that he had a similar experience where he gained confidence over time and he didn’t feel afraid or anxious over time. Patrick said, “[The program] just helped me a lot cause at first I was scared. I was scared I was going to fall off.” Patrick said that the program helped him feel “more confident than normal.”

Sub-theme: New learning

New learning was another sub-theme identified through analysis of the students’ interview transcripts. It is defined for the purposes of this study as is a novel experience or interaction for the students. Luca said he became more confident in trying new things. Cate said something new that she learned was “being able to stretch when doing physical activity.” Aaron said, “I learned that if I try to do something it can be more possible than I thought.” Alice said, “Like accomplishing something I thought I would never do like climbing the wall, and I did it. So awesome, like a lot.” Tristan said, “I just liked coming and trying out the equipment and see how high I can get.” Patrick said, “I know the rope can hold the weight of a car,” so he learned “how to not be afraid of the rope.”

Sub-theme: Goal Achievement

Another subtheme identified in the analysis of the students' interviews was goal achievement. For the purposes of this study, goal achievement refers to accomplishing a task that was set as an aim prior to completion. Throughout the indoor rock climbing program, the students set various goals for themselves. Many of the students achieved or reached their goal throughout the weeks of the program. Cate expressed that she was nervous at the start of the program but once she accomplished her goal she felt better about rock climbing. She said her goal was "to make it to the top of the wall." Throughout the program, Jesse's goal was to make it halfway up the wall, which is about 15 feet high. This was something that he said he accomplished. When asked how that made him feel, Jesse replied, "Like it's a bit of fun. Still climbing halfway up the wall." Over the weeks, Tristan said, "I accomplished to get a little bit higher than I was actually going...[the program] helped me climb higher." Logan frequently climbed about 10 feet into a cave which he said was "pretty cool" and agreed it was something that he accomplished during the program. Goal achievement is a quality that many jobs require, therefore this can be seen as a vocational benefit. For example a job requires that an individual completes a task and achieves a goal.

Sub-theme: Generalization to other goals/activities

Generalization to other goals and activities was a subtheme that was identified by the researchers. It can be defined as the understanding of the use of skills in multiple situations. Many of the students explained that what they learned or attained during the rock climbing program would be applied to other goals and activities. In past summers, Luca has been able to obtain work through an agency that helps people with disabilities find employment. When asked if he would think back to the rock climbing experience of talking to new people when he works over the summer he said, "I'm sure that I will, definitely." Alice agreed that overcoming

obstacles was something she learned during the program. She said, “[The program] helps me think I did this, so I can do anything I want. So I can find a way to get into college.” Alice said, “I’m actually applying [what I learned during the program]. I’ve been applying it since we started it. It’s just to not let people bring you down.”

Sub-theme: Application of job skills

Some of the students demonstrated an application of job skills through the discussion of the indoor rock climbing experience. Application of job skills is the ability to apply skills learned from an employment experience to another experience. Logan agreed that he did not like rock climbing and that during a job he may need to do something that he doesn’t necessarily want to do which he may need to persevere through. Patrick would ask his climbing instructor for advice while climbing and would ask his instructor to repeat what they said if he could not hear them. He said, “When I go up to the top, not all the way to the top, but mostly up to the top, I can’t hear you, but when I was in the middle I can hear you.” Patrick demonstrated the ability to clarify information that he did not understand, which is an important job skill. Patrick compared this experience to a job. He said, “[if] you need help your coworkers [they] will be right there and you want help, you ask them. And they will tell you where to put your feet and hands when you’re having trouble where to put your feet at.” He said in a job he may not know what to do next and he can ask a coworker. While on the wall, he may have not known which way to go so he would ask his climbing instructor. Patrick said, “If I have to clean or put a package somewhere, I can know where to ask my buddy where to put it.” He was referring to that he could ask someone for help, an important skill in an employment setting. Patrick demonstrated the ability of applying the indoor rock climbing experience to a job which is a vocational benefit to the experience.

Sub-theme: Self-advocate

We defined the third sub-theme under the Vocational Benefits theme as “the ability to self-advocate”. This is the ability to promote and believe in oneself. Alice was asked what she thought she accomplished during the rock climbing program and she said, “to not listen to people who say you can’t do it, and do it.” This ability to self-advocate for oneself is an important skill for people to develop.

The subthemes that emerged under the theme vocational benefits included confidence, new learning, generalization to other goals/activities, application of job skills, and self-advocate through the individual student interviews.

Theme 2: Interpersonal and social emotional benefits*Sub-theme: Socialization*

The first subtheme identified under the subtheme interpersonal and social emotional benefits was identified as socialization. The term socialization can be defined as the ability to interact with others. Luca expressed that he is shy around new people because he felt like he does not know them. He said that it is a “hard skill” that he is trying to learn. In this program, Luca had to talk to the new instructors and Luca felt this program gave him “a little bit” of experience talking to new people. Luca expressed “I know down the road...I’m going to have to do a lot of communication with people I’ve never worked with like over the summer.” Luca said, “I think the best thing [about the program] was being able to meet different people.” Luca expressed, “I was definitely nervous for working with new people.” Alice expressed that one of her favorite parts of the program was her climbing instructor or climbing buddy. She said:

My climbing buddy was awesome. She was awesome. Like when I would want to give up she used to say, take a break, you can do this. Like she didn’t let me give up...I trust

my climbing buddy a lot. She, I don't know, something about her that I knew I wasn't going to get hurt while I was on the wall...it was fun!

Alice said that she talked about the program with her family and her sister thought she was "cool" because of it. She said her parents "really don't like heights" but she loves them and they don't bother her. Jesse said that the best part about the program was "meeting new people." He felt that the program increased his confidence talking to new people. Jesse said that he talked about the rock climbing experience at school. When asked what Jesse learned from the program that he can apply to other situations that don't have to do with rock climbing Jesse said, "Just try to relax, try to have fun." Tristan agreed that communication was an element that the program helped him develop. He said, "I think [the program] helped me communicate with people...whenever I get to a certain point [on the wall], I look down, I would just tell [my climbing instructor] that I want to come down." Logan said that the program increased his confidence talking to new people somewhat. His favorite element of the program was talking to his rock climbing instructor who he said "was a pretty cool guy." Logan agreed that he learned something from talking to his climbing instructor who he said liked the same things he liked. Patrick, the student the author worked directly with, said, "I think I talked to new people. I think it helped me if I needed to talk to you when I was rock climbing." Patrick expressed that he really liked working with his climbing buddy. When he was asked what his favorite part of the program was he responded, "that would be you!" Patrick felt that he learned to better communicate with people during the program and strengthened his communication skills.

Sub-theme: Trust

Trust was another sub-theme that was identified through the analysis of the interviews. Trust can be defined as the ability to believe in another individual and dependent on them for a

purpose. At the end of the program, Luca said, “I thought, ‘hey these people are kinda nice!’, I think that I learned to develop more of a mutual trust [at the end of the program].” Luca said he learned to trust the instructors. I was Patrick’s climbing instructor and had him climb about five feet vertically up the wall and then sit back in his harness. This is something all the rock climbing instructors did with their students in order to get them comfortable trusting that the climbing instructor will be able to lower them safely to the ground. Patrick said that experience helped him go further up the wall.

Sub-theme: One to One Attention

One to one attention was a sub-theme that was identified for the theme interpersonal and social emotional benefits. Attention can be defined as getting individual care or treatment. Aaron said “[I liked] having someone working specifically with me.” Interacting with other people can be difficult for individuals who are diagnosed with the developmental disability, autism spectrum disorder. Therefore, it is beneficial for these students to interact one on one with people in order to further develop their interaction skills.

Sub-theme: Challenge self

Some of the students stated that they challenged themselves through this program which was identified as a sub-theme. A challenge can be defined as an encounter that is out of one’s comfort zone. Luca said, “Climbing the wall was something I had to conquer. I had to conquer my fear.” He said that he does not have a fear of rock climbing anymore, but he does still have a fear of heights, which he said, “I think that’s something that I’ll always have.” When asked what Luca became more confident in due to the program, he said, “going out of my comfort zone.” Aaron expressed that he challenged himself during the program. He said. “I got to the top of the wall, which at first I wasn’t sure I could do.” Aaron agreed that he felt more confident in rock

climbing and taking on a challenge that he necessarily did not believe he could achieve. In response to the question, “to what extent did this program help you do things you never thought you could do?” Alice said, “A lot. Like the climbing wall showed me that I can do it, even though I wasn’t going to do it in the beginning.” Tristan expressed that at the start of the program he was a little bit nervous. Tristan said he was nervous “‘cause at first I didn’t know what I was supposed to do and I was afraid that I was going to mess up.” Tristan agreed that he challenged himself throughout the program and at the end of the program he “felt great” about rock climbing.

Sub-theme: Enjoyment and Improved Mental Well Being

The final sub-theme of the theme interpersonal and social emotional benefits was enjoyment and improved mental well-being. Mental well-being can be defined as the state of one’s mind and enjoyment may be defined as liking an experience.

Luca also said, “I think [the program] increased my mental health, my mental state, um, because when I was up there I wasn’t thinking about how afraid I was.” Instead of thinking about how afraid he was, Luca said:

I was thinking about what was going to be my next move, what, where was I going to go next. I wasn’t worried about my fear. Because my fear is like a roadblock in everyday life whether it’s your parents, you have to overcome or if it’s a fear that you have to overcome everyday. Everyday I overcome adversity.

During the program, Luca missed a few of the rock climbing lessons due to sickness. Luca expressed that he was upset that he had to miss those classes and wanted to make them up. Aaron said that he really enjoyed the program because he liked being able to climb. Aaron said that we would like to see the program continue on in the future. Indoor rock climbing was

something Alice thought that she would never do. She expressed, “In the beginning, like two weeks before [the program], I had a seizure so my parents don’t want me to do that, and we didn’t know the safety issues and everything so I was nervous, concerned about my safety.”

Alice felt that the climbing experience helped relieve stress. She said, “When I’m on the wall I don’t um think about my stress. It actually relieves my stress.” In regards to how Alice felt about the rock climbing program she said, “It was fun doing it and trying new things was fun.”

Multiple times in her interview Alice said she had a lot of fun during the program and if she could change something about the program she would do it more. However, Jesse said that even though climbing the wall made him nervous, he still enjoyed doing it. At the end of the program, Jesse thought rock climbing was fun. Tristan also said “I think [the program] distracted me from stress during the day...it helped me [think] more clearly about myself. And more positive.”

Patrick said, “[the program] was a stress reliever.”

The subthemes that emerged in the interpersonal and social emotional benefits theme included socialization, trust, one to one attention, challenge self, enjoyment and improved mental well-being.

Theme 3: Unfavorable effects

Sub-theme: Caused Stress

Two of the students identified that the program may have caused them stress which was the first sub-theme of the theme unfavorable effects. Stress can be defined as pressure from oneself or outside forces. At the start of the program, Jesse was nervous. He was afraid of heights, which made him stressed out. He had one prior experience climbing a different rock wall. He said he was nervous about “going rock climbing and getting back into it after so long.”

Logan said, “[The program] put more stress on me.” And he also felt that the program did not help him manage his stress.

Subtheme: Dislike for program

The other sub-theme of the theme unfavorable effects was student dislike for the program. At the start of the rock climbing program, Logan said that he thought rock climbing was boring and he was not excited to do it. At the end of the program he said that he still did not like it. Logan expressed that he did not understand how the rock climbing program could be applied to the career skills program. The importance of this theme will be discussed further in Chapter 5.

The subthemes that emerged under the unfavorable effects theme included dislike for the program and caused stress. The subthemes and themes in relation to the literature will be discussed further in Chapter 5.

Chapter 5: Discussion

The primary aim of this retrospective analysis of data collected was to evaluate the effectiveness and impact of an indoor rock climbing program in relation to confidence, quality of life, socialization, and vocational and interpersonal skills for the students. Literature shows that non-traditional therapies such as hippotherapy, dolphin therapy, aquatic therapy, and therapeutic surfing have shown improvements for children diagnosed with autism in the social and physical domains of learning (Cavanaugh & Rademacher, 2014). There is a need to provide more data about these types of therapies; however they have shown improvements in social skills, self-esteem, language skills, and overall confidence (Hayhurst, 2008). Indoor rock climbing can be viewed as a non-traditional modality that can be used in therapy. Many students enrolled in the indoor rock climbing program expressed that the program had a positive effect on their social skills, overall confidence, and mental health. Occupational therapists who work with children diagnosed with developmental disorders may have goals to work on cognitive skills, social interaction, self-confidence and self-esteem. Occupational therapists address working on these skills through purposeful activities which are important to that person.

People with disabilities are at an increased risk for unemployment (Erickson, von Schrader & Lee, 2017). Literature has shown that career interests and skills for people with disabilities may be created through the improvement of self-efficacy and outcome expectations with academic or vocational experience (Hackett, Betz, Casas & Rocha-Singh, 1992). The students had the opportunity to engage in an experience to improve their self-efficacy and outcome expectations through the indoor rock climbing program. A study has shown that a rock climbing experience can improve one's confidence in rock climbing however; more research needs to be done regarding the generalization of the gains in self-efficacy (Mazzoni et al., 2009).

Rock climbing has been suggested to help individuals step outside their comfort zone, problem solve, and explore mental and physical capabilities (Johnson, Bland, & Rathsam, 2001). This activity has been included in programs to help young adults develop inner resources, self-esteem, and new skills (Johnson, Bland, & Rathsam, 2001). These are lessons that the students in the indoor rock climbing program aimed to develop. Analysis of the Global Quality of Life Scale revealed a statistically significant improvement for perceived quality of life by the students during the six weeks of the indoor rock climbing program. As noted in Chapter 3, these results should be interpreted with caution due to the small sample size and the possibility of confounding variables. Nevertheless, they offer an interesting finding that supports the hypothesis of this study and is additionally supported by the qualitative results from the interview portion of the study. During the semi-structured interviews all students reported some positive benefit from the indoor rock climbing program. One student reported he did not like the program but did enjoy working with his climbing instructor. The examples that they shared showed that the GQOLS score was likely influenced by the indoor rock climbing program. This positive preliminary data therefore, supports the need for more data needs to be collected regarding the effect on perceived quality of life for students with disabilities regarding indoor rock climbing.

Overall, the students reported during the Likert scale questionnaire that the program somewhat to greatly helped them get out of their comfort zone, talk to new people, expand their personal growth, improve mental well being, and manage stress in their life. The mean scores of the students were in the “somewhat to greatly” category for each of these questions. These results show that the indoor rock climbing program generally had positive effects on the students in the listed areas. These are areas that relate to those that have been identified in the literature as

important for young adults with disabilities to develop in order to be successful in employment. For example, Lindstrom, Doren & Miesch, (2011) indicated the need for training in coping skills, self-advocacy, and communication in order to be successful in employment for young adults with disabilities. Self-advocate and socialization were two of the subthemes that were identified through the analysis of the individual students' interviews about the rock climbing program. The rock climbing training can enhance personal attributes and strengthen persistence and self-efficacy, which are also beneficial when seeking employment (Lindstrom, Doren & Miesch, 2011). Since this study did not collect data beyond the end of the program, it is unclear what long term effects the students may have sustained from the program and more research would need to be collected in order to determine this result.

Various themes emerged when discussing the effects of the indoor rock climbing program with the students in semi-structured interviews. One theme that emerged was vocational benefits. It has been shown in the literature that people with disabilities have difficulty gaining employment (Erickson, von Schrader & Lee, 2018). Vocational benefits include the subthemes of confidence, new learning, goal achievement, generalization to other goals/activities, application of job skills, and self-advocacy. Each of these subthemes has a connection to vocational skills that the students could utilize in future employment situations. Confidence and self-efficacy have been found to be beneficial qualities within the literature in relation to employment (Lindstrom, Doren & Miesch, 2011). Self-efficacy can make an individual more employable (Lindstrom, Doren & Miesch, 2011). Many of the students expressed that they gained confidence in themselves and in this situation. Gage and Polatajko (1994) found that people who have higher self-efficacy tend to view their overall well-being as more favorable and will likely continue pursuing a task even if they experience multiple setbacks. It cannot be

assumed that their confidence was sustained once the program ended and further data needs to be collected in regards to sustained confidence levels. New learning was expressed from some of the students throughout the program. This new learning varied the experience of the students. Varied experience has been found to be the best way to promote adaptability in employees (Hall & Moss 1998). This opportunity for new learning has provided the students exposure to a new environment and varied experience.

Rock climbing is a sport that has been found to prompt self-efficacy and goal achievement (Kerr & Mackenzie, 2012). Many of the students expressed that they achieved a goal throughout the program. Achieving a goal in an activity can cause one to believe they are competent in a certain area. Radomski and Latham (2014) found that competence in occupational engagement is followed by subsequent feelings of self-empowerment. This is helpful in navigating throughout life.

Some of the students verbalized a generalization to other goals/activities. According to Rosenberg, Westling, and McLeskey (2013), three cognitive deficits that children with intellectual disabilities face are memory, generalization, and attention. A child may have difficulty relating skills they learned in one setting to another (Rosenger, Westling & McLeskey 2013). One student expressed that they knew in a work setting they could ask a buddy for help just as they asked their rock climbing buddy for help. Another student expressed that during their upcoming summer job they would recall the skills they learned during the rock climbing program and apply them to their current job.

Self-advocacy is important for people with disabilities in order to challenge the perceptions of others who view them as incapable (Test, Fowler, Wood, Brewer & Eddy, 2005). A student expressed that during the program she learned that she can do something anyways

even though someone may tell her she cannot. This ability to self-advocate is beneficial for people with disabilities who may have people who are uncertain of their capabilities (Test, Fowler, Wood, Brewer, & Eddy, 2005).

Another theme that was identified from the interviews with the students was interpersonal and social emotional benefits. The subthemes that emerged were socialization, trust, one-on-one attention, challenging themselves, and enjoyment and improved mental well-being. These benefits may be particularly beneficial for people with autism. Children who are diagnosed with autism typically have social difficulties and become aware of these social difficulties as they age (Locke, Ishijima, Kasari, & London, 2010). Therefore, this increases the risk for loneliness, anxiety, and depression (White & Roberson-Nay, 2009). Exercise has been shown to combat feelings of depression (Craft & Perna, 2004). Many students involved in the indoor rock climbing program expressed that they enjoyed interacting with their climbing buddy and talked about their experience at the climbing wall with family and friends. Their special education teacher expressed that this experience built camaraderie among the students who were enrolled in the career skills program together.

Some of the students expressed that they began to trust the instructors and enjoyed the attention that they received through the program. Literature has shown that it is essential for the well-being of people with Intellectual Disabilities (ID) to develop meaningful relationships and participate in social activities within a community (Thorn, Pittman, Myers & Slaughter, 2009). Accessing and becoming part of the community can facilitate developing and engaging in meaningful and intimate social relationships as well as experiencing acceptance for individuals with ID (Hall, 2005; Milner & Kelly, 2009). Relationships and trust were developed between the students and the instructors over the course of the program.

Many students expressed that this program challenged them. Almost all of the students had never indoor rock climbed before. Self-determination to overcome challenges are promoted by the individual and environmental variables (Field & Hoffman, 1999). The program was set up so that the students could succeed with the mentality of challenge by choice. The students were told to set a goal for themselves each week, which was tailored to what would challenge them. Instructors explained to the students that challenges were different for each individual. For example, it may be challenging for one student to get both feet off the ground, while another student may be working towards climbing the wall to the top three times during a session.

An indoor rock climbing program is not a best fit program for every student which was illustrated throughout the interview of one student who disliked the program. The instructors focused on the skills that could be developed with minimal participation in climbing the wall from the student. For example, the program still helped the student meet new individuals and develop a relationship with his climbing buddy who he said was a “pretty cool guy.”

Importance to occupational therapy

As stated in Chapter 2, Occupational therapy is defined as “the therapeutic use of everyday activities” in order to support and improve an individual or groups’ participation in roles, habits, routines in home, school, workplace, community, and other settings (AOTA, 2014 p. S1). The indoor rock climbing program as part of a career skills program for students with diagnosed developmental delays facilitated vocational, interpersonal and social emotional benefits for the students. Although this program was taught by a special education teacher, an occupational therapist would be a qualified individual to lead a program designed to assist individuals to participate in workplace and their community through therapeutic use of everyday activities.

Chapter 6: Conclusion and Recommendations

Future research

Future research on this topic is necessary to advance the understanding of the effects of an indoor rock climbing program on high school aged students diagnosed with developmental disabilities.

Recommendations for future research:

- 1) A larger sample size to increase the statistical power of the findings.
- 2) The inclusion of a control group that is involved with the Career skills program but does not attend the rock climbing portion of the program.
- 3) Representation of a variety of types of diagnosis to clarify how participation in indoor rock climbing activities and outcomes are changed by differing participant presentations.
- 4) Data to be collected at intervals after the end of the program in order to determine the long term effects of the program
- 5) Data to be collected regarding the effect the program had on the instructors. Many of the instructors in the present study had never worked with students with developmental disabilities.

Conclusion

The purpose of this study was to examine the effects of an indoor rock climbing program on high school aged students diagnosed with developmental disabilities. This research aligns with the limited literature regarding indoor rock climbing programs and children with disabilities. As noted in chapter 2, indoor rock climbing programs have been found to have positive effects on children with disabilities. Additional novel results were uncovered regarding

the vocational benefits, social emotional benefits and unfavorable effects for the students involved in the program. The practice of occupational therapy addresses the importance of occupational engagement and its subsequent benefits. Occupational therapists who work with people with developmental disabilities can focus on improving confidence, socialization, and engagement in everyday occupations. A program such as this has been shown to have a beneficial impact of the lives of individuals diagnosed with developmental disabilities. Indoor rock climbing gyms and occupational therapists should consider implementing programs such as this one into the curriculum for high school aged students with developmental disabilities.

Appendix A: International Review Board Approval

July 11, 2017

Nicole Biatowas, Graduate Student
Department of Occupational Therapy
School of Health Sciences and Human Performance

Re: IRB 0517-03, Effects of Indoor Rock Climbing on High School Students with Special Needs-Exemption

The Institutional Review Board for Human Subjects Research (IRB) has reviewed your proposal and has determined that by the IRB Guidelines, this project can be approved for an exemption from ongoing oversight.

In certifying that your research is exempt, the IRB indicates that there will be no continued oversight. Should the project be continued beyond the semester, you may do so without additional involvement with IRB provided that the same procedures as described in the application are followed. If there are changes in design, the application would have to be resubmitted to the IRB.

College policy requires you to maintain, as part of your records, all correspondence with the IRB (including the complete, approved Request for Review or Application for Exemption), all documentation of informed consent, and any lists used in assigning codes or other identifiers to participants for a period of three years. Researchers may keep, at their discretion, completed data collection instruments provided they continue to be protected in the manner specified in the Request for Review or Application for Exemption and as described to the subjects in the process of obtaining informed consent.

This approval is issued under the Ithaca College's OHRP Federal-wide Assurance #00004870. Please feel free to contact the IRB at irb@ithaca.edu with any questions or concerns.

Best wishes for a successful study,

Sincerely,

Ithaca College IRB for Human Subjects Research

C: *Melinda Cozzolino, Professor*

Appendix B: Letter of Approval Granting Informed Consent

April 28, 2017

Dear Faculty and Staff of Ithaca College:

This letter will serve as authorization of Ms. Nicole Biatowas to analyze the data that was collected for the project, *Career Skills At Cornell with Leadership Skills at Cornell Outdoor Education: Building confidence in high school students with developmental disabilities*. Ms. Biatowas can have access to all the data which was collected.

We would appreciate Ms. Biatowas analyzing the data which is rich with information especially for future programs. Ms. Biatowas helped us to devise outcome measures in order to analyze the program and we are thrilled to have an individual who is so passionate about the students and this project. A grant provided by the K. Lisa Yang and Hock E. Tan Institute on Employment and Disability funded the project. I wrote the letter with two other individuals in order to obtain the grant for this program. We are thrilled to have Ms. Biatowas' explore the data and analyze the results of the program.

Please contact me if you have any questions at sra63@cornell.edu. We look forward to the findings of Ms. Biatowas' thesis project.

Thank you,

A handwritten signature in black ink, consisting of a stylized, cursive name followed by a horizontal line.

Sarah Aiken

President of Helping Exceptional Youth
Cornell University, College of Human Ecology, Class of 2018

Appendix C: Global Quality of Life Scale

Please rate your quality of life on this scale. Circle which number you believe best fits your quality of life. Quality of life is your general well-being and satisfaction/happiness with physical health, mental health, family, friends, education, employment, environment.

Global Quality of Life Scale

- 100 Perfect quality of life
- 95 Nearly perfect quality of life
- 90
- 85 Very good quality of life
- 80
- 75
- 70 Good quality of life
- 65
- 60 Moderately good quality of life
- 55
- 50
- 45
- 40 Somewhat bad quality of life
- 35
- 30 Bad quality of life
- 25
- 20
- 15 Very bad quality of life
- 10
- 5 Extremely bad quality of life
- 0 No quality of life

Write any number between 0 and 100 that describes your quality of life: _____

Appendix D: Likert Scale Questionnaire & Interview Questions

Rock Climbing Evaluation Survey

To what extent did this program...

	Not at all		Somewhat		Greatly
1. ...Help you do things you never thought you could do?	1	2	3	4	5
2. ...increase your confidence talking to new people?	1	2	3	4	5
3. ...expand your personal growth?	1	2	3	4	5
4. ...help your mental well-being?	1	2	3	4	5
5. ...help you manage stress in your life?	1	2	3	4	5

What were the best things about this program?

What did you accomplish while participating in this program?

What did you learn from this program that you can apply to other situations that don't have to do with rock climbing?

Who did you discuss your rock climbing experience with?

How did you feel about rock climbing at the start of the program?

How do you feel about rock climbing at the end of the program?

What have you become more confident in after this program?

What did you not like about the program?

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