

AN EXPLORATION OF MEANINGFUL INVOLVEMENT IN
ROPES COURSE PROGRAMS

A Dissertation

by

KATRYNA STEPHANIE HARAS

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2003

Major Subject: Recreation, Park and Tourism Sciences

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ABSTRACT

An Exploration of Meaningful Involvement in Ropes Course Programs.

(December 2003)

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Ropes course programs provide numerous benefits but what makes programs effective has been unclear. The purpose of the study was to: 1) determine if there was a measurable difference in meaningful involvement between the Challenge by Choice (CbC) and Inviting Optimum Participation (IOP) approaches to ropes course program design and delivery, and 2) identify and compare the linkages among program attributes, outcomes, and values with each approach.

The study involved 360 young adolescents (ages 10 -15) who took part in full-day ropes course programs provided by one of four organizations in Ontario, Canada. Participants included 172 boys and 188 girls. The average age was 12.7 years and 47% had previous ropes course program experience. Participants completed either: 1) an experience sampling survey related to meaningful involvement or 2) a means-end laddering survey related to program attributes, outcomes, and values.

The experience sampling data were subjected to multivariate analysis of variance (MANOVA). The dependent variables were meaningful involvement during high

(belayed) activities and low (non-belayed) activities. The independent variables were program type, sex, and ropes course experience. Program type had a significant effect ($\lambda(3,158) = 0.937, p < 0.05$) for meaningful involvement experienced during high activities. Meaningful involvement consists of the areas engagement, choice, and view of self. Follow-up ANOVAs indicated that choice ($F(1, 160) = 6.127, p < 0.05$) was significantly higher in IOP programs. Differences between the programs in engagement and view of self were not significant. There was no significant effect for low activities.

Means-end analysis was used to identify linkages among program attributes, outcomes, and values. Responses were organized into 11 Hierarchical Value Maps. Participants in IOP programs identified different linkages than participants in CbC programs. IOP program participants were more likely to mention the attribute low activities and the outcome group efficacy as significant and less likely to mention the outcome anxiety. CbC participants were less likely to mention low activities and group efficacy and more likely to mention anxiety and the value excitement. These findings indicate that ropes course program design and delivery can be manipulated to provide specific benefits and facilitate participant experiences of meaningful involvement.

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CHAPTER I

INTRODUCTION

Recreation programs have long been considered an effective strategy for promoting positive personal and societal outcomes and alleviating negative outcomes (Eccles & Barber, 1999; Hultsman, 1996). With the development of benefits-based programming in the 1990s, additional attention has been paid to the potential for realizing specific benefits through participation in deliberately designed programs (Driver, 1999). Some desired outcomes arising from benefits-based programs include personal growth and development (Driver, 1999), acquisition and refinement of transferrable skills (Eccles & Barber, 1999; Hultsman, 1996; Larson, 2000; Kleiber, Larson & Csikszentmihalyi, 1986; Rathunde, 1993); improved problem-solving strategies (Driver, 1999); increased sense of belonging to one's community, group, or social network (Eccles & Barber, 1999; Hultsman, 1996); and opportunity to experience challenge and the resultant success (Driver, 1999; Eccles & Barber, 1999).

The benefits-based approach is common in youth programs (Rossman & Schlatter, 2003). Due to the volume and variety of youth programs, researchers have slowly begun to move beyond the identification of particular program outcomes and have instead, started to focus on describing the process, or type of experience that may facilitate positive change (Larson, 2000). Initial research suggests that regardless of the activity offered, effective programs provide the opportunity for individuals to experience

This dissertation follows the style of the *Journal of Leisure Research*.

meaningful involvement, the voluntary and concerted engagement in a complex environment that participants find personally satisfying (Kleiber et al., 1986; Larson, 2000; Rathunde, 1993; Roth, Brooks-Gunn, Murray, & Foster, 1998). Since structured recreation programs providing challenging activities that demand participants' effort and concentration tend to be most effective at creating positive change (Hultsman, 1996), the construct of meaningful involvement may be informative for researchers investigating ropes course programs.

Ropes Course Programs

A ropes course, also known as a challenge course, is a giant playground suspended from trees, utility poles, and other structures that is built from rope, steel cable, wood, and other specialized hardware (Attarian, 1990; Rogers, 2000). Ropes course programs use intriguing climbing and traversing activities to present participants with unique challenge opportunities (Attarian & Holden, 2001). Activities that are often part of ropes course programs include cooperative games and de-inhibitizers, communication activities, trust exercises, problem-solving initiatives, along with low and high ropes course elements that may provide participation opportunities for an individual, a pair, or a group (Attarian, 1990; Fischesser, 1991; Havens, 1992). The low elements generally range from one to six feet off the ground, while high elements are 30 or more feet off the ground (Attarian, 1990). Ropes courses are quite popular and it is estimated that approximately ten thousand of them exist in the United States with about 250 more being built each year (Rogers, 2000).

The premise of ropes course programs is that opportunities for interpersonal and intrapersonal growth are provided when individuals are placed into difficult and demanding environments where the outcome, although uncertain, can be influenced by the participants' skills, knowledge, and abilities (Green, Kleiber, & Tarrant, 2000; Neill & Dias, 2001; Priest, 1999; Priest & Gass, 1997; Wurdinger, 1997). The intent is for participants to transfer their learnings from the ropes course experience to their everyday lives (Gass & Priest, 1993; Holyfield & Fine, 1997; Meyer & Wenger, 1998; Priest & Gass, 1997; Schoel & Maizell, 2002).

Benefits of Ropes Course Programs

There are several reasons for researchers' and practitioners' interest in ropes course programming. First, ropes course programs can be tailored to meet specific aims such as improving communication, developing leadership, learning teamwork, and increasing trust (Attarian, 1990; Goldenberg, Klenosky, O'Leary, & Templin, 2000; Moote & Wodarski, 1997). Second, ropes course programs are relatively inexpensive when compared to extended wilderness experiences (Harris, Mealy, Matthews, Lucas, & Moczygemba, 1993; Schoel, Prouty, & Radcliffe, 1988). Finally, ropes course programs can be delivered in settings accessible to a range of participants (Attarian, 2001; Davis, Ray & Sayles, 1995; Havens, 1992).

Numerous studies have been done to determine the outcomes realized from participating in a ropes course program. Research indicates that self-efficacy (Constantine, 1993; Nyhus, 1993; Rastall, 1998), group cohesion (Bisson, 1997; Bronson, Gibson, Kishar, & Priest, 1992; Fletcher, 2000; Glass, 1999; Kilty, 2000; Kopf,

1996; Meyer, 2000; Meyer & Wenger, 1998; Thompson, 1995) as well as internal locus of control (Newberry & Lindsay, 2000), positive view of the future (Davis et al., 1995; Green et al., 2000; Harris et al., 1993; Robitschek, 1996), team performance (Ibbetson & Newell, 1996; O'Bannon, 2000; Priest & Lesperance, 1994; Wagner & Roland, 1992) and trust (Priest, 1996; Priest, 1998; Witman, 1987) increased after a ropes course program.

Issues in Ropes Course Programming

While results indicate that ropes course programs are generally beneficial (Cason & Gillis, 1994; Hans, 2000; Hattie, Marsh, Neill & Richards, 1997; Neill & Richards, 1998; Moote & Wodarski, 1997), it is also evident that some programs are more effective than others. Not all programs achieve measurable outcomes, and the belief is that only some aspects of effective programs contribute to specific outcomes (Hattie et al., 1997). Research indicates that longer programs are generally more effective than shorter programs (Bunting & Donley, 2002; Cason & Gillis, 1994; Hattie et al., 1997) but it is unlikely that length of program alone is responsible for differences in program effectiveness. Thus, how effective programs differ from less effective ones has yet to be clearly identified (Ewert, 1987; Ewert & McAvoy, 2000; Hans, 2000; Hastie, 1992; McKenzie, 2000a; 2000b; Meyer & Wenger, 1998; Neill & Richards, 1998).

There are several reasons for the lack of information concerning the process used by effective ropes course programs. Moote and Wodarski (1997) comment that every adventure experience, including ropes course programs, is unique. While part of the appeal of ropes course programs is their flexibility (Rogers, 2000), this adaptability

limits research endeavors because of the variety of experiences that can be included under the term ropes course program. Should a half-day program including only low elements be considered comparable to a full-day program including both low and high elements? Can a five-day residential program be compared with a six-week program if both include 30 hours of ropes course activities? Can the results gained from studying adolescents in treatment be applied to varsity sports teams if the activities are essentially the same but the goals are different? There is, as yet, no answer to these questions because researchers have not determined what program features are important (Hastie, 1992).

A second factor that confounds the ability of researchers to articulate how successful programs differ from less successful programs, and thereby link program attributes to specific program outcomes, is the lack of clarity about the extent to which programs or activities have been tailored to provide meaningful involvement opportunities for specific individuals or groups (Cason & Gillis, 1994; Moote & Wodarski, 1997). Hans (2000) indicates that many studies of adventure programs have done a poor job of describing program goals, what activities were included, the duration of the program, and the participants. Instead, the focus has been on demonstrating what particular outcomes were achieved. Although the focus on outcomes supports the effectiveness of this type of programming, without specific details on what was done it is difficult for organizations to build upon programmatic strengths, address weaknesses, and develop strategies for improvement (Kahne, Nagaoka, Brown, O'Brien, Quinn, & Thiede, 2001).

The increasing diversity of ropes course program participants (Attarian, 2001; Rogers, 2000) and legislation such as the Americans with Disabilities Act (ADA) has led to the development of universally designed ropes courses (Havens, 1992; Rogers, 2000). While the structural aspects of program facilities are important, a “universal” ropes course does not, by itself, guarantee a similar, positive experience for all participants. Dodge (2001) points out the dangers of assuming programs developed for one group will be equally effective for other groups. A program may be effective or ineffective as a result of differences in group members or variations in the environment. Providing the same activity to different people, under different circumstances, is not necessarily appropriate nor effective (Walsh, 1998). Opportunities for meaningful involvement depend on activity design and delivery and although this aspect of ropes course programs has been recognized as important, it has yet to be addressed (Reader, 1997).

Because of the issues associated with a flexible program format and variable program design, few studies of adventure programs have been able to provide practitioners with principle-based information that can be applied to program design and delivery (Ewert, 1987; Sibthorp, 2003). Despite 20 years of repeated calls for research that investigates how and why program outcomes are achieved (Ewert, 1987; Ewert & McAvoy, 2000; Goldenberg, 2002; Hastie, 1992; Meyer & Wenger, 1998; Sibthorp, 2003), effective program design and delivery remains a mystery. Rather than being based on theory and research, the design and delivery of ropes course programs is informed by intuition, philosophy, and experience (McKenzie, 2000a; Sibthorp, 2003). Therefore, two questions that need to be answered are: 1) what types of experiences provide the

opportunities for meaningful involvement that may, in turn, create the potential for positive development, and 2) what are the program attributes that are important to realizing particular outcomes?

Purpose and Rationale

The differences in the opportunities for meaningful involvement offered by various types of ropes course programs has not been studied. The intent of this study was to compare two approaches to ropes course program design and delivery, Challenge by Choice (CbC) and Inviting Optimum Participation (IOP), to assess the impact these different strategies may have on participant experiences of meaningful involvement. An additional goal was to describe the program attributes that may account for the differences in consequences and values reported by participants. Specifically, the purpose of the study was:

1. To determine if Challenge by Choice differs from Inviting Optimum Participation in the degree of meaningful involvement experienced by participants during high and low activities.
2. To identify and compare the linkages among program attributes, consequences, and values that participants report as significant in Challenge by Choice and Inviting Optimum Participation ropes course programs.

The aim was to identify program features that increase meaningful involvement opportunities so instructors will be able to consistently design and deliver more effective ropes course programs.

Hypotheses

- H1:* There will be no difference between the degree of meaningful involvement reported by individuals in IOP programs and individuals in CbC programs during high activities.
- H2:* There will be no difference between the degree of meaningful involvement reported by individuals in IOP programs and individuals in CbC programs during low activities.
- H3:* There will be no difference in the linkages among program attributes, outcomes, and values identified as significant by participants in IOP programs and participants in CbC programs.

Assumptions

1. There was a design difference between IOP and CbC programs.
2. Participants answered questionnaires honestly and accurately.
3. Participants were able to identify attributes, consequences, and values.

Delimitations

1. Despite concern expressed in the ropes course research literature about post-program euphoria (Hattie et al., 1997) and how long the outcomes associated with ropes course program participation last (Doherty, 1995), the focus of this study was on participant experience during the program. Thus, there was no additional program follow-up.
2. Programs occurred only at designated sites under the facilitation of ropes course program instructors.

3. Only young adolescents ages 10 to 15 served as study participants.
4. Data were only collected during the late spring and summer of 2003.
5. Only one-day ropes course programs that included both low activities, such as cooperative games, problem-solving initiatives, and low ropes elements, as well as high ropes or climbing wall component were considered.

Limitations

1. Only self-administered questionnaires were used to collect data.
2. Individuals took part in only one aspect of the study – either the means-end laddering of program attributes, consequences, and values, or the experience sampling of meaningful involvement in ropes course programs.
3. Demographic information was only collected on age, sex, and previous ropes course program participation.
4. As co-developer of the Inviting Optimum Participation model, the researcher was partial toward the effectiveness of this approach. To minimize bias, the researcher did not participate in the design of study programs. Her involvement in ropes course program delivery was limited to spotting, providing participants with assistance during harnessing, and serving as a belayer.

Operational Definition of Terms

Action opportunity. An action opportunity (Csikszentmihalyi, 1975) is any option for significant, active engagement in a direct, purposeful, and challenging role associated with the primary interactions of an activity (Haras & Lisson, 2003a).

Attributes. Program attributes are the physical components or characteristics that make up a program (Goldenberg & McAvoy, 2002). In the context of a ropes course program, attributes may include items such as height of the course, duration of the program, activities such as Swamp Boards, or activity components like equipment, roles, or number of participants.

Central task. The central task of an activity identifies what needs to be accomplished by participants in order to be successful (Haras & Lisson, 2003a).

Challenge by Choice. The Challenge by Choice philosophy is characterized by a sequential organization of activities that is intended to create an atmosphere of support, trust, and encouragement for taking risks (Schoel et al., 1988). The agreement to value group members allows participants to step back and try the activity later, focuses attention on effort rather than performance, and respects individuals' choices and ideas (Schoel et al., 1988).

Consequences. The functional, psychological, or social outcomes that result from program participation are referred to as consequences (Klenosky, Frauman, Norman, & Gengler, 1998). They may be direct or indirect, and positive or negative (Goldenberg & McAvoy, 2002). Examples of possible consequences of ropes course programs include: setting goals, improved communication skills, building relationships, becoming organized, and encouraging others.

Inviting Optimum Participation. The key feature of Inviting Optimum Participation is a single, inclusive activity design that provides all participants with a

choice of challenging action opportunities within the scope of the activity's central task (Haras & Lisson, 2003a).

Meaningful involvement. Individuals are considered to be experiencing meaningful involvement when they are voluntarily participating in a purposeful and challenging endeavor that they find personally satisfying (Kleiber et al., 1986; Larson, 2000; Rathunde, 1993; Roth et al., 1998). For the purpose of this study, participants were considered to be meaningfully involved when they chose to be actively engaged in a role explicitly related to the central task the activity.

Primary interactions. Actions that directly assist the group in succeeding at the central task are considered primary interactions (Haras & Lisson, 2003a). If the central task may be accomplished without an particular task being performed, then the act is tangential and cannot be considered a primary interaction.

Ropes course program. For the purpose of this study, a ropes course program lasted five to eight hours and consisted of a high component (ropes or climbing wall) along with cooperative games, problem-solving initiatives, low ropes and/or trust exercises.

Ropes course program instructors. The programs in this study were led by trained and certified staff employed at the sites. These individuals were familiar with the program design and delivery model being used at their site. In addition, they received training on research procedures for the various instruments and techniques to ensure consistency in data collection among the research sites.

Sequencing. The order of activities within a ropes course program is often determined by sequencing. In general, sequencing implies that easier activities involving less risk (i.e. games, initiatives, trust exercises) are presented before more difficult and risky activities (i.e. high ropes course). The intent of sequencing is to enable participants to develop the skills they need to be successful over the course of the program (Schoel et al., 1988).

Values. Values are deeply held beliefs about the desired end state individuals hope to achieve from participating in a program (Goldenberg & McAvoy, 2002). The values of participating in a ropes course program may include: fun and enjoyment, self-fulfillment, and sense of accomplishment.

CHAPTER II

REVIEW OF LITERATURE

Meaningful Involvement

Recreation programs that are most successful at creating positive outcomes for their participants provide individuals with meaningful involvement opportunities (Eccles & Barber, 1999; Hultsman, 1996; Larson, 2000; McLaughlin & Irby, 1994; Roth et al., 1998). Meaningful involvement describes active participation in a voluntarily chosen activity where an individual's deliberate conduct leads to demonstrable effects, influences important decisions, and contributes to the achievement of desired outcomes (Checkoway, 1998). As a result of their contribution, individuals develop a sense of belonging and view of themselves as capable individuals (Eccles & Barber, 1999; Hultsman, 1996; Orlick, 1978). Meaningful involvement requires that individuals engage in a complex experience, be provided with range of choice, and have the potential to develop a positive view of themselves.

Engagement

Meaningful involvement entails active engagement in an experience. Dewey (1938) cautioned, however, that not all experiences are equally beneficial – for an experience to contribute to positive development, it must also arouse curiosity, develop initiative, and facilitate the achievement of long-term goals. Thus, meaningful involvement requires a structured environment where there are constraints, rules, complexity, and challenge; one's actions require concerted thought, effort, and skill; and there is an externally recognizable goal which individuals are striving to achieve (Larson,

2000; McLaughlin & Irby, 1994; Rathunde, 1993; Roth et al., 1998). The opportunity for meaningful involvement is greatest when individual characteristics are congruent with the challenges presented by the environment (Lerner & Barton, 2000). Since both the activity and its consequences are personally significant (Kolb, 1984), positive development is facilitated because the participant receives relevant feedback as a result of his/her actions (Csikszentmihalyi, 1975; Lerner & Barton, 2000).

In a study of 27 experiential learning programs, Conrad and Hedin (1981) found the program characteristics associated with positive change included: feeling of making a contribution; doing things instead of observing; having challenging tasks; and having a variety of tasks. Not surprisingly, these characteristics define engagement – active, hands-on participation in a task that is challenging, congruent with abilities, and directly related to the goal of the activity.

Choice

An activity is meaningful when participants feel they are not required to do it but, instead, feel they want to do it (Hultsman, 1996; Larson, 2000). Choice not only allows individuals to mediate the balance of skill and challenge that facilitates a quality experience, but also reinforces identity especially as it relates to success (Eccles & Barber, 1999). Conversely, when options for active participation are low, growth and development are limited.

In a study of cooperative learning strategies in elementary classrooms, Cohen (1993) reported that low achieving students who were overwhelmed by the challenges presented by an activity would often expend very little effort or even fail to initiate

involvement. When students were provided with a range of challenges, they were able to make choices regarding how they would be involved in the task. When activity design changes led to greater choice, learning increased for all students.

View of Self

Csikszentmihalyi (1990) writes that there are any number of meaningful activities yet their common characteristic is that they all provide their participants with a sense of achievement, enjoyment, and purpose. With sustained levels of involvement, a congruence of feelings, thoughts, and actions occurs (Csikszentmihalyi, 1990). Similarly, Knapp (1992) explains that meaningful involvement requires a significant goal and deliberate action to reach that goal which results in the realization of a desired end state where one's thoughts, actions, and emotions correspond. A study by Eccles and Wigfield (1995) found that adolescents often chose activities based on their perceived ability to be successful and achieve their goals. Similarly, Hultsman (1996) found that young adolescents valued activities that enabled them to improve their talents and gain confidence. Participants who are meaningfully involved, therefore, have an opportunity to express their identity as successful and effective individuals (Eccles & Barber, 1999).

Meaningful Involvement and Adventure Programs

In a review of the characteristics displayed by effective youth development programs, Larson (2000) identified adventure-based programs as having a unique capacity to provide opportunities for meaningful involvement. Adventure activities may be effective at creating the potential for positive change because of the perceived risk and uncertainty they entail, the degree of choice they offer, and the multiple action

opportunities that are available (Boniface, 2000; James, 1980; Larson, 2000).

Hastie (1992), for example, used the variable of enjoyment to describe New Zealand high school students' reactions to various outdoor adventure activities during a week-long experience. He found that activities were more likely to be selected if they provided a novel experience, were challenging, or considered fun. Activities thought to be boring or which were similar to previous experiences were selected least often. Participants often suggested that increasing the challenge would increase enjoyment.

In a separate study, Hastie (1995) found that Australian secondary school students at a week-long adventure camp that involved ropes course, rappelling, and a climbing wall showed high levels of task involvement despite the lack of any formal evaluation. One explanation was that the participants were able to adjust the challenges to meet their own levels of ability and were therefore more likely to make some effort even when participation was voluntary (Hastie, 1995).

This review of literature will examine the principles of adventure education programs that may contribute to meaningful involvement, provide an overview of the models and theories that inform program design and delivery, and describe the Challenge by Choice approach commonly used in many ropes course programs. The literature review will also explore the need for change in ropes course program design and delivery, and describe a new model, Inviting Optimum Participation. Finally, a background on the methods used to explore meaningful involvement in ropes course programs will be provided.

The Characteristics of Adventure-based Programs

Any unusual and exciting experience may be considered an adventure (Ellmo & Graser, 1995). Based on the belief that facing and overcoming various perils will lead to personal growth and development (Priest, 1999; Raines, 1989), societies have long used adventure as a rite of passage to transform individuals into valued and effective members of society (Bacon, 1987; Campbell, 1949; Campbell, 1988; Raines, 1989). Hattie et al., (1997) wrote that the purpose of adventure-based programs is to help participants “recognize and understand their own particular weaknesses, strengths and resources and thus find the wherewithal to master the difficult and unfamiliar in other environments”(p. 45). As a result, adventure-based programs may be defined as experiences that are deliberately designed to provide opportunities for interpersonal and intrapersonal growth (Ewert & Heywood, 1991; Priest, 1999; Raines, 1989; West & Crompton, 2001). The belief is that individuals will develop resilience, the ability to respond effectively to stressful events, by participating in adventurous activities (Green et al., 2000; Neill & Dias, 2001; Priest, 1999; Priest & Gass, 1997). The role of adventure program instructors, therefore, is to provide experiences that prepare individuals to deal with challenges of life (Raines, 1989), facilitate the process in a way that minimizes real risk, and create an environment that maximizes the potential for learning and growth (Bunting, 1999). Thus, the first step in understanding how a ropes course program may facilitate meaningful involvement is identifying the key characteristics of adventure-based programs and understanding how these elements interact to create an adventure experience.

Active engagement in an uncertain and risky experience. Adventure engages individuals because of the potential for fun, excitement, and enjoyment that is present (Ellmo & Graser, 1995; Dattilo & Murphy, 1987; Horwood, 1999; Schoel et al., 1988). Risk provides the intrinsic motivation and arousal necessary to develop mastery (Lyng, 1990) while uncertainty supplies initial and sustained interest (Mitchell, 1983). Although past experiences may indicate a likely outcome, complete control of the situation is impossible regardless of skill level (Horwood, 1999). Facing the anxiety, stress, or fear created by novel experiences provides the opportunity for learning and growth (Bunting, Tolson, Suarez & Williams, 2000; Priest & Gass, 1997; Raines, 1989). With an unfamiliar environment comes a new perspective that may then be applied to either familiar or unfamiliar situations (Ewert & Heywood, 1991; McKenzie, 2000b). Since it is through active engagement that one demonstrates his/her abilities, benefitting from adventure requires that beyond merely being present, individuals actively participate and experience the adventure first-hand (Hattie et al., 1997; Reader, 1997; Schoel & Maizell, 2002). While the adventure participant may realize great benefits, the potential for disaster is also present (Bunting et al., 2000; Campbell, 1949; Mitchell, 1983).

Challenge and efficacy. The goal of adventure is not merely to experience risk and uncertainty but to accomplish seemingly impossible tasks (McKenzie, 2000b; West & Crompton, 2001). Rather than relying on luck, adventures are difficult and demanding endeavors that test participants' knowledge, skills, and abilities (Boniface, 2000; Dattilo & Murphy, 1987; Horwood, 1999; Lyng, 1990; Mitchell, 1983; Raines, 1989). The action required is not merely busy work but consists of non-routine tasks that require skillful

effort including planning, purposeful execution, and concentration (Lyng, 1990; Mitchell, 1983). Flow occurs when an individual's skills match the challenge environment and this balance encourages subsequent participation (Csikszentmihalyi, 1975). Inescapable consequences provide clear and immediate feedback that sustains effort (Csikszentmihalyi, 1975; Hattie et al., 1997; Horwood, 1999; Mitchell, 1983). Success, although not certain, is achievable and probable (McKenzie, 2000b; West & Crompton, 2001) since a person is unlikely to attempt an activity at which he/she will not be successful (McGowan, 1986). In turn, the right level of challenge provides motivation, optimum performance, and a sense of accomplishment (Bunting, 1999). As a result of success, participants develop a sense of efficacy that encourages further participation (Mitchell, 1983).

Self-selection. Due to the risk and challenge involved, adventure is entered into voluntarily (Priest & Gass, 1997). Since every individual has different knowledge, skills, and abilities, determining what any particular individual considers an adventure is difficult (Boniface, 2000; Dattilo & Murphy, 1987). True choice, therefore, requires the complete absence of coercion (Boniface, 2000) and the belief that non-participation is a valid option (Rossman & Schlatter, 2003). Choice allows participants to make decisions about their involvement, empowers them to take responsibility for their own actions, and enables individuals to attribute success or failure to themselves (Priest, 1991).

Value of the group. Adventure-based programs strive to provide challenge within a warm and supportive group atmosphere (Kohut, 1997; Neill & Dias, 2001). Early adventure programs such as Outward Bound adopted the ropes course and other

challenge activities from the military (Rohnke, 1984). Their philosophy was based on William James' moral equivalent of war (Priest & Gass, 1997), the idea that challenging environments are a socially acceptable means of developing teamwork and leadership skills demonstrated during wartime. In adventure programs, both group and individual success depend on communication, teamwork, trust, and cooperation (Ewert & Heywood, 1991; West & Crompton, 2000; Zook, 1986). The group is generally composed of 7 to 15 individuals and is intended to be large enough for conflict and diversity yet small enough to provide support, facilitate conflict resolution, and demonstrate the value of interdependency (Bunting et al., 2000; McKenzie, 2000b, Walsh & Golins, 1976). Adventure program instructors recognize the importance of providing opportunities where each program participant gains value from the experience (Kohut, 1997; Lisson, 2000) and can contribute to the overall success of the group (Kohut, 1997; Lais, 2001; Sugarman, 2001).

Adventure Program Design Models and Theories

Designing and delivering consistently effective adventure programs requires that the adventure process be guided by a thorough understanding of what to do, how to do it, and why do it in a particular way. A model organizes information so that it is easier to understand, communicate, and apply (Fletcher & Hinkle, 2002). Models may inform adventure program leaders of the program attributes that lead to particular outcomes and why participants value particular program characteristics (Witman, 1993). Although ropes course programs are considered a unique tool for personal growth, separate from other types of adventure programs, ropes courses were initially used as an instrument for

adventure program staff to assess participants in the early part of an extensive multi-day wilderness experience (Fischesser, 1991). It is not surprising, therefore, that in terms of their models, theories, and philosophy, there is considerable similarity between wilderness programs, adventure education, and ropes course programs (Ewert & McAvoy, 2000; Johnson, 1992).

Outward Bound Process Model. One of the earliest adventure program models was described by Walsh & Golins (1976) who summarize the adventure education process as “characteristic problem-solving tasks set in a prescribed physical and social environment which impell the participant to mastery of these tasks and which in turn serves to reorganize the meaning and direction of his life experience” (p. 2). Since Outward Bound was one of the initial and best known adventure education programs in North America, Walsh and Golins (1976) based their model on the adventure education process used at Outward Bound schools and referred to it as the Outward Bound Process.

As described by Walsh & Golins (1976), the Outward Bound Process Model consists of a motivated and able participant who is placed in a novel and stimulating physical environment (often the outdoors) in the company of a supportive peer group and presented with unique problem-solving tasks. The tasks are not random challenges but purposeful and structured tasks chosen by the program instructor to be congruent with the goals, needs and capabilities of the participants. The tasks are sequenced appropriately so that participants have an opportunity to develop the skills they need in order to be successful and gain confidence. Concrete endeavors present participants with consequences that are real, immediate, and relevant. Although the tasks are challenging

and success is uncertain, they are solvable through the use of basic skills and conscientious effort. Finally, the tasks are holistic in that they are intended to engage the participant physically, mentally, emotionally and even spiritually.

According to Walsh and Golins (1976), the process is effective because participants experience a state of dissonance. Individuals who are confronted with difficult and demanding tasks, experience anxiety because of the potential for failure and/or perceived lack of control (Brody, Hatfield & Spalding, 1988; Rhoades, 1972). Individuals are therefore motivated to resolve the anxiety by undertaking the challenges before them (Johnson, 1992). Success not only addresses the initial difference in perception of themselves but, more importantly, also provides individuals with strategies and responses that may be integrated and incorporated in subsequent, stressful situations (Brody et al., 1988).

Sibthorp (2003) examined Walsh and Golins' model in relation to youth who participated in a three-week adventure education program centered around sailing and diving. He found that those participants who had the most positive attitude toward attending (i.e. motivated by expectations of personal growth), viewed the program as more relevant to their lives and felt more invested in the program at the end of the course. Similarly, motivated attendees perceived the course as providing instructor and group support, relevant learning, and empowerment. Finally, those participants for whom the experience was relevant and personally empowering stated they felt better able to negotiate their lives (Sibthorp, 2003).

Self-efficacy. Although the Outward Bound Process Model is not deliberately connected to any social psychological theory, it is highly congruent with Bandura's theory of self-efficacy. The basis of adventure education, including ropes course activities, is performing problem solving tasks where the outcome is uncertain (Fletcher & Hinkle, 2002; McGowan, 1986) while self-efficacy is the belief one has the ability to produce the desired outcome in a situation that tests one's competence (Bandura, 1977). Self-efficacy influences a person's choice of activities, affects the amount of effort put forth, and modifies the length of time spent attempting an activity (Bandura, 1977).

The factors that influence self-efficacy include: vicarious experience, such as seeing someone else successfully perform the task; verbal persuasion; and an optimal state of psychological arousal (Bandura, 1977). The factor that is most effective at improving an individual's level of self-efficacy, however, is performance-based activities (Bandura, 1977). This positive change in self-efficacy is even more likely to occur when results are attributed to individual rather than external factors (Bandura, 1977) since the participant then internalizes the positive behavior (McGowan, 1986).

Numerous studies have examined changes in self-efficacy resulting from participation in adventure education programs. Propst and Koesler (1998) found that participation in a 30-day NOLS course had a significant effect on immediate and long-term self-efficacy. Although the level of self-efficacy diminished after a year, it was still significant. In contrast, Paxton and McAvoy (2000) report that the self-efficacy of participants in a 21-day Outward Bound course increased after the program and continued to do so at the six month follow-up. Similarly, in a meta-analysis of adventure

education programs, including ropes course programs, Hattie et al. (1997) found an initial self-efficacy effect size of 0.31 and a follow-up effect size of 0.21.

Individual change resulting from ropes course program participation has often been measured using self-efficacy. In a study of junior and senior high school students, Constantine (1993) found that those who participated in a series of ropes course activities improved their self-efficacy from pre to post-test and had higher levels of self-efficacy than students in a control group. Similarly, in a study of college students Nyhus (1993) found that participants' self-efficacy was higher at the end of a ropes course program and that it had increased regardless of the students' initial level of self-efficacy. Rastall (1998) identified self-efficacy as the key outcome of participating in two high ropes elements.

Self-efficacy may not only improve after participating in challenging activities, but may also transfer to other situations. Brody et al. (1988) found that male college students who learned to rappel were less anxious and had higher self-efficacy when considering high risk activities as compared to a control group. Although the increase in self-efficacy was not significant with regard to high-risk social situations, it was higher than the control group's. Similarly, Paxton and McAvoy (2000) report that when participants were asked "Have you used any of what you learned on your Outward Bound course in your daily life?" (p. 204), they responded they now felt increased competence and were able to use failure as a learning opportunity.

Lewin's Change Theory. The positive change facilitated by participation in an adventure-based program such as a ropes course may occur because the experience serves

as a learning laboratory (Hart & Silka, 1994; Larson, 2000). The novelty of the situation puts all participants on the same level and enables them to experiment more freely with new behaviors that might lead to change (Hart & Silka, 1994; Rhoades, 1972; Stopha, 1994). The opportunity to repeat similarly structured experiences within a short period of time, may also facilitate the development of new skills (Larson, 2000). Challenging yet manageable situations, immediate feedback between action and consequences, criteria for success or failure that are obvious to anyone, and the likelihood of eventual success are other key features of adventure-based programs which may facilitate positive change (Rhoades, 1972).

According to Lewin's Change Theory, change is a three step process consisting of unfreezing, moving and refreezing (1947/1997). Unfreezing creates the desire for change by highlighting the incongruity between the challenges of the situation and the individual's traditional response. Unfreezing consists of three steps including: disconfirmation, or creation of the anxiety; accepting the disconfirmation as valid, which requires a safe and supportive environment; and finally, an openness to new ideas (Schein, 1996). In an adventure experience such as a ropes course program, the novel physical environment provides much of the disconfirmation necessary to motivate change (Rhoades, 1972).

As individuals move toward change, they may scan the environment in search of new behaviors or may attempt to generate new behaviors through trial and error (Schein, 1996). Moving toward the development of problem-solving approaches that address the incongruity is facilitated by change agents (Meyer & Wenger, 1998). Change agents

create a safe and comfortable environment, facilitate risk-taking, help identify new behaviors, develop fresh responses, create effective problem-solving techniques, and model and reinforce new behaviors (Meyer & Wenger, 1998). Program design, through its creation of a novel environment plays a key role in facilitating change since it sets up the necessary potential for success (Rhoades, 1972).

Finally, refreezing is the integration and incorporation of new responses to subsequent situations. Once again, change agents may play a vital role in supporting the transfer of new behaviors (Meyer & Wenger, 1998) since change is unlikely to be maintained without acceptance and reinforcement by significant others (Rhoades, 1972).

Adventure education programs generally occur in a group setting where group and individual success often depends on cooperation (Ewert & Heywood, 1991; Rhoades, 1972). Because of the presumed connection between group cohesion and performance, improved group cohesion is considered an important outcome for many types of groups (Carron, Colman, Wheeler & Stevens, 2002; Ewert & Heywood, 1991; O'Bannon, 2000). Changes in group cohesion resulting from participation in ropes course programs have frequently been studied using athletic teams.

Meyer (2000) found that female high school tennis players who participated in a ropes course experience had significantly higher social cohesion at post-test than those who had not. Similarly, Fletcher (2000) found that both the social and task cohesion of female university volleyball players increased following a one-day low ropes program. Kilty (2000) studied female university gymnastics, softball, field hockey and lacrosse

teams and also found that social and task cohesion increased for three teams while the fourth team increased in social cohesion.

Other studies on changes in group cohesion resulting from ropes course programs have considered the experiences of young adolescents (Bisson, 1997; Glass, 1999), university students (Kopf, 1996; Thompson, 1995), and corporate work teams (Bronson et al., 1992). In each case, the researchers concluded that group cohesion was positively affected.

Meyer and Wenger (1998) used Lewin's Change Theory in a study of a girls high school varsity tennis team that participated in a pre-season ropes course program. They found that trust, goal setting, and group cohesion were the learnings that were applied to situations throughout the tennis team's season. The concept of group cohesion was transferred most frequently. Meyer and Wenger (1998) were also able to explain why some athletes benefitted more from the experience than others – those who were ready to make change used the opportunity of the ropes course program to identify new behaviors and worked hard to integrate these changes into various aspects of their lives.

Experiential Learning Cycle or Spiral. Researchers have realized that positive change as a result of an adventure experience does not necessarily follow all participants back to their daily lives (Bacon, 1987; Rhoades, 1972; West & Crompton, 2001). Driven in part by clients who wanted to ensure that the adventure program would be beneficial (Bacon, 1987), adventure leaders have looked for ways that would help more participants transfer their learnings from the adventure experience to the challenges faced in their daily lives (James, 1980).

Like Lewin's Change Theory and Bandura's theory of self-efficacy, Kolb (1984) believes that growth and development occur more readily as a result of experience. Informed by Lewin's belief that change is best facilitated by an immediate concrete experience followed by a feedback process, Kolb's (1984) Experiential Learning Cycle consists of four stages. First, there is active participation in a concrete experience. This leads to reflection on the activity (also known as processing or debriefing the experience) which helps participants identify what they have learned from the experience (McKenzie, 2000b). In turn, reflection enables individuals to develop abstract generalizations about their learnings which transcend the situation. Finally, participants are able to actively experiment with these new concepts. The combination of the Outward Bound Process Model with the Experiential Learning Cycle has been referred to as Outward Bound Plus (Bacon, 1987; Doherty, 1995). Since the Experiential Learning Cycle repeats with each new experience, Schoel & Maizell (2002) have represented the process as a spiral with the previous cycle forming the basis for the next one.

Kolb's (1984) experiential learning cycle highlights the importance of active engagement in the adventure experience and is often used to describe the process used in ropes course programs. In fact, the Association for Challenge Course Technology (ACCT, 2002) defines a ropes course program as incorporating activities that are belayed, spotted or unspotted and designed to be used as part of an experiential learning process.

Doherty (1995) compared the effectiveness of different reflection techniques, including Outward Plus, in a study of a one-day ropes course program for residence

assistants. She found that positive changes in group cohesion, decision-making, and expressiveness occurred for all groups that participated in a ropes course program regardless of the type of reflection used. Residence assistants who were in the control group which did not participate in a ropes course program, however, did not experience significant change. Doherty (1995) also discovered that the type of reflection technique used influenced the degree and retention of change. Ropes course participants whose programs used framing and debriefing techniques that highlighted transfer of learning to situations beyond the ropes course showed they had retained more benefits of participation at a one-month follow-up.

Similarly, in Fletcher's (2000) study of collegiate women volleyball players who took part in a ropes course program, participants indicated that in addition to the novel setting, perceived risk, and state of disequilibrium, the program attributes that affected the cohesion of their team were the facilitator, processing the experience, and transfer to daily life.

Flow. Flow incorporates many of the key concepts of meaningful involvement and captures important aspects of the adventure experience. Csikszentmihalyi (1975) originally described flow in terms of nine dimensions – balance of challenge and skill, merging of action and awareness, clear goals, unambiguous feedback, concentration on the task, sense of control, loss of self-consciousness, transformation of time, and autotelic experience.

In studies, however, flow has commonly been operationalized using a four-channel model. Flow is said to occur when there is a balance between skill and challenge

and both these are above the level usually experienced (Csikszentmihalyi & Csikszentmihalyi, 1988). The key, however, is that the skill-challenge balance depends on participant perception and not instructor judgement (Voelkl, Ellis, & Walker, 2003). Thus, researchers have found that flow is more likely to occur in structured activities where individuals are able to apply and develop their skills to as well as select their level of challenge (Bialeschki & Henderson, 1992; Henderson, Bialeschki, & Powell, 1992; Moneta & Csikszentmihalyi, 1996). In a study of adolescents participating in either gym classes, organized sports, or informal sport, Chalip, Csikszentmihalyi, Kleiber and Larson (1984) found that matching of challenges and skills was easiest when the sport was controlled by the participants as was the case with informal sport.

Researchers have revised the flow model so that it consists of environmental conditions conducive to flow experiences that contribute to the psychological characteristics of flow that then lead to flow outcomes (Voelkl et al., 2003). The three environmental conditions that provide the necessary structure and predict flow include: clear goals that let participants know what needs to be done; immediate feedback so participants know how well they are doing; and balance of challenge and skill so participants feel they are capable of doing what needs to be done (Csikszentmihalyi, 2000; Voelkl & Ellis, 2002; Voelkl et al., 2003). The outcome of a flow experience is enhanced self-affirmation (Voelkl & Ellis, 2002).

This most recent conceptualization of flow is congruent with the earlier work of Ellis, Witt and Aguilar (1983) who suggested that since the structure of activities is manipulable, recreation leaders should create experiences that offer the potential for flow

and enable individuals with disabilities to move “...beyond simply being counted as a participant” (p.15). The conditions Ellis et al. (1983), identified as important also include: immediate and unambiguous feedback; challenge-skill balance; and clear goals that allow participants to narrow their field of concentration and focus on the process rather than the product or external rewards associated with participating. Generating interest in participation through the use of novelty, complexity or uncertainty, and dissonance was a fourth condition (Ellis et al., 1983) and seems particularly relevant to a discussion of adventure-based programs such as ropes courses.

Clear goals and unambiguous feedback contribute to both flow and meaningful activity because individuals are able to get an accurate sense of their skills (Henderson et al., 1992; Rathunde, 1993; Voelkl et al., 2003). Perhaps because of its clear goals (Boniface, 2000; Csikszentmihalyi, 1975; Csikszentmihalyi, 1990; Kiewa, 2001) immediate, unambiguous feedback (Csikszentmihalyi, 1975; Csikszentmihalyi, 1990; Kiewa, 2001), and climbers’ ability to manipulate the challenge-skill balance (Boniface, 2000; Csikszentmihalyi, 1975; Kiewa, 2001; McKenzie, 2000a), numerous studies have explored rock climbing’s relationship to flow.

Rock climbers are able to exert a good deal of control over the structure of the activity (Kiewa, 2001). Although some degree of uncertainty is always present, climbs are rated regarding their level of difficulty. Thus, rock climbers have some choice regarding the degree of challenge they will encounter (Csikszentmihalyi, 1975). Since rock climbing provides an almost unlimited number of action opportunities, climbers can

continually structure the experience so that it is always novel (Boniface, 2000; Csikszentmihalyi, 1975; Kiewa, 2001).

In a study of Outward Bound Western Canada participants that used qualitative research techniques, rock climbing was identified as a key program attribute because participants indicated it to be an activity that enabled them to achieve individual success, be physically challenged, and learn new skills (McKenzie, 2000a). The Outward Bound instructors who were interviewed believed that this outcome is due to the fact the rock climbing allows different participants to be challenged with the same activity.

Participants at North Carolina Outward Bound linked rock climbing with program outcomes such as perseverance, teamwork, physical fitness, appreciation, independence, achievement, knowledge, and self-confidence (Goldenberg, 2002).

Despite the structural similarities between rock climbing and high ropes participation, no study has examined flow in this setting. Freeman (1993) did, however, study the occurrence of flow during a low ropes program. She found that flow was more common during later, more challenging, phases of the program sequence (i.e. cooperation, problem solving, and group challenge) and that an increase in flow for some participants was related to an increase in anxiety for other participants. Jones, Hollenhorst, Perna, and Selin (2000) reported similar findings – among whitewater kayakers, as rapids became more challenging, reports of flow and anxiety tended to increase together.

Although the focus of the studies by Kilty (2000) and Fletcher (2000) was group cohesion, both of these researchers reported that many of the athletes they studied

commented that the activities experienced during the early stages of a ropes course program were not challenging enough. Rastall (1998) reported that some participants were eager to try activities considered to be more challenging much earlier in the program.

Adventure Program Attributes, Outcomes, and Values

In a meta-analysis of 96 outdoor adventure programs (including ropes course programs), Hattie et al. (1997) pointed out that “only some adventure programs are effective, and then on only some outcomes, and it is probable that only parts of the programs are influencing the outcomes” (p.70). Little research has been done, however, to determine which program attributes are important. One exception, McKenzie’s (2000a) study of Outward Bound Western Canada participants, focused not on the activities themselves but on the qualities they embodied to describe how program outcomes are achieved. She found that qualities described by participants as leading to benefits included: achieving success; experiencing challenge; learning new skills; being responsible for yourself; and having fun. Qualities that participants considered detrimental to the achievement of program outcomes included failing to achieve success and a lack of challenge (McKenzie, 2000a).

Although McKenzie’s (2000a) results are not surprising, researchers should not assume that identification of program attributes is self-evident. Adolescents in an in-patient psychiatric treatment programs, for example, differed from experts in their rankings of the importance of ropes course program components (Witman, 1993). Participants identified helping others, risk/challenge, care for self and others, support of

others, trust activities, and belongingness as most important while experts listed fun, risk/challenge, support of others, belongingness, trust activities, and ropes course as most important.

In Kilty's (2000) study of female varsity athletes, the program attributes participants identified as being most valuable included high ropes elements, belaying one another, and debriefing. Despite the longstanding belief that games and ice-breakers serve a necessary function in engaging participants in the adventure process, these individuals did not consider cooperative games to be valuable. None of these studies explicitly linked program attributes to specific outcomes and most did not clearly distinguish between program attributes and outcomes of participation.

Meaningful Involvement in Ropes Course Programs

Ropes course program design program models and various social psychological theories have influenced participants' opportunities for meaningful involvement by guiding program leaders to create particular types of experiences. In addition, approaches to program delivery have also influenced the meaningful involvement opportunities provided to individuals. Thus, meaningful involvement in ropes course programs depends on how the program is designed, the program features it contains, and how it is delivered.

Ropes Course Program Components

Ropes courses programs have borrowed much of their philosophy, design, and delivery from Outward Bound (Rohnke, 1999). Project Adventure, the company with perhaps the greatest influence on ropes course programming (Bisson, 1999), began as an

effort to bring the Outward Bound Process into the high school curriculum (Rohnke, 1977; 1999). The Outward Bound Process Model uses sequencing, ensuring that the order of activities reflects the knowledge, skills, and readiness to the group, to guide the design and delivery of adventure-based programs. Likewise, many ropes course programs are based on a sequence of components that is assumed to be ideal for creating opportunities for interpersonal and intrapersonal growth (Bisson, 1997; 1999). Ropes course program components include cooperative games and de-inhibitizers, name games, communication activities, trust exercises, initiatives, low ropes elements, and finally high ropes elements.

Cooperative games and de-inhibitizers. Cooperative games and de-inhibitizers provide participants with the opportunity to have fun, be playful, and begin to take risks in a non-threatening situation (Schoel et al., 1988). The games are often high energy, have simple rules, require little to no equipment, demand few skills, and allow the ropes course instructors to participate alongside group members and set the tone for the program (Rohnke & Butler, 1995).

Name games. Games that provide group members with the opportunity to learn each others' names fall into the category of name games. Learning names helps group members develop a sense of belonging which leads to trust (Rohnke & Butler, 1995). Although members of intact groups know each other, name games may be played for the benefit of the ropes course instructor who has just met the group. Since name games are a type of de-inhibitizer, they also expose participants to emotional risks such as looking foolish or inept (Schoel et al., 1988).

Communication activities. Communication activities provide low-level challenges and an opportunity for participants to begin to share ideas and apply basic skills within a group-decision making process. Success depends on physical effort and effective verbal interaction (Schoel et al., 1988). The goal is to increase the participants' abilities to work together and develop an appreciation of their collective skills, knowledge, and abilities. Success and a sense of accomplishment are likely since the challenges are designed to be readily achievable (Rohnke & Butler, 1995).

Trust exercises. The focus of trust exercises is the development of physical and emotional trust among group members. The process is facilitated by engagement in a graduated series of exercises that expose participants to increased levels of challenge (Schoel et al., 1988). The purpose is for the group to rely less on the ropes course program instructor and begin to assume responsibility for its own safety (Rohnke & Butler, 1995).

Initiatives. When ropes course program instructors present an initiative, they describe what often seems to be a fantastic problem but offer no solution (Rohnke, 1999). Initiatives are designed so that group success depends on creativity, cooperation, and physical effort (Havens, 1992). The problem-solving process often involves trial-and-error (Schoel et al., 1988) and requires the group make the use of the strengths of its members (Rohnke, 1984). Success depends on what the group can accomplish rather than what individuals can accomplish (Rohnke, 1999). Initiatives may be portable or may require constructed elements.

Low ropes. Obstacles made of rope, cable, wood, and other materials that are designed to provide group, pair, or individual challenges make up a ropes course (Schoel et al., 1988). Ropes course elements (activities) that are not belayed are called low ropes. Safety is provided through spotting (Rohnke, 1984). Some low ropes elements may present individual challenges similar to those provided by high ropes while other low ropes elements are more similar to initiatives.

High ropes. Although paired high elements exist, the high ropes component generally presents participants with individual challenges that help them develop persistence, determination, and self-confidence (Schoel et al., 1988). Because of the height at which they take place, elements on a high ropes course are belayed.

Challenge by Choice

The term “Challenge by Choice” was created by Project Adventure in the mid-1980s to describe the strategy of allowing participants to choose how they want to be challenged during a ropes course program (Rohnke, 1990). The belief is that participants are more likely to take part and experience positive change and development when they can select their level of involvement without coercion (Rohnke, 1999; Rohnke & Grout, 1998; Schoel et al., 1988). Challenge by Choice (CbC) has since become a standard operating procedure in ropes course programs (Itin, 1992; Lisson, 2000; Wurdinger, 1997). It consists of four interrelated components: sequencing, voluntary participation, conscientious effort, and positive norms and values.

Sequencing. Active participation, an important component of meaningful involvement, is enhanced by sequencing. The belief is that if activities are properly

sequenced and led, group members have a good chance of rising to the challenge and experiencing success (Schoel et al., 1988). By selecting activities that gradually increase the degree of risk and build upon previously developed skills, the group is maintained in a state of flow – participants are neither bored nor anxious because the task is congruent with their abilities (Rohnke & Butler, 1995). Many organizations place high ropes at the end of a program because it is assumed that the group will then offer greater support and encouragement (Bisson, 1999). Many organizations believe that high ropes without the preceding activities is simply a “cheap thrill” (Rohnke, 1999, p. 349).

Voluntary participation. The central principle of Challenge by Choice is that the individual who will experience the challenge is the one who makes the choice about participating (Carlson & Evans, 2001; Chappelle & Bigman, 1998; Itin, 1996; Nussbaum, 1996; Priest & Rohnke, 2000; Rohnke, 1994; Smolowe, 1990; Walsh, 1998). Participants are encouraged to set their own level of challenge and may change it at any time (Chappelle & Bigman, 1998). The belief is that asking individuals to make choices leads to a commitment to and ownership of goals (Henton, 1996) and enables individuals to attribute their success or failure to themselves (Priest, 1991; Priest & Gass, 1997). Giving participants the choice to not participate in an adventure activity takes pressure off both the participant and the instructor and may, in some cases, be a sign of strength rather than an indication of weakness (Rohnke, 1989; Schoel & Maizell, 2002). Alternative roles such as observer or encourager offer options for participation and still allow the participant to stay within the challenge (Walsh, 1998). The belief is that forcing

individuals to participate is unethical and irresponsible (Gass, Goldman & Priest, 1992; Priest, 1991; Priest & Gass, 1997; Priest & Rohnke, 2000).

Conscientious effort. Involvement in an activity requires more than mere presence (Johnson, 1992; Reader, 1997; Schoel & Maizell, 2002). As Schoel and Maizell have pointed out, “participation ...may be minimal and reluctant, but if anything is to be learned from the experience, then just being a warm body is not enough” (p. 44). A successful experience does not hinge on the completion of the activity but on the willingness to put forth a conscientious effort (Carlson & Evans, 2001; Itin, 1992; Rohnke, 1994; Rohnke & Grout, 1998). Because abilities in a group vary, ropes course program leaders may find it more appropriate to place a higher value on effort than the actual physical outcome (McAvoy & Lais, 1999; Schoel et al., 1988). In order to facilitate meaningful involvement, ropes course instructors are encouraged to modify activities for particular individuals (Sugarman, 2001).

Positive norms and values. A cooperative and supportive environment where participants have learned to trust and encourage one another tends to promote participation (Prouty, 1999; Rohnke, 1989). In addition, framing the activity so that participants feel successful regardless of their level of involvement does much to facilitate growth and development (Smolowe, 1990). Voluntary participation is therefore supported by a norm that asks individuals to create positive, personally relevant goals (Annat, 1995; Chappelle & Bigman, 1998; Smolowe, 1990), support the choices of other group members (Chappelle & Bigman, 1998; Mitten, 1988; Nussbaum, 1996), and value the choices and contributions made by others (Mitten, 1998; Nussbaum 1996). Since

encouragement plays an important role in resolving a participant's conflict between the high expectations presented by an activity and the need for a successful experience (Prouty, 1999), the norm of a positive atmosphere may be formalized with a full value agreement that asks individuals to participate to the best of their ability and maintain the physical and emotional safety guidelines established by the group (Henton, 1996).

The Need for Change

Although Challenge by Choice is explained in participant briefings and staff manuals at ropes courses around the world, the manner in which this concept is operationalized differs and the degree of choice is subject to debate (Horwood, 1999). According to Priest and others (Hovelynck, 2003; Priest, 1991; Priest & Gass, 1997; Priest & Rohnke, 2000) Challenge by Choice refers to making decisions regarding one's own level of involvement. Other authors have indicated that Challenge by Choice may be perceived as the opportunity to set individual goals (Nussbaum 1996), the ability to define one's own success (Annat, 1995), the option to choose the degree of challenge (Nussbaum 1996), the decision on when to do the activity (Mitten, 1998), the selection of the activity (Lisson, 2000), or permission for non-participation (Hovelynck, 2003; Itin, 1992; 1996; Rohnke & Grout, 1998).

Since the 1990s, issues with Challenge by Choice program model have begun to be highlighted. Carlson and Evans (2001) describe how despite the use of the Challenge by Choice philosophy and an accessible climbing wall, a participant with a disability was still denied the opportunity for meaningful involvement in the adventure experience. Walsh (1998) recounts a Mohawk Walk where she ignored the Challenge by Choice

philosophy and her own best interests because she did not want to disappoint her group. Lisson (2000) notes that while participants' ability to choose has received much attention, often little is done to provide challenge options. For example, sequencing does little to address the issue of ability – especially in short duration adventure experiences such as ropes course programs. If participants are unable to perform an activity because of a disability, injury, poor fitness level, fatigue or other factors, no amount of sequencing can change the immediate situation. They may intend to participate, but unless they are given an opportunity which is within their ability they will be unable to do so. If, as in some cases, the interpretation of Challenge by Choice is such that it “...accepts differences and integrates them into the group as additional challenges for meeting specified goals” (Reader, 1997, p. 3), the issue is not longer simply individual ability but also about the impact a less able participant may have on the level of challenge and success experienced by other group members (Havens, 1992; McAvoy & Lais, 1999).

Similarly, asking all participants to make a conscientious effort may be insufficient to ensure meaningful involvement since participation depends not only on individuals' motivation but also on their knowledge, skills, abilities, and resources in a particular context (Roberts & Smith, 1999). An individual who has rock climbed may eagerly anticipate a high ropes experience. If the program has no harness that fits her, she will be unable to climb or belay regardless of choice. Although the result is the same, non-participation due to an incongruence between the challenges posed by the environment and individual characteristics should not be confused with deliberately

choosing not to participate. The latter is the result of choice whereas the former is the result of poor activity design.

While norms for equal participation and cooperation can influence behavior, they do not change individuals' expectations of competence (Cohen, 1993). Respecting and valuing peoples' choices as directed by Challenge by Choice and Full Value Contract is difficult when group members are not participating and can not contribute to the group during ropes course activities. Thus, for some individuals, meaningful involvement in ropes course programs may require specific adaptations – a change in the materials, equipment, the manner of use, or environment which enables or enhances participation (Schleien, McAvoy, Lais, & Rynders, 1993).

Since the 1980s, integration has been a preferred best practice in the field of recreation (Dattilo, 2002) and an increasingly diverse population is participating in ropes course programs (Laurence, 1988; Rogers, 2000). Integration is both a goal and a process that considers social and physical aspects to permit, enable, and facilitate acceptance for the participation of people in wider society (Schleien et al., 1993). Integration is deliberately planned so that all the participants will be involved in mutually beneficial activities (Schleien et al., 1993).

In order to facilitate integration, some ropes course programs have focused on the group in an attempt to give equal value to everyone's participation and de-emphasize the physical nature of many of the challenges (McAvoy & Lais, 1999). Because only a few activities or roles within activities are accessible (Roland, 1992), roles in an integrated ropes course program may be delegated to fit a person's ability (McAvoy & Lais, 1999).

In an integrated program, participation may also be partial (Schleien et al., 1993) whereby a person participates as much as possible, encouraging both social interaction and acceptance (Havens, 1992; Mahon, 1993). Partial participation, however, does not ensure that the experience is identical or even similar for all participants (Fullwood cited in Mahon, 1993; Schleien et al., 1993). While holding the rope bag, spotting, and encouraging others are important tasks in the context of a ropes course experience, these tasks do not provide the same degree of adventure presented by climbing (Lisson, 2000) because they involve little novelty or uncertainty. Even opportunities for meaningful involvement may be limited since these options are often presented as second rate alternatives (Lisson, 2000).

From a philosophical perspective, Itin (1992) has questioned whether instructors should allow individuals to easily disengage from the experience since those who do not participate limit their potential for learning and growth. Others (Mitten, 1998; Smolowe, 1990; Wurdinger, 1997) wonder about the appropriateness of using Challenge by Choice with corporate, school, and other groups where full participation is expected and individuals have little choice regarding their participation. Although Rohnke and Grout (1998) and Schoel and Maizell (2002) have clarified that Challenge by Choice was not intended to create a way out but rather to provide flexibility for individual involvement, there is still no indication of how this should occur.

Universal Design

Despite the generally welcoming and inclusive nature of ropes course programming, providers are experiencing difficulties as adventure programs have

become more popular and participants have become more diverse. Programs often last only a day, or even less (Hovelynck, 2003). Many activities are not designed with physical, cognitive, social, affective, and cultural differences in mind. Many are “all or none” propositions that relegate those individuals who can not participate to the sidelines thereby limiting their potential to benefit from the experience (Lisson, 2000). Because reliance on traditional program design and delivery models may limit the meaningful involvement of diverse individuals (Carlson & Evans, 2001; Walsh, 1998), ropes course programs are actively pursuing alternate program models (Carlson & Evans, 2001; Curulla & Strong, 2000; Eavey, n. d., Fink-Miller, 1999; Reader, 1997; Rogers, n. d.; 1998; 1999; 2000; Swann & Walsh, 2001; Terry, 1995).

Universal design is an effort to create environments, products, and services that respond to the widest possible range of the population (Ceconi & Kuss, 2000; Chang, Tremblay & Dunbar, 2000; Dattilo, 2002; Doe, 1999; Farbman & Park, 1989; Finkel & Gold, 1999; Hamilton & Bloomer, 1996; Reader, 1997; Salmen, 1996). Universal design considers differences in sensory acuity, environmental sensitivity, mobility, physical and cognitive ability, age, gender, size, strength, cultural background, mode of communication, and affluence, whether these conditions are temporary or permanent and whether they affect the individual or someone in his/her company (Ceconi & Kuss, 2000; Chang et al., 2000; Doe, 1999; Farbman & Park, 1989; Finkel & Gold, 1999; Kermeen, 1997; PLAE, 1993; Zacks, 1998). Instead of seeing some individuals as members of various special groups who differ from the norm (Farbman & Park, 1989; Hamilton & Bloomer, 1996), universal design sees all people as unique individuals having needs and

abilities somewhere along a continuum (Reader, 1997; Terry, 1995; Welch, 1995). This new paradigm invites creative strategies that are designed to meet the needs of all people (Farbman & Park, 1989; Terry, 1995; Welch, 1995).

Universal design facilitates inclusion – a legal and moral mandate based on the premise that everyone is welcome, belongs to, and can make valuable contributions to a community (Dattilo, 2002). Inclusion accommodates and supports the meaningful involvement of all people by creating opportunities that facilitate participation and empower choice (Dattilo, 2002). It is not oblivious to diversity and differences but recognizes, accepts and celebrates them (Dattilo, 2002; Fink-Miller, 1999). The focus is on similarities, interdependence and respect to create a community that allows all its members, regardless of age, gender, ability, cultural background, or socioeconomic status, to play a full and active role (Dattilo, 2002). It is not evident that separate or extra modifications have been made for a specific person or group (Dattilo, 2002; Kermeen, 1997; Park & Robb, 1996; PLAE, 1993; Rogers, 2000; Welch, 1995) and the single, all-inclusive design improves everyone's comfort and experience (PLAE, 1993; Reader, 1997; Welch, 1995).

The concept of universal design originated in accessibility and building construction but has spread to recreation (Hamilton & Bloomer, 1996). It is considered a highly attractive solution to meeting the needs of an increasingly diverse population because of the assumption that many barriers can be prevented and costs saved by considering differences in advance and designing with the needs of multiple users in mind (Dattilo, 2002; Doe, 1999; Farbman & Park, 1989; Welch, 1995). Since the premise

of ropes course programs is that individuals will experience positive change when they are exposed to novel and challenging situations that require group support and teamwork for success (Attarian & Holden, 2001; Priest & Gass, 1997), it is not surprising that ropes course programs have embraced the idea of inclusion and universal design.

Ropes courses are not inherently universal, but they do exhibit a number of features that lend themselves to universal design (Reader, 1997). Not only are ropes courses a built environment where actual construction is required, but ropes course programs also depend on both facility design and program delivery (Rogers, n. d.). This may be the main reason they are embracing universal design – a concept that recognizes the importance of both aspects.

There are additional reasons why ropes courses providers are interested in universal design. First, ropes courses are found at camps, schools, hospitals, and park districts where they are used by a variety of populations (Attarian, 1990; Attarian & Holden, 2001; Reader, 1997). They may be used for recreation, education, training and development, and therapy which not only reflects the broad range of populations that participate in ropes course programs but also their flexibility (Attarian, 1990; Attarian & Holden, 2001; Havens, 1992; Priest & Gass, 1997; Rogers, 2000). Since ropes course programs use noncompetitive, cooperative, group-focused activities (Attarian & Holden, 2001; McAvoy & Lais, 1999; Reader, 1997), their features support inclusion.

Ropes courses are designed to provide all participants with a novel experience. Since no previous skills or training is required to participate, all participants start at the same level (Reader, 1997). Finally, the notion of adventure is itself inclusive (Reader,

1997), because any activity that involves active engagement in an uncertain and risky situation, the potential for challenge and efficacy, and a degree of choice can be considered adventurous (Mitchell, 1993).

Carlson and Evans (2001) and Rogers (2000) have acknowledged that universal design alone is insufficient to ensure meaningful involvement in ropes course programs. Universally designed ropes courses can be used in ways that compromise the intent of universal design – a comparable experience (Rogers, 2000). While the structural aspects of universal design often come to mind first, universal recreation programs place a large responsibility on program leaders to meet the needs of all group members (Reader, 1997; Rogers, 2000; Schleien, Germ & McAvoy, 1996). Due to the focus on participation in activities, modifications are more common at the programmatic level rather than at the facility level (Rogers, n. d.; Rogers, 2000; Schleien et al., 1996). Considerable training, skills, expertise, and resources are required for effective universal ropes course programs (Curulla & Strong, 2000; Eavey, n. d.; Reader, 1997; Rogers, 2000). A welcoming and inclusive attitude along with a universally designed ropes course does not guarantee the program itself will be universal if instructors lack the necessary training to facilitate meaningful involvement.

Reader's (1997) study of ropes course universality found that the role of program design, although recognized as an important element of inclusive ropes course experiences, had yet to adequately addressed by program providers. The little direction has been provided tends to take an activity by activity and disability by disability approach (e.g. Allison, 1995; Havens, 1992; Martin & Fulton, 1999; Swann & Walsh,

2001) that does little to empower ropes course program instructors or provide them with a framework for responding to the needs of diverse individuals. Finally, although universal design is theoretically concerned with addressing the needs of all members of society, most of the articles focus almost entirely on the experiences of people with obvious disabilities to the exclusion of other differences.

A review of literature on providing meaningful involvement opportunities for all ropes course program participants indicates that universally designed experiences are preferred by ropes course program providers (Carlson & Evans, 2001; Curulla & Strong, 2000; Eavey, n. d.; Fink-Miller, 1999; Havens, 1992; Reader, 1997; Rogers, n. d.; 1998; 1999; 2000; Swann & Walsh, 2001; Terry, 1995). Studies from other outdoor recreation activities suggest that participants may also prefer universally designed experiences (Brown, Kaplan & Quaderer, 1999; Kirkindall, 1999). An underlying assumption of this literature is that one design can provide a recreation experience that facilitates the meaningful involvement of all individuals. Research has yet to confirm this assumption and limited direction has been provided regarding programs as opposed to facilities.

Inviting Optimum Participation

Inviting Optimum Participation is a new, comprehensive ropes course program design and delivery model that has been co-developed by the researcher. The model was created as an alternative to Challenge by Choice and provides a framework, foundation, and formula that enables ropes course instructors to operationalize active engagement, equity of experience, and choice in ropes course programs (Haras & Lisson, 2003a). The framework of this new model is based on the balance between individual skills,

knowledge and abilities with the challenges presented by the environment. In turn, the framework is supported by a foundation consisting of context, equity, and choice working together to create a single, inclusive activity design that provides participants with numerous challenging action opportunities. The formula guides adventure leaders through the process of using activity design informed by program context to provide participant choice and equity of experience in a way that ensures active participation opportunities for all group members. The hope is that the resulting purposeful engagement will support the underlying benefit of ropes course programs – positive interpersonal and intrapersonal growth and development.

Program context. Ropes course programs are used in recreation, education, therapy, and experience-based training and development (Priest & Gass, 1997). Identifying the focus of the program is critical to ensuring effectiveness since achieving particular outcomes depends on creating the appropriate setting. Similarly, distinct goals and objectives often require the use of different activities. Since participation in a challenging activity depends to a great extent on one's knowledge, skills, abilities, and resources in a particular context (Roberts & Smith, 1999), activity selection should therefore match a group's focus, goals and objectives, and demographics. Finally, an otherwise great activity can unintentionally limit opportunities for meaningful involvement if adequate time, space, equipment, and other resources are unavailable.

Activity design. Providing opportunities for involvement in directly related, purposeful, and challenging roles that assist the group in successfully accomplishing a ropes course activity's central task requires a deliberate design (Haras & Lisson, 2003b).

Designing activities where the possibilities for involvement include numerous primary interactions increases the likelihood that every group member will be able to find a worthwhile action opportunity. Since no two members of a group are alike, activities must account for differences among participants (Boniface, 2000; Gass & Priest, 1993) while at the same time ensuring that regardless of choice all group members are actively engaged in novel and demanding activities where success is uncertain.

Participant choice. There are many physical, cognitive, social, affective, and cultural differences among group members (Haras & Lisson, 2003b) and participants may have needs that are not readily apparent (Mitten, 1992). Providing various action opportunities within an inclusive design allows all participants to choose the action opportunity that is best for them (Gass et al., 1992) and a well-designed activity allows participants to select roles without being singled out (Lisson, 2000). Clearly communicating all options diminishes the view that there is only way to participate and sends the message is that all roles are valuable especially when the selection made by one participant does not limit the challenge of another. Finally, participants are able to make real choices when the options are more numerous than the time allotted, are organized in such a way that one everyone must choose their role, and no individual can perform all the tasks (Haras & Lisson, 2003b).

Equity of experience. Just as participant choice is operationalized through program design, so too is equity of experience. Equity means the experience is essentially the same for all group members (Curulla & Strong, 2000; Swann & Walsh, 2001; Terry, 1995) and includes treating all participants, regardless of differences, the same as all

other members of their group. The expectation is that everyone will take part and be fully involved in the experience (Lais, 2001). Since the basis of adventure education is participating in a novel activity, all individuals should have the opportunity to participate in the key aspects of the experience (Lais, 2001), including in the most challenging, fun, exciting and action-filled interactions (Orlick, 1982). Regardless of the degree of challenge, the focus needs to be on providing all participants with the opportunity to benefit from the experience rather than on merely participating in the tangential aspects of the activity. Offering all participants multiple choices of exciting action opportunities demonstrates that everyone is welcome, respected, and able to make valuable contributions (Haras & Lisson, 2003b).

Methods

Identifying the process and principles used by programs to create opportunities for meaningful involvement requires that researchers move away from the traditional pre-test, post-test research design and undertake a multidimensional, multimethod approach (Ewert, 1987; Ewert & McAvoy, 2000; Hattie et al., 1997; Probst & Koesler, 1998). Although the focus on program outcomes has allowed researchers to identify that many adventure programs provide an effective mode for creating positive change, this approach can do little to describe how program outcomes are achieved. Researchers have suggested that experience sampling and qualitative methods may prove to be more fruitful approaches in answering the question of what makes adventure programs, such as ropes courses, effective (Ewert & McAvoy, 2000; Sibthorp, 2003).

Experience Sampling

The experience sampling method enables researchers to study participants' subjective experiences in an ecologically valid way (Csikszentmihalyi & Larson, 1987). When prompted, study participants immediately complete a brief experience sampling (self-report) form that asks open-ended, and closed questions measured with Likert-type scales, about their current situation, affect, potency, motivation, and thought process (Csikszentmihalyi & Larson, 1987). Because the self-report is completed within the moment and context of the experience (Voelkl & Brown, 1989), it does not depend on participants' recollection and reconstruction of events (Larson & Csikszentmihalyi, 1983). In addition, the approach is less obtrusive than observation and reduces the potential for faulty inferences by the observer (Voelkl & Brown, 1989).

The experience sampling method is not based on the assumption that responses will be consistent (Csikszentmihalyi & Larson, 1987) and so does not rely on single assessments but uses repeated measurements over numerous occasions (Larson & Csikszentmihalyi, 1983). Due to the repetitive nature of the sampling, it is less critical that a single construct incorporate multiple items (Csikszentmihalyi & Larson, 1987) and researchers have considerable flexibility on the items that may be included (Csikszentmihalyi & Larson, 1987; Larson & Csikszentmihalyi, 1983). Because participants record both subjective as well as objective states (Voelkl & Brown, 1989), the technique can be used to compare the subjective experience of different events (Csikszentmihalyi & Larson, 1987) or describe a pattern of experiences that differ systematically (Larson & Delespaul, 1992). Data suggest that responses covary with

situational factors such as type of activity, location, and social context and that the technique is able to differentiate between groups expected to differ (Csikszentmihalyi & Larson, 1987). The technique has been successful with respondents as young as ten (Csikszentmihalyi & Larson, 1987).

For example, the experience sampling method to survey both campers' and staff experiences of flow during randomly selected times during camp sessions (Bialeschki & Henderson, 1992; Henderson et al., 1992). The study found that campers and staff who were in flow were more active, involved, and alert. For campers, flow occurred most often during service projects, outdoor recreation activities including rock climbing and ropes course, various types of games, and creative activities (Bialeschki & Henderson, 1992; Henderson et al., 1992). Staff were most likely to experience flow when they were teaching or conducting activities for campers, preparing for group activities, or carrying out other staff duties (Henderson et al., 1992).

Means-End Analysis

A technique which has the potential to link program attributes (the means) with program outcomes (ends) is means-end analysis (Gutman, 1982). Means-end analysis is based on the idea that participants can identify those actions that produce desired outcomes and minimize undesirable ones (Gutman, 1982). Participants link the attributes, consequences, and values associated with an experience together in a ladder (Goldenberg, 1997; Goldenberg et al., 2000). Ladders from numerous participants are aggregated into chains which are then arranged to create a Hierarchical Value Map representing the collective impression of all participants (Reynolds & Gutman, 1988).

Thus, means-end analysis can be used to investigate the significance programs hold for their participants especially how program attributes reinforce program outcomes (Frauman & Cunningham, 2001; Goldenberg et al., 2000). The information can be used to explain how program design facilitates the fulfillment of participant goals, and how program leaders can design and deliver programs that are effective (Frauman et al., 1998).

Goldenberg et al. (2000) used means-end analysis to examine the factors associated with ropes course participation by adults, mostly university students. Frequently identified outcomes included teamwork, trust communication, awareness of self and others, and leadership. Since the intent of the study was to learn more about the role and meaning of benefits, the program attributes that led to these outcomes were not identified (Goldenberg et al., 2000).

Means-end analysis was also used in a study of North Carolina Outward Bound participants, including individuals as young as 14 years of age. The program attributes associated with outcomes such as teamwork, personal growth and awareness were rock climbing, expeditioning, and interactions (Goldenberg, 2002). These results are similar to relationships with others, awareness and nature appreciation integrated wilderness adventure program participants linked to canoeing, interactions, and wilderness experience (Holman, Goldenberg, McAvoy & Rynders, 2002).

Summary

Program design and delivery seem to be among the most critical factors influencing program effectiveness (Neill & Richards, 1998), yet the influence of different

ropes course program design and delivery approaches on participant experience has not been studied. The intent of this study was to compare Challenge by Choice and Inviting Optimum Participation and assess the impact these different approaches may have on the meaningful involvement of participants. An additional goal was to identify and compare the linkages among program attributes, outcomes, and values that may differ between these two approaches. The aim was to identify specific program features that allow ropes course instructors to consistently design and deliver more effective ropes course programs. The methods used will be described in the next chapter.

CHAPTER III

METHODS

Participants

Four organizations offering ropes course programs in Ontario, Canada were selected to serve as data collection sites. Various groups including youth associations, schools, and adult or community organizations contract with these program providers to receive ropes course experiences. Participants for this study were solicited from school classes or youth groups that booked a full-day ropes course program with one of these four ropes course providers. Study participants were young adolescents (ages 10-15) who volunteered to complete study instruments as part of their ropes course experience. Potential participants received an information package from the organization prior to program participation containing parental consent (Appendix A) and participant assent forms (Appendix B). Interested participants were asked to bring completed forms with them to the ropes course site on the day of their program. Fifty-two groups were contacted and had members who were willing to participate in the study. Due to inclement weather which led to program design changes and difficulties gathering data, only 40 of the 52 groups were able to participate in the study.

All study participants completed the demographic questionnaire (Appendix C) which asked about their age, sex, previous ropes course experience, and group with which they were participating. There were 360 participants (172 boys and 188 girls) whose average age was 12.7 years. Slightly more than half of the individuals (51.5%) had previously participated in a ropes course program. The participants were typical of

individuals in this age group who participate in ropes course programs and group composition reflected the cultural, socioeconomic, cognitive, and physical abilities of young people living in southern Ontario.

Sites

During the late spring and summer of 2003, the four organizations that delivered ropes course programs involved in this study offered programs at five different sites all located within approximately one hour's driving distance of Toronto. Kettleby Valley Outdoor Center, Seneca Outdoor Center, Norval Outdoor School, and Adventureworks! Associates Inc., were selected because of similarities with regard to their level of staff training and expertise, program cost to participants, activities offered, and type of participants served. Ropes course program instructors from each organization completed an instructor information form (see Appendix D) to verify that program delivery staff were comparable. The survey asked ropes course instructors about the number of ropes course sites they had worked at, how long they had been instructing, their level of education, their type of certification, and the how much training they had received in the last five years. Providers also indicated the cost for a one-day program. A description of the four ropes course program providers and their ropes course program instructors is available in Appendix E.

Organizations were designated to deliver either Challenge by Choice (CbC) or Inviting Optimum Participation (IOP) programs. Since the intent was to provide comparable levels of program design and delivery regardless of the approach used, providers were assigned to the approach that deviated as little as possible from their

regular operation. Since both co-developers of IOP, including the researcher, worked at Adventureworks! Associates Inc., and many of the staff for this organization were familiar with this model, Adventureworks! was designated as an IOP program site. Similarly, Adventureworks! built the high ropes course at Norval Outdoor Education School and has provided staff training there on numerous occasions. Thus, Norval was also designated as an IOP program site. Finally, both Kettleby Valley Outdoor Center and Seneca Outdoor Center were familiar with the CbC approach so were designated CbC program sites.

Treatment

Two types of ropes course programs were studied, Challenge by Choice and Inviting Optimum Participation. Forty-four percent of all study participants experienced a CbC program and 56% experienced an IOP program. Each day-long ropes course program lasted five to eight hours and consisted of a variety of low (unbelayed) activities such as cooperative games and de-inhibitizers, communication activities, trust exercises, low ropes elements, and problem-solving initiatives as well as a high (belayed) activity such as a high ropes course and/or climbing wall.

Because hundreds, possibly thousands of different ropes course program activities have been developed, focusing on differences at the activity level makes it difficult to describe the fundamental way programs may vary (Doherty, 1995; Sibthorp, 2003). One solution is to identify the common principles around which a program design and delivery approach is based (Rhoades, 1972). These principles can then be used to

describe the subtle yet important differences in participants' experiences (Hovelynck, 2003).

The principles that inform the design of adventure-based programs such as ropes courses include active engagement in a novel experience where the outcome is uncertain (Dattilo & Murphy, 1987; Horwood, 1999; Priest, 1991; Schoel et al., 1988; Raines, 1989; Zook, 1986), the opportunity to experience challenge and efficacy (Dattilo & Murphy, 1987; Horwood, 1999; McKenzie, 2000b; Schoel et al., 1988; West & Crompton, 2001; Zook, 1986), an opportunity for self-selection regarding participation (Annat, 1995; Hovelynck, 2003; Horwood, 1999; McKenzie, 2000b; Priest, 1991; Schoel et al., 1988), and conveying the value of all group members (McKenzie, 2000b; Neill & Dias, 2001; Schoel et al., 1988; Walsh & Golins, 1976; West & Crompton, 2001; Zook, 1986). Similarities and differences between the two ropes course program approaches are described below. First, a table summarizes and compares the techniques CbC and IOP use to address common principles. Then, the frameworks of CbC and IOP are explained in detail. Finally, Challenge by Choice and Inviting Optimum Participation, are explored by providing an example of a typical program day.

IOP and CbC seek to achieve the same principles of encouraging active engagement in a novel experience where the outcome is uncertain, facilitating participant opportunities to experience challenge and increase level of efficacy, providing participants with the opportunity for self-selection regarding engagement, and conveying the value of all group members. The approach they take to achieve these principles, however, differs. Table 1 highlights the key differences between IOP and CbC.

Table 1
Program Differences for General Adventure Design and Delivery Principles

Principle	IOP	CbC
Encourage active engagement in a novel experience where the outcome is uncertain	Designing each activity so that it offers simultaneous action opportunities -- creating activities that provide an increased number and variety of choices for purposeful engagement	Sequencing activities within a program design that supports participation -- preparing participants for the demands inherent in an activity by sequencing simpler tasks with less risk before more complex tasks with increased risk
Facilitate opportunities for experiencing challenge and increasing efficacy	Devising diverse challenge options that engage the entire range of participants within the program context -- creating an environment where varied action opportunities provide participants with a range of difficult and demanding tasks congruent with the group's goals	Encouraging all participants make a conscientious effort and try challenging tasks -- focusing on effort rather than performance and designing targeted action opportunities for specific individuals on an ad hoc basis
Provide opportunity for self-selection	Creating participant choices that deliberately exist within a single inclusive design -- providing all group members with a choice of challenging action opportunities intentionally designed into the scope of each activity's central task	Supporting participant choice regarding degree of engagement in the activity -- encouraging participants to set individual goals for involvement that are connected to the experience
Convey the value of all group members	Providing options for participation that enable equity of experience -- ensuring action opportunities are connected to the central task; contain elements of adventure; and allow participants to make a competence-based contribution to the group's experience	Establishing positive norms and values around participation -- creating a supportive, caring, and cooperative atmosphere where all individuals are welcome and respected

Descriptions of how the same activity may vary when it is presented using a particular approach are provided in Appendix F.

Design and Delivery Frameworks for CbC and IOP

Challenge by Choice. Challenge by Choice was originally created by Project Adventure in the mid-1980s as a strategy to promote individual challenge, risk taking and learning without the element of external pressure for participants to perform activities they do not desire (Schoel et al., 1988). It has since become a major approach in the delivery of ropes course programs. CbC seeks to empower individuals by actively informing them of their own ability to determine the degree of challenge, risk, and uncertainty they will experience during their participation in a ropes course program (Hovelynck, 2003; Priest & Gass, 1997). CbC addresses the principles of encouraging active engagement in a novel and uncertain experience, facilitating the opportunity for challenge and efficacy, providing the opportunity for self-selection for each activity, and conveying the value of all group members through four components: sequencing, voluntary participation, conscientious effort, and positive atmosphere (Schoel et al., 1988) described as follows:

1. Sequencing of activities to support participation (Schoel et al., 1988)

Challenge by Choice uses a sequence of games, warm-ups, and initiatives to develop a culture of support, trust, and comfort that encourages active engagement in a novel experience where the outcome is uncertain (Nussbaum, 1996). Participants who have experienced success during initial ropes course program activities that are designed to appear less risky, are likely to have a positive self-concept and a positive attitude toward subsequent participation. The purpose of sequencing is, therefore, to increase participant comfort with the challenge environment (Nussbaum, 1996) and develop skills needed for

future challenges (Rohnke, 1989). The typical sequence of a CbC ropes course program is acquaintance/de-inhibitizer games, trust exercises, cooperation activities, problem-solving initiatives, low ropes elements, and finally personal challenge activities such as high ropes (Laurence, 1988; Schoel et al., 1988). In CbC programs, high ropes is almost always placed at the end of a program because of the belief that group members who have bonded during the preceding sequence of activities will offer each other encouragement and support (Bisson, 1999). Many organizations believe that without the preface of games, trust exercises, communication activities, low ropes, and initiatives, high ropes is merely entertainment (Rohnke, 1999).

2. Giving individuals a choice regarding degree of participation (Schoel et al., 1988)
 - a. selecting level of involvement within activity such as full, partial, and observation (Chappelle & Bigman, 1998; Priest & Gass, 1997; Priest & Rohnke, 2000; Schoel & Maizell, 2002; Rohnke, 1994)
 - b. opportunity to back-off (Holyfield & Fine, 1997; Schoel et al., 1988)

Based on the belief that adventure (and learning) must be entered into voluntarily and that choice increases internal motivation for participating (Wurdinger, 1997), CbC empowers participants to be responsible for their own risk taking and learning choose how much they will participate. When the task is truly beyond a participant's ability, however, CbC allows an individual to choose not to participate in an adventure activity (Schoel et al., 1988). Since observation and partial participation provide some options for engagement in the adventure experience (Walsh, 1998), communicating that involvement is voluntary often encourages some degree of participation (Henton, 1996).

3. Encouraging participants to try challenging tasks (Rohnke, 1989)
 - a. willingness to take a risk (Hastie, 1995; Rohnke, 1989)
 - b. focus on the attempt rather than results (Holyfield & Fine, 1997; Rohnke, 1994; Schoel et al., 1988)
 - c. individualized roles when necessary (Schoel et al., 1988)

Challenge by Choice stresses effort over performance and recognizes that individuals will be reluctant to participate if the challenge appears too difficult (Henton, 1996). The primary way CbC resolves the conflict between high expectations and the need for successful experience is by asking group members to participate to the best of their ability (Prouty, 1999). Thus, in order to facilitate the opportunity for experiencing of challenge and efficacy, ropes course instructors ask that all individuals put forth an honest effort (Rohnke, 1989). In addition, ropes course instructors are encouraged to obtain specific information about the needs of unique participants through interviews and then adapt program activities as necessary (Sugarman, 2001).

4. Positive norms and values around participation (Schoel & Maizell, 2002)
 - a. encouragement within a caring and supportive atmosphere (Schoel et al., 1988)
 - b. respect for individual choices (Chappelle & Bigman, 1998; Schoel et al., 1988)

A cooperative and supportive atmosphere where participants have learned to trust and encourage one another tends to promote participation (Prouty, 1999; Rohnke, 1989). Regardless of their level of participation, CbC programs often ask group members to adhere to a Full Value Contract which states that all group members are to be respected (Henton, 1996).

Inviting Optimum Participation. Inviting Optimum Participation is a new, comprehensive ropes course program design and delivery model that has been co-developed by the researcher. The basis of the IOP model is a framework that balances individual characteristics of participants with the challenges provided by the environment (Haras & Lisson, 2003a). The framework is supported by four foundational components including: program context, activity design, participant choice, and equity of experience. According to the IOP formula, participants' opportunities for experiencing challenge and increasing efficacy are facilitated by instructors' understanding of the program context in which the ropes course experience is to occur. An awareness of the context leads to intentional activity design that promotes greater participant opportunities for self-selection. Increased opportunities for choice lead to greater equity of experiences and the resultant valuing of all group members. Participant choice and equity are reinforced by ongoing adjustments in activity design that are informed by an evolving context. The resulting active engagement supports the underlying purpose for a ropes course experience -- positive interpersonal and intrapersonal growth and development. More details on the Inviting Optimum Participation model may be found in Appendix G.

1. Diverse challenge options framed by program context (Haras & Lisson, 2003a)
 - a. activities relevant to group's goals and objectives
 - b. action opportunities congruent with skill, knowledge, and ability

Some individuals require a high degree of challenge to achieve the benefits associated with adventure experiences while others may be hesitant to attempt even moderately challenging ropes course program activities (Haras & Lisson, 2003b). Thus, programs

based on IOP facilitate opportunities for experiencing challenge and efficacy by creating a multi-level environment where diverse action opportunities provide participants with a range of challenges (Haras & Lisson, 2003a). When the goals and focus of those involved in the program are addressed, positive change is more likely (Doherty, 1995; Gass et al., 1992). As a result, the selection of specific activities should be informed by a reasonable connection between participant experience and the benefits that may ultimately result (Rossman & Schlatter, 2003). The IOP process of activity design, therefore, begins with the consideration of program context including program focus, goals and objectives, participant demographics, and resources (Haras & Lisson, 2003a).

2. Activity design that offers simultaneous action opportunities (Haras & Lisson, 2003b)
 - a. multiple types of experiences directly connected to the central task
 - b. range of challenge
 - c. dissimilar actions

Many ropes course activities are “all or nothing” propositions that relegate those individuals who do not participate in the central task to the sidelines thereby limiting their potential for learning and growth (Lisson, 2000). Not participating in a ropes course activity makes the interpersonal and intrapersonal learning and growth associated with participation difficult since there is no experience from which to benefit (Priest & Gass, 1997). In contrast, activities deliberately designed to consider the balance between individual characteristics and the challenge environment create an experience where different knowledge, skills and abilities are relevant to the group’s success and everyone is actively and purposefully engaged in the central task. In IOP programs, activities are

intentionally designed to provide action opportunities that differ both in quantity (number) and quality (variety) of choices (Parker, 1981). While a large quantity of action opportunities may provide some flexibility regarding participant engagement, dissimilar action opportunities make it more likely that every individual will be able to use one of their strengths to contribute to the successful accomplishment of the central task.

Providing a few action opportunities that differ considerably is, therefore, often more desirable than offering a large number of similar action opportunities (Parker, 1981).

The quality and quantity of the choices that may be provided during high ropes as well as the more individualistic focus of the central task are reasons why IOP programs often place high ropes early in the program. Participants not only have the opportunity to make choices and experience success which leads to higher participation in subsequent components of the program, but the ropes course program instructor also has an opportunity to see the knowledge, skills, and abilities individuals bring to the experience and the dynamics that exist within the group. The instructor can then use this information to make decisions about the specific activities that may be effective given a group's goals and the program focus.

Finally, the simultaneous action opportunities provided by IOP activity design intentionally encompass the elements of adventure including novelty, uncertainty, and risk (Haras & Lisson, 2003b). Although past experience may suggest a likely outcome, absolute certainty about one's success is impossible regardless of a participant's skill level or choice of action opportunity (Horwood, 1999).

3. Participant choice intentionally designed into the scope of the activity's central task (Haras & Lisson, 2003a)
 - a. self-selection of action opportunities within a single, inclusive design
 - b. independence of challenge options
 - c. mutually exclusive alternatives for participation

Although the adventure experience is more likely to be personally meaningful when it is undertaken voluntarily, “the choice is in the individualized nature of the journey, not in an option never to begin the journey at all” (Schoel & Maizell, 2002, p. 184). It is easier for participants to identify which options they prefer and they will choose their preferred alternative when it is available (Posavac, Sanbonmatsu & Fazio, 1997). When it is not obvious that modifications have been made for a specific participant or group and there is no stigma attached to a particular action opportunity, the involvement of all participants is enhanced by the variety of action opportunities available (Rogers, 2000). Programs that use the IOP model provide participants with the information they need to make good choices for themselves, ensure that the choice made by one participant does not limit the challenge of another, and that all participants have a range of mutually exclusive challenge options available to them (Haras & Lisson, 2003a).

4. Options for participation that ensure equity of experience (Haras & Lisson, 2003a)
 - a. comparable opportunity for adventure
 - b. interaction with equipment and group members
 - c. potential to add value and gain value

When ropes course program participants are provided with action opportunities that are

directly related to the central task, valuing the contribution of all group members becomes more than just an abstract concept (Cohen, 1993). When action opportunities account for different abilities yet provide a similar experience, it is unnecessary for individuals to participate in the tangential aspects of the experience (Carlson & Evans, 2001; Curulla & Strong, 2000; Swann & Walsh, 2001; Terry, 1995). Participation increases when an activity's successful resolution depends on creative problem-solving, unconventional skills, and the coordinated completion of various interdependent tasks (Cohen, 1993). IOP strives to provide individuals with options for comparable interaction within their social context thereby allowing all group members to benefit from ropes course program participation while adding value to the adventure experience of other group members by making competence-based contributions (Haras & Lisson, 2003a).

Description of a Typical Day

The following two descriptions serve as an example of what a typical day looked like under each ropes course program design and delivery approach. In neither case did all the program days look exactly like the sample illustration provided.

Challenge by Choice. A CbC program often begins with a number of cooperative games and de-inhibitizers designed to set the tone for the day. The activities are intended to create an environment where the group can start to have fun, work together, and feel safe stepping outside their comfort zone. Participants are asked not to disrespect, demean, or diminish either themselves or each other.

After the cooperative games and de-inhibitizers, the sequence of activities exposes participants to greater levels of challenge by presenting them with a number of

initiatives that require the group to work together to succeed. The group is informed of CbC which allows participants to do as much of an activity as they want and choose how much, if at all, they will participate. One low ropes element is the Wall (Rohnke, 1989). Here, the group is challenged to lift all group members over a 12 to 14 foot high barrier devoid of any handholds or footholds. Once a person has gone over the wall, he/she may come back to the front side of the wall to help spot (perform safety procedures) but is no longer permitted to physically help other group members. Participants are reminded that it is important to feel comfortable and that they are free to step out of the activity. They are also told that they are welcome to just be a spotter and that the group will celebrate their success in spotting as if they had gone over the wall.

After the low activities, the group moves to the high ropes course where individuals have the opportunity to challenge themselves with the support and encouragement of the group. There may be numerous elements and the instructor explains how to do each activity. Despite the numerous traversing options, there is often only one type of access – an aluminum ladder up to a platform. At a statically belayed course, once participants reach the central platform, climbers switch from a top rope belay system to a lanyard system and belayers are no longer required. At a dynamically belayed course, similar elements may be available at the same time. For example, participants have a choice of climbing one of two vertical playpens or one of three climbing routes.

Inviting Optimum Participation. An IOP program frequently begins with cooperative games and de-inhibitizers that set a fun and playful tone for the day.

Participants are informed that with each activity a number of adventure experiences involving various levels of difficulty and types of challenges have been created by the ropes course program instructors and that their responsibility as participants is to select their own challenging roles.

After the cooperative games and de-inhibitizers, the group may move on to any other aspect of a ropes course program including communication activities, trust exercises, initiatives, low ropes, or high ropes. Often, the group goes to the high ropes course where they focus on developing individual skills and challenging themselves. At the high site, they will be presented with a number of options for participation. They may, for example, have a selection of three traversing elements such as the Burma Bridge, which has one central lower cable and two intermediate side cables and is relatively easy. The Multivine, where there is a lower cable with suspended ropes hanging above it and is much more difficult, may also be an option. A third choice may include the Burma Buckets which consist of a series of rope loops hanging from two intermediate side ropes and is moderately difficult. Numerous options for getting to the top of the course are available: a rope ladder; access via an aluminum ladder and staples; and an elevator – a 4:1 clip-on pulley system that allows the climber to pull him/herself up to the element or be pulled up by others on the ground. Most elements have two different ways of access and participants are welcome to use the access points as elements in and of themselves to reach vertical goals.

Since the options for participation during the high ropes component are more numerous than the time allotted, everyone is asked to make choices that will enable them

to participate in ways they find challenging. Participants are encouraged to come up with individual strategies for moving across the elements and bandanas are available for those who want to try climbing or traversing blindfolded. Participants may also try letting go and seeing how many times they can clap their hands without losing their balance. On the ground, individuals also have an opportunity to participate as members of a belay team that manages the ropes that keep the climber safe while climbing and traversing. It is not unusual to hear participants asking each other “What did you choose to do?” or “What are you going to do next?”

After the high ropes experience, the focus of the group switches from more individual activities to initiatives or low ropes elements that focus on using every group member’s skills and abilities to solve a collective task. Participants are presented with a challenge, informed of its goal, advised of the resources available to them, and acquainted with any safety considerations. “Do I go?” (Rohnke & Butler, 1995) is a low ropes element that uses four hula hoops placed in a square around a swing rope and asks the participants switch their location without touching the ground outside the hula hoops. In an IOP program, one instructor (personal communication, June 16, 2003) framed this activity in the following way:

There has recently been an outbreak of a new and dangerous disease. To create the serum that will protect everyone from infection, your group needs to gather the unique ingredients found at each of the four islands. Your goal is for each person to end up on a different island (in a different hula hoop) with different people and to do this in as few moves as possible. The resources you have available to you are a single passenger helicopter (swing rope with footloop) and each other. During this activity, there may be no more than five people on one island and all residents need to assist and be aware of incoming and outgoing helicopter passengers.

During the activity, participants have a choice of hanging onto the rope and swinging, swinging with a foot in the loop, or jumping into a nearby hula hoop while hanging onto the rope. Since participants must go to different hula hoops, they also have a choice about how far they will swing. After completing “Diseased Islands”, the group will be presented with another initiative or low ropes element that builds on their newly developed skills.

Program Design and Delivery

Each ropes course program lasted five to eight hours and consisted of a high component (high ropes course and/or climbing wall) along with a variety of cooperative games, trust exercises, problem-solving initiatives, and low ropes elements. Due to the researcher’s involvement with the IOP model, numerous steps were taken to minimize and avoid potential biases. For example, the researcher did not participate in the design of study programs. Her involvement in ropes course program delivery was limited to spotting, providing participants with assistance during harnessing, and serving as a belayer. Ropes course program instructors completed a report (see Appendix H) at the completion of the program, listing, in order, all the activities that were part of the ropes course program. Analysis of ropes course program reports indicated that there was considerable variation in the types of activities each group experienced. The activities, however, covered all components of ropes course programs including games and de-inhibitizers, name games, communication activities, trust exercises, problem-solving initiatives, low ropes elements, and high ropes elements.

As shown in Table 2, only 12 of the 50 activities were common to both program types and there was considerable variation in number of times an activity was used. High ropes were part of 39 programs but no other activity was used more than 20 times. Some activities such as Tension Traverse (n=16), Have You Ever (n=10), Name Swat (n=13), Partner Tag (n=3), and Shrinking Island (n=3) were more common in CbC programs while Warp Speed (n=17), Keypunch (n=12), Ultra Being (n=9), and trust falls (n=3) were more common in IOP programs. Name Toss (n=8) was used equally.

Table 3 lists the activities that differed between CbC and IOP programs. Games and de-inhibitizers in CbC programs included Smaug's Jewels, Energy Ball, Follow the Leader, and Human Tic, Tac, Toe while IOP programs included Everybody's It; Surfers, Sharks, and Waves; In Groups Of ...; Squirt; Streets and Alleys; Sword in the Stone; and Chuck the Chicken. Only IOP programs included an additional name game (Boppity, Bop, Bop, Bop). IOP programs added more communication activities: Bobsleds, Hot Chocolate River, Group Juggle, Bullring, Is it a knot? and Four Quad. The only communication activity added to CbC programs was Knot Fun. IOP programs included a greater variety of low ropes elements such as Do I go? Mohawk Walk, Rohnke's Web, TP Shuffle, Whale Watch, Zig Zag, Troll Traverse, and Disc Jockeys. CbC programs used Multivine, Tire Traverse, Swinging Log, Low V, and The Wall. Both IOP and CbC programs included two additional trust exercises. IOP programs added a non-traditional trust sequence and a Raccoon Circle while CbC programs included a Partner Sit and a Yurt circle. Only CbC programs had additional high elements (climbing wall and Giant Swing). Appendix I provides descriptions of and references for the individual activities.

Table 2
Number of Times Common Ropes Course Activities Were Used by Program Type

	CbC Groups	IOP Groups
Activity	n=18	n=22
Games and De-inhibitizers		
Have You Ever	8	2
Ultra Being	4	5
Partner Tag	4	3
Name games		
Name Swat	8	5
Name Toss	4	4
Communication activities		
Warp Speed	5	12
Keypunch	3	9
Virtual Warp Speed	3	1
Trust exercises		
Trust Fall	1	2
Problem solving initiatives		
Shrinking Island	2	1
Low ropes		
Tension Traverse	12	4
High elements		
High Ropes	17	22

Table 3
Number of Times Different Ropes Course Activities Were Used by Program Type

	CbC Groups		IOP Groups	
	n = 18		n = 22	
Games and De-inhibitizers				
	Smaug's Jewels	5	Everybody's It	12
	Energy Ball	3	Surfers, Sharks, Waves	9
	Follow the Leader	2	In Groups Of ...	6
	Human Tic Tac Toe	2	Squirt	4
			Streets & Alleys	4
			Sword in the Stone	4
			Chuck the Chicken	2
Name games				
			Boppity Bop Bop Bop	4
Communication Activities				
	Knot Fun	4	Bobsleds	12
			Hot Chocolate River	7
			Group Juggle	3
			Bullring	2
			Is it a Knot?	2
			Four Quad	1
Trust exercises				
	Yurt Circle	4	Trust Sequence	5
	Partner Sit	1	Raccoon Circle	1

Table 3
Continued

	CbC Groups		IOP Groups	
	n = 18		n = 22	
Low ropes				
	Low Multivine	13	Do I go?	9
	Tire Traverse	10	Mohawk Walk	6
	Swinging Log	9	Rohnke's Web	5
	Low V	7	TP Shuffle	5
	The Wall	3	Whale Watch	5
			Zig Zag	3
			Troll Traverse	2
			Disc Jockeys	1
High activities				
	Climbing Wall	5		
	Giant Swing	1		

Instruments

Experience sampling. The construct of meaningful involvement, including the areas of engagement, choice and view of self, was measured using an experience sampling approach. Participants were prompted to complete an Experience Sampling Form (ESF – see Appendix J) following selected ropes course components. The ESF took about two minutes to complete and asked open-ended questions as well as closed-end questions that used Likert-type and semantic differential responses (Moneta & Csikszentmihalyi, 1996). This approach provides an ecologically valid method of accessing individuals' subjective experiences in a natural (as opposed to laboratory)

environment (Csikszentmihalyi & Larson, 1987). Researchers are able to study the interaction between a person and his/her situation and describe experiences that differ on a systematic basis (Larson & Delespaul, 1992).

The area of engagement included 10 items. Four items were based on a ten-point Likert scale and included challenge, skill, involvement in central task, and task importance. Three of the ten items were related to potency and were presented as paired semantic differentials. The items were active-inactive, involved-detached, excited-bored and were scored from +2 to -2. One item, concentration, was based on a four point Likert scale. Participant involvement in the central task consisted of one item coded as either yes or no based on whether the action described in the question “What was the main thing you were doing during this activity?” was considered part of the central task of the activity. Finally, one item addressed perceived level of involvement by asking participants to describe how involved they felt in the main part of the activity by marking an X on a ten centimeter line.

The area of choice consisted of five items. Two of the five items, control and wish to do something else, were measured using a four point Likert scale. Another two of the five items were based on a ten-point Likert scale. These items asked participants about freedom to choose, and alternatives for participation within the activity. Finally, one item was related to motivation. This question asked participants “Why were you doing that main thing?” to which they could respond “I had to”, “I wanted to”, or “I had nothing else to do”.

The area view of self was measured using ten items – six paired semantic differentials and four four-point Likert scale items. The paired semantic differentials included: happy-sad, pleasant-irritable, sociable-withdrawn, proud-ashamed, relaxed-tense, and cooperative-competitive. The four Likert scale items asked during the activity you just finished: did you feel good about yourself, were you living up to others' expectations, were you succeeding at what you were doing, and were you pleased with how you were doing.

Means-end analysis. The identification of and relationships between program attributes, outcomes, and values associated with program participation was investigated using means-end analysis (Goldenberg et al., 2000). Participants linked the attributes, consequences, and values associated with the ropes course experience by completing a laddering questionnaire that asked individuals to identify three outcomes that resulted from their participation. Following the identification of three outcomes, participants indicated why each outcome was important and what part of the program contributed to that outcome (see Appendix K).

Self-administered laddering questionnaires have been successfully used to gather information for means-end analysis of outdoor recreation experiences such as interpretive programs (Frauman et al., 1998; Klenosky et al., 1998), greenway use (Frauman & Cunningham, 2001), extended outdoor adventure programs (Goldenberg, 2002; Holman et al., 2003), and ropes courses (Goldenberg et al., 2000).

Procedures

In the winter of 2003, the researcher contacted six ropes course organizations operating around Southern Ontario and explained the purpose and structure of the study. Four ropes course organizations indicated that in the upcoming spring and summer months they would be serving groups whose participants and program design was congruent with study. These four providers agreed to serve as study sites and contact groups about participating in the study. Groups who agreed to participate in the study received consent and assent forms for the study in the package of program information they were sent from the site. The study involved 360 participants.

The intent was to have an equal number of participants experience each program model so two organizations delivered CbC programs and two organizations delivered IOP programs. Organizations were assigned to the program approach with which they were already most familiar. Unfortunately, poor weather for much of the spring and summer affected program design and the ability to gather surveys. Thus, slightly less than half of the participants (44%) experienced a CbC program and slightly more than half (56%) experienced an IOP program.

So that the time devoted to answering questionnaires did not interfere too much with the ropes course experience, individuals participated in only one part of the study: 1) experience sampling or 2) means-end analysis. Sites alternated between the experience sampling and means-end analysis surveys and the goal was for equal numbers of participants from each site to complete each type of instrument. Once again, poor weather affected the achievement of this balance. While three sites were able to gather reasonable

numbers of both types of surveys, one site was only able to gather means-end analysis surveys.

Upon arrival to the ropes course program site, participants turned in their paperwork and were assigned to their instructors. Each group then participated in activities laid out in their program plan. Since activity design informed by program context is a key element of the IOP approach, it was undesirable to control this variation. To ensure all participants experienced ropes course programs that were delivered in a comparable manner and met appropriate operational definitions, procedures were implemented to assure fidelity (Dumas, Lynch, Laughlin, Phillips Smith, & Prinz, 2001). Many of these procedures also minimized researcher bias.

Fidelity. Consistent implementation of the treatment protocol in the field is the key to linking theory, research, and practice (Cohen, 1993; Dumas et al., 2001). Dodge (2001) identifies “manualization”, training, and supervision, including the review of written records, as components that contribute to the effective implementation of a research design. In addition to these components, Cohen (1993) adds specific feedback to the techniques for ensuring program (and research) fidelity.

Manualization is the first component of fidelity and refers to the packaging of the research protocol into a manual that program leaders can follow (Dodge, 2001; Dumas, 2001). With regard to research, a major strength of manualization is that it serves as a control mechanism when multiple sites are being used. What the program is supposed to look like and the procedures for gathering information are clearly spelled out. From the

perspective of program staff, manualization makes it easy for a particular type of program to be implemented since the program design has already been done.

Despite the benefits of manualization, both Cohen (1993) and Dumas et al. (2001) point out that this technique needs to be approached with caution. Any field-based study site is likely to encounter exceptions not covered in the manual on a fairly regular basis. If program leaders do not understand the reasoning behind a program's design, they may, as they attempt to resolve problems, unwittingly eliminate the features that are the focus of the study. A program may hinder positive change if participants' interests are ignored because of the need to follow a protocol (Dumas et al., 2001). Flexibility is especially important when working with diverse groups (Dumas et al., 2001). With regard to this study of meaningful involvement in ropes course programs, only the procedures for gathering data were manualized. Ropes course instructors at each of the sites received training on research procedures for the various instruments and techniques intended to ensure consistency in data collection.

The second aspect of fidelity, training, provides one possible solution to the problems associated with manualization. When training is based on more than delivering a set treatment and also includes an explanation of the theory behind the program design, undesirable instructor effects are reduced (Cohen, 1993; Dumas et al., 2001). By giving the people who are responsible for program implementation the opportunity to practice and address exceptions before data are collected, much of the concern with inadvertent changes can be eliminated. Thus, training sessions at each of the sites addressed not only instrumentation but also the operational definitions of program design and delivery

models (see Appendix L) and included examples of high and low activities congruent with each model (see Appendix F).

Since IOP is the newer program model, the program staff at Adventureworks! Associates Inc. and Norval Outdoor Education School study sites had the opportunity to discuss specific activities with the researcher. Program leaders received information on how to implement the IOP model (see Appendix G) and how to appropriately modify activities (see Appendix M), to ensure that consistent program delivery occurred. Although staff at the Seneca Outdoor Center and Kettleby Valley Outdoor Center study sites were already familiar with the Challenge by Choice philosophy, the operational definitions used in this study were shared with them so they could deliver consistent programs.

Supervision is the third ingredient to ensuring research fidelity (Dodge, 2001). When those implementing the program are being monitored, they tend to follow a protocol more closely (Dodge, 2001). The ropes course program study sites were in close proximity to each other and were visited by the researcher while study groups were on-site on a regular basis.

When it is not possible to be at the study site, the review of the program staff's written records by the researcher encourages staff to implement the program as intended (Dodge, 2001; Dumas et al., 2001). The review of written records was incorporated into the study design through the use of instructor program reports (see Appendix H). If a report indicated that the program did not meet the operational definition for the program, the data were eliminated from the study. In addition, simply by using this monitoring

procedure, fidelity increases and there is often less data that need to be eliminated (Dodge, 2001) – provided it does not rain.

Feedback is the fourth and final ingredient for assuring effective program design and delivery. Although feedback may be seen as part of supervision, Cohen (1993) describes it as a component of training and implementation. This feedback can either come from a supervisor or from written standards that are part of a self-assessment process (Cohen, 1993; Dumas et al., 2001). Thus, the researcher provided feedback at training and during site visits. In addition, one reason instructors were provided with operational definitions (see Appendix L) during training was so they could refer to them and determine how well their program was meeting study requirements.

Meaningful involvement. To measure the degree of meaningful involvement, including the areas of engagement, choice, and view of self, experienced during an activity, 151 of the 360 individuals in the study completed surveys that employed a modified experience sampling method (ESM). The experience sampling method enables researchers to identify patterns within an experience that are meaningfully distributed (Hull, Stewart, & Yi, 1992; Stewart & Hull, 1992). Since ESM captures participants' immediate conscious experiences in a real-time and on-site context, direct assessment of environmental and situational attributes is possible (Stewart & Hull, 1992). Thus, researchers who employ ESM are able to determine the nature of experiences that produce various outcomes, and can therefore use this information to deliberately design particular experiences (Hull et al., 1992; Stewart & Hull, 1992).

Participants in ESM studies complete a series of 2-minute experience sampling forms (ESFs). This data gathering approach is less obtrusive than observation and reduces the potential for faulty inferences by the observer (Voelkl & Brown, 1989). Thus, one reason the ESM approach was selected was to reduce the bias that may exist as a result of the researcher's involvement with the IOP model. The form completed by participants in this study was based on the instrument used in Csikszentmihalyi and Larson's (1987) study of adolescents. Questions from this instrument have been used to measure satisfaction during hiking experiences (e.g. Hull, Stewart, & Yi, 1992; Stewart & Hull, 1992).

A repeated systematic sampling approach was selected as opposed to stratified random sampling or periodic sampling (Moneta & Csikszentmihalyi, 1996) because most ropes course programs include not only periods of high activity but also instances of less intense activity such as walking to the various activities or group processing (Furlong, Jillings, LaRhette, & Ryan, 1995). Borrie and Roggenbuck (2001) expressed concern that peak moments in outdoor experiences are not adequately represented using more random sampling methods. The repeated systematic sampling approach has been used successfully in outdoor experience research on at least three occasions. Jones et al.(2000) asked whitewater kayakers to respond to surveys after each rapid to determine instances of flow in a more systematic way. McIntyre and Roggenbuck (1998) also used a systematic sampling of sites to capture key experiences during a rafting trip, while Freeman (1993) used this approach to determine flow during a low ropes course experience.

Due to variations in program design, data for the ESFs were collected at different times during the numerous programs. Regardless of whether participants were in a CbC or IOP program, the aim was for individuals to complete a minimum of four ESFs. Participants were asked to mark their ESF booklet with a personal symbol that would allow them to identify their booklet while maintaining anonymity.

The researcher, or in her absence the ropes course instructors, administered one survey after the high component. A second survey was given after a low ropes activity. The remaining two surveys were executed after any other two non-belayed activities of the instructor's choice but prior to any debrief. The only additional stipulation regarding the administration of surveys that ropes course instructors were given was to not administer the first survey until at least 30 to 45 minutes into the program so that participants would have an opportunity to become comfortable in the learning environment. Because time is limited in a one-day program, the reality was that almost every activity (with the exception of the initial games which generally occurred within the first 30 to 45 minutes) was surveyed and some participants only had time to complete three activities and therefore three surveys. If a participant's ESF booklet included a completed high ropes survey and at least two other completed surveys, it was also included in the study.

Program attributes, outcomes, and values. The program attributes, outcomes, and values identified by 209 of the 360 individuals in the study formed the basis for means-end analysis. Since the results obtained using ESM are most similar to immediate post-hoc assessments (Stewart & Hull, 1992), to facilitate comparisons between the methods,

participants completed a self-administered laddering questionnaire at the end of their ropes course programs.

Means-end analysis is a theoretically driven method that is congruent with the benefits-based approach to program design (Frauman & Cunningham, 2001). Means-end theory explains how program attributes contribute to the achievement of desired outcomes and is operationalized in a way that facilitates research and application (Gutman, 1982). The premise of means-end analysis is that participants make context-based choices based on their identification of attributes that enable them to achieve desired outcomes and minimize negative ones (Frauman et al., 1998; Gengler et al., 1995; Gutman, 1982; Reynolds & Gutman, 1988). Thus, participants provide an explanation of how they believe an experience unfolds (Gengler et al, 1995) which enables researchers to deliberately incorporate attributes that lead to particular outcomes into an experience (Frauman & Cunningham, 2001; Gutman, 1982; Klenosky et al., 1993; Klenosky et al., 1998; Reynolds & Gutman, 1988).

One of the benefits of means-end analysis is that the output is highly visual. The hierarchical value maps (HVMs) convey specific information as well as holistic pictures that provide a reasonably faithful representation of the thoughts of the majority of respondents (Klenosky et al., 1993). Thus, means-end facilitates the discovery and identification of patterns and aids in the formulation of new lines of research (Gengler et al., 1995). In addition, this approach allows researchers to simultaneously compare subgroups (Frauman & Cunningham, 2001; Reynolds & Gutman, 1988), and effectively

utilize multidimensional participant responses when evaluating an experience (Reynolds & Gutman, 1988).

The data for means-end analysis may be gathered through interviews (Frauman et al., 1998; Gutman, 1982; Klenosky et al., 1993; Klenosky et al., 1998; Reynolds & Gutman, 1988), open-ended laddering questionnaires (Goldenberg et al., 2000; Goldenberg, 2002; Goldenberg et al., 2002; Goldenberg & McAvoy 2002; Holman et al., 2003), and surveys that provide pre-determined responses (Frauman & Cunningham, 2001; Frauman et al., 1998). Although interviewing is the traditional approach, self-administered questionnaires have been successfully used and allow for a larger sample size (Frauman & Cunningham, 2001; Frauman et al., 1998). In addition, a self-administered instrument eliminates many of the concerns associated with leading interview questions and other types of interviewer bias. Due to the researcher's association with the IOP model, this was an additional reason for selecting a questionnaire-based approach.

Surveys that provide pre-determined responses have been used to gather data for means-end analysis of greenways (Frauman & Cunningham, 2001) and park interpretation services (Frauman et al., 1998). In both studies, the attribute responses were generated from a review of literature followed by a discussion with experts. The outcome responses were based on pre-existing scales and the value responses were also based on previous research. In both cases, factor and correlational analysis were then used to identify means-end relationships. With ropes course programs, however, little research regarding attributes, outcomes, and values and the linkages among them exists.

In addition, when Frauman et al. (1998) compared the HVMs created using pre-determined response sets and those created from interviews, they discovered that the two groups of participants reported different outcomes and values which led to the creation of different HVMs. These researchers speculated that there was a possibility that important variables were missing from the response set. As a result of these findings, Frauman et al. (1998) have suggested that an open-ended approach provides richer information and should be used before employing a close-ended approach. Thus, the decision was made to use an open-ended questionnaire to gather data for this study of meaningful involvement in ropes course programs.

Data Analysis

Meaningful involvement. The ESF data were entered into SPSS version 11.5.0. Because the intent of this study was to describe the experience of participants in different situations, the analysis was on each experience and not the individual. Thus, each of the 614 reported instances of participation in ropes course activities were counted as independent measurements (Chalip et al., 1994). To control for differences between participants relating to individual response patterns (Larson & Delespaul, 1992), individual scores collected after each experience were transformed into z-scores to adjust for each person's mean and standard deviation (Chalip et al., 1994).

Multivariate analysis of variance (MANOVA) was performed to determine if CbC participants differed from IOP participants with regard to the meaningful involvement they experienced during ropes course activities. MANOVA was selected because of its ability to differentiate between groups on more than one dependent

variable and provide information on interaction effects (Gall, Gall & Borg, 2003) without inflating Type I error (Cronk, 2002). Analysis of variance (ANOVA) was subsequently performed on engagement, choice, and view of self to determine which aspect of meaningful involvement was responsible for a statistically significant difference between the mean scores of the groups being studied (Gall et al., 2003).

Program attributes, outcomes, and values. Means-end analysis is a unique approach to research because it incorporates both qualitative and quantitative approaches (Reynolds & Gutman, 1988). When open-ended approaches are used to gather data, the information is highly qualitative (Reynolds & Gutman, 1988) since participants answer in their own words (Klenosky et al., 1993). The focus is on the how and why of the experience (Klenosky et al., 1993). Once the program attributes, outcomes, and values reported by participants are coded and entered into Ladder Map, an MS-Dos program (Gengler & Reynolds, 1993), the process becomes much more quantitative (Reynolds & Gutman, 1988). The software package organizes individual ladders into Hierarchical Value Maps (HVMs) – tree-like network diagrams that graphically display an aggregate mind-map of the means-end ladders identified by participants based on a pre-determined cut-off value (Gengler, Klenosky & Mulvey, 1995). Although HVMs may not answer if and to what degree there is an association as well as other approaches, they have the ability to describe the linkages among attributes, outcomes, and values within a single framework (Klenosky et al., 1993). The results of means-end analysis and experience sampling are described in the next chapter.

CHAPTER IV

RESULTS

This study used a multidimensional approach employing both experience sampling (Csikszentmihalyi & Larson, 1987) and means-end analysis (Gengler et al., 1995) to assess the impact that two different program design and delivery strategies, Challenge by Choice (CbC) and Inviting Optimum Participation (IOP), had on participant experiences of meaningful involvement. An additional focus was to identify and compare the linkages among program attributes, outcomes, and values between these two approaches. Experience sampling was used to assess meaningful involvement opportunities while means-end analysis was used to explore linkages between meaningful program attributes, outcomes, and values. The aim of the study was to identify the program features that increase opportunities for meaningful involvement so that ropes course instructors will be able to consistently design and deliver more effective ropes course programs.

Participants

Forty groups that had booked a full-day ropes course program with one of four organizations in Ontario, Canada during the last spring and summer of 2003 took part in this study. The groups were composed of young adolescents (ages 10 -15) and included a total of 453 individuals. Of these, 93 participants did not satisfactorily complete the questionnaires. All subsequent information and analyses were based on the 360 participants who provided useable responses.

The demographic characteristics of the usable sample are provided in Table 4. The average age of the participants was 12.7 years and approximately half (52%) were female. Slightly less than half (47%) had previously participated in a ropes course program. Participants completed either: 1) an experience sampling survey related to meaningful involvement or 2) a means-end laddering survey related to meaningful program attributes, outcomes, and values. More than half (58%) of the participants were involved in the means-end analysis portion of the study.

Table 4
Participant Demographics by Program Type

	All (n=360)		CbC (n=157)		IOP (n=203)	
Average Age	12.7		12.8		12.7	
Sex						
male participants	172	48%	7582	48%	97106	48%
female participants	188	52%		52%		52%
Experience*						
yes	170190	47%	10750	68%	63140	31%
no		53%		32%		69%
Data Collection						
experience sampling	151209	42%	6691	42%	85118	42%
means-end analysis		58%		58%		58%

* Chi-square (1) = 51.43, $p < 0.01$ for relationship of experience to program.

CbC programs were delivered to 18 groups with a total of 157 participants. The average age of the participants was 12.8 years and 52% were female. Over two-thirds of the participants in CbC programs had previously taken part in a ropes course program.

Fifty-eight percent completed means-end analysis questionnaires and 42% completed experience sampling questionnaires.

IOP programs were delivered to 22 groups with a total of 203 participants. The average age was 12.7 years and 52% were female. Only 31% of IOP participants had previously experienced a ropes course program. Forty-two percent completed experience sampling questionnaires and 58% completed means-end analysis questionnaires. A chi-square test of independence was calculated comparing the frequency of previous participation in a ropes course program for individuals in CbC and IOP programs. A significant relationship was found (chi-square (1) = 51.43, $p < 0.01$) indicating that IOP participants were more likely than CbC participants to have never taken part in a previous ropes course program.

Meaningful Involvement

Demographics

Of the 218 participants who responded to a series of experience sampling forms (ESF), 82 (38%) took part in a CbC program and 136 (62%) took part in an IOP program. The responses of 67 individuals were dropped from the analysis because they did not complete reports on at least two low activities and one high activity. All information and subsequent analyses were based on the 614 individual reports provided by the 151 participants.

The presence of several all-female groups meant that slightly more female participants (56%) were involved in experience sampling of meaningful involvement opportunities (see Table 5). Questionnaires were completed by 67 males and 84 females

who ranged from 10 to 15 years of age. The average age was 13.1 years. Forty-four percent of participants had never experienced a ropes course program while 56% had.

Table 5
Demographics for Experience Sampling Participants by Program Type

	All (n=151)		CbC (n=66)		IOP (n=85)	
Average Age	13.1		12.8		13.3	
Sex						
male participants	6784	44%	3234	48%	3550	41%
female participants		56%		52%		59%
Experience*						
yes	8566	56%	5016	75%	3550	41%
no		44%		25%		59%

*Chi-square (1) =21.65, $p<0.01$ for the relationship of experience to program.

CbC participants were slightly younger and equally likely to be male or female. IOP participants were more likely to be female. Three quarters of the CbC participants had previously participated in a ropes course program while 59% of the IOP participants had not. A chi-square test of independence was calculated comparing the frequency of previous participation in a ropes course program for individuals in CbC and IOP programs. A significant relationship was found (chi-square (1) =21.65, $p<0.01$). CbC participants were more likely to have taken part in a previous ropes course program.

Results of Meaningful Involvement Data Analysis

The construct of meaningful involvement, including the areas of engagement, choice and view of self, was measured using experience sampling. To control for participant differences related to individual response patterns, individual experience

scores were transformed into z-scores to adjust for each person's overall mean and standard deviation (Csikszentmihalyi & Larson, 1987). For the purpose of this study, activities were categorized as either high activities (belayed) or low activities (non-belayed).

The mean z-scores for each component of meaningful involvement are shown in Table 6. Scores for high activities were positive while scores for low activities were negative indicating that participants' level of meaningful involvement was greater during high activities and less during low activities. This same pattern is evident among male and female participants (Tables 7 and 8) as well as among participants who had previously experienced a ropes course program (Table 9) and participants who had never experienced a ropes course program (Table 10). In all five analyses, some mean z-scores for CbC programs exceeded those for IOP programs. Similarly, some mean z-scores for IOP programs exceeded those for CbC programs. In all five analyses, however, choice during high activities was always greater for IOP programs.

Table 6
Mean Z-scores and Effect Sizes for Meaningful Involvement Data by Program Type

Meaningful Involvement	CbC			IOP			ES ^a
	n	Mean	SD	n	Mean	SD	
Low Activities							
Engagement	197	-0.2	0.85	246	-0.1	0.84	0.18
Choice	197	-0.2	0.84	246	-0.2	0.78	0.1
View of Self	197	0	0.88	246	-0.1	0.86	0
High Activities							
Engagement	85	0.46	0.77	86	0.37	0.83	0.1
Choice	85	0.39	0.84	86	0.69	0.68	0.26
View of Self	85	0.1	0.87	86	0.23	0.83	0.22

^a Effect sizes calculated on raw scores using Cohen's d with pooled standard deviation.

Table 7
Mean Z-scores and Effect Sizes for Meaningful Involvement Data of Male Participants by Program Type

Meaningful Involvement	CbC			IOP			n
	n	Mean	SD	n	Mean	SD	
Low Activities							
Engagement	96	-0.2	0.82	100	-0.2	0.85	0.33
Choice	96	-0.1	0.84	100	-0.3	0.79	0
View of Self	96	0	0.87	100	-0.1	0.86	0.07
High Activities							
Engagement	43	0.52	0.8	36	0.43	0.75	0.03
Choice	43	0.25	0.92	36	0.75	0.56	0.31
View of Self	43	0.14	0.9	36	0.28	0.81	0.18

^a Effect sizes calculated on raw scores using Cohen's d with pooled standard deviation.

Table 8
Mean Z-scores and Effect Sizes for Meaningful Involvement Data of Female Participants by Program Type

Meaningful Involvement	CbC			IOP			ES ^a
	n	Mean	SD	n	Mean	SD	
Low Activities							
Engagement	101	-0.2	0.88	146	-0.1	0.83	0
Choice	101	-0.2	0.84	146	-0.2	0.78	0.12
View of Self	101	0	0.89	146	0	0.86	-0.1
High Activities							
Engagement	42	0.39	0.74	50	0.33	0.89	0.04
Choice	42	0.54	0.74	50	0.65	0.76	0.16
View of Self	42	0.1	0.82	50	0.19	0.86	0.2

^a Effect sizes calculated on raw scores using Cohen's d with pooled standard deviation.

Table 9
Mean Z-scores and Effect Sizes for Meaningful Involvement Data of Participants with Ropes Course Experience by Program Type

Meaningful Involvement	CbC			IOP			ES ^a
	n	Mean	SD	n	Mean	SD	
Low Activities							
Engagement	149	-0.2	0.85	98	-0.2	0.81	0.29
Choice	149	-0.2	0.84	98	-0.3	0.78	0.16
View of Self	149	0	0.88	98	-0.1	0.87	0.22
High Activities							
Engagement	67	0.54	0.68	34	0.5	0.83	0.14
Choice	67	0.41	0.82	34	0.76	0.61	0.33
View of Self	67	0.18	0.85	34	0.31	0.79	0.45

^a Effect sizes calculated on raw scores using Cohen's d with pooled standard deviation.

Table 10
Mean Z-scores and Effect Sizes for Meaningful Involvement Data of Participants without Ropes Course Experience by Program Type

Meaningful Involvement	CbC			IOP			ES ^a
	n	Mean	SD	n	Mean	SD	
Low Activities							
Engagement	48	0	0.82	148	-0.1	0.86	0.06
Choice	48	-0.1	0.83	148	-0.2	0.79	0.05
View of Self	48	0.1	0.86	148	0	0.85	-0.12
High Activities							
Engagement	18	0.12	1.02	52	0.29	0.82	0.4
Choice	18	0.32	0.95	52	0.65	0.73	0.43
View of Self	18	-0.3	0.89	52	0.18	0.87	0.16

^a Effect size calculated on raw scores using Cohen's d with pooled standard deviation.

Multivariate analysis of variance (MANOVA) was performed using the experience sampling data on the dependent variables for meaningful involvement during high (belayed) or low (non-belayed) ropes course activities. The independent variables were program type, sex, and ropes course experience. Analysis of the experience sampling data for meaningful involvement showed a significant main effect ($\lambda(3,159) = 0.93, p < 0.01$) for program type during high activities (Table 11). There was no significant main effect for sex or ropes course program experience. In addition, there were no significant interaction effects.

Table 11

Multivariate Analysis of Variance for Meaningful Involvement during High Activities

Source	λ	F	Hypothesis df	Error df	$p =$
Program	0.93	3.79	3	159	0.01
Sex	0.97	1.64	3	159	0.18
Experience	0.97	1.39	3	159	0.25
Program x Sex	0.97	1.68	3	159	0.18
Program x Experience	0.99	0.046	3	159	0.99
Sex x Experience	0.97	1.68	3	159	0.18
Program x Sex x Experience	0.97	1.83	3	159	0.14

Follow-up ANOVAs indicated that choice ($F(1, 161) = 7.14, p < 0.01$) was significantly higher in programs using Inviting Optimum Participation. Differences between the programs regarding engagement ($F(1, 161) = 0.01, p > 0.05$) and view of self ($F(1, 161) = 2.68, p > 0.05$) were not significant (Table 12).

Table 12
Analysis of Variance for High Activities

	$F(1, 161)$	$p =$
Engagement	0.01	0.91
Choice	7.14	0.01
View of self	2.68	0.1

No significant effect was found ($\lambda(3,427) = 0.99, p > 0.05$) for low (non-belayed) activities. There was no significant main effect for program type, sex, or ropes course program experience and no significant interaction effects (Table 13).

Table 13
Multivariate Analysis of Variance for Meaningful Involvement during Low Activities

Source	λ	F	Hypothesis df	Error df	$p =$
Program	0.99	1	3	427	0.39
Sex	0.99	0.57	3	427	0.64
Experience	0.99	0.53	3	427	0.66
Program x Sex	0.99	0.56	3	427	0.64
Program x Experience	1	0.06	3	427	0.98
Sex x Experience	0.99	0.51	3	427	0.68
Program x Sex x Experience	0.99	0.63	3	427	0.6

As a result of statistical analysis, an overall significant difference was found between CbC program participants and IOP program participants with regard to the degree of meaningful involvement during high activities. Furthermore, when the three component areas of meaningful involvement were compared statistically, the area of choice differed significantly between CbC program participants and IOP program

participants during high activities. Participants in IOP programs perceived a significantly greater degree of choice indicating that they were more likely to have experienced this aspect of meaningful involvement.

Program Attributes, Outcomes, and Values

Demographics

For the study of meaningful ropes course program attributes, outcomes, and values, 218 participants responded to a means-end laddering questionnaire. Of these participants, 97 (44%) took part in a Challenge by Choice program and 121 (56%) took part in an Inviting Optimum Participation program. Nine questionnaires were unusable because the participant failed to report any ladders and so were dropped from the study. All information and subsequent analysis were based on the 209 useable questionnaires.

Overall, an equal number of males and females participated in this portion of the study (see Table 14). Questionnaires were completed by 105 males and 104 females who ranged from 10 to 15 years of age. The average age was 12.5 years. Although a considerable number of participants (86) had previously experienced a ropes course program, most (123) had not. A total of 457 means-end ladders were completed, an average of 2.2 means-end ladders per participant.

Table 14
Demographics for Means-End Analysis Participants by Program Type

	All (n=209)		CbC (n=91)		IOP (n=118)	
Average Age	12.5		12.8		12.2	
Sex						
male participants	105	104	43	48	62	56
female participants		50%		53%		47%
Experience*						
yes	86	123	57	34	29	89
no		59%		37%		75%
Number of Ladders						
total	45	72.2	24	32.7	21	41.9
average/participant						

* Chi-square (1) = 30.74, $p < 0.01$ for the relationship of experience to program.

On the whole, CbC participants were slightly older, more likely to be female, and completed more means-end ladders than IOP participants. The greatest difference, however, was that most of the CbC participants (63%) had previously participated in a ropes course program while most of the IOP participants (75%) had not. A chi-square test of independence was calculated comparing the frequency of previous participation in a ropes course program for individuals in CbC and IOP programs. A significant relationship was found (chi-square (1) = 30.74, $p < 0.01$). IOP participants were more likely to have never taken part in a previous ropes course program.

Results of Program Attributes, Outcomes, and Values Data Analysis

Participants completed the means-end laddering questionnaire at the end of their ropes course program. One complete ladder consisted of an *outcome* the participant considered important, a series of explanations as to why that outcome was *valued*, and

finally a description of the ropes course program *attribute* that led to that outcome. Participants were asked to complete up to three ladders. The program *attributes, outcomes, and values* reported by participants were organised into Hierarchical Value Maps (HVMs) – a tree-like network diagram that graphically displays an aggregate mind-map of the means-end ladders identified by participants (Gengler et al., 1995).

The first step in constructing an HVM was to establish the content categories that summarize participant responses (Reynolds & Gutman, 1988). Because of the researcher's involvement in the development of the IOP program model, several steps were taken to minimize researcher bias during the coding process. For example, the usual process is for the researcher to review the data, develop content categories, and have someone familiar with the topic check the accuracy of the coding (Goldenberg et al., 2000). Instead, the 41 content categories for this study emerged from an affinity grouping exercise conducted by the researcher and two ropes course instructors who delivered programs for the study. The verbatim responses for all components of all participant ladders were written on cue cards and coders grouped cue cards containing similar responses together. As recommended by Reynolds and Gutman (1988), the focus in grouping was not necessarily on the response itself but on the relationships between responses that were central to the purpose of the study. Failure to adequately group responses results in too many content categories and a messy and disjointed HVM while too much consolidation leads to the loss of meaning (Reynolds & Gutman, 1988). Thus, in this study of ropes course programs responses such as “new experience,” “doing something different,” “not like school,” and “never done this before” were all placed into

the category “*novel experience*.” A fourth person who was not a ropes course instructor but familiar with affinity grouping and research techniques facilitated the coding process and kept track of agreements and disagreements between the three coders. Agreement required that the responses of all three coders coincide.

In the second step of the coding process, the coders named the content categories and labeled each category as either an attribute, outcome, or value based on the following definitions:

- An attribute was a physical or observable characteristic of the program (Gengler et al., 1995) that could be affected by ropes course program instructors.
- An outcome was any direct or indirect, positive or negative, functional, social or psychological consequence associated with program attributes (Klenosky et al., 1993).
- A value was an abstract end state that resulted from participation (Goldenberg & McAvoy, 2002).

The inter-rater reliability for the first two parts of the coding procedure was 87% and disagreements were resolved by consensus. The 41 content categories established are listed by category in Table 15.

Table 15
Content Categories

Attributes	Outcomes	Values
A1: novel experience	C1: anxiety	V1: belonging
A2: challenge	C2: peer pressure	V2: fun
A3: program atmosphere	C3: hindrances	V3: friendship
A4: physical activity	C4: positive experience	V4: happiness
A5: working together	C5: learning	V5: positive self image
A6: tangible rewards	C6: achieving goals	V6: increased social status
A7: lunch	C7: new skills	V7: safety
A8: cooperative games	C8: trust	V8: excitement
A9: communication activities	C9: sharing ideas	V9: fitness
A10: trust exercises	C10: group efficacy	
A11: low ropes	C11: fulfillment	
A12: high ropes (in general)	C12: utility of interdependence	
A13: the height	C13: transference	
A14: belaying	C14: temporal shift	
A15: climbing		
A16: specific high elements		
A17: everything		
A18: boredom		

The third step was to assign a content code to each participant response and remove any redundancies from individual ladders (Frauman et al., 1998). To minimize researcher bias, a ropes course program instructor involved in the previous process simultaneously coded the individual responses with the researcher. Since the information regarding program type was contained on the opposite side of the survey, coders were

unaware of which program type the individual experienced. The content code was written on the survey to expedite subsequent data entry. For example, the response “Hour Glass ” refers to a high element so it was coded A16 – specific high element. Inter-coder reliability for this step was about 92% and disagreements were resolved by consensus.

The researcher entered the coded responses into the LadderMap software package. LadderMap creates an implication matrix summarising the number of times participants linked different content categories together in their ladders (Gengler & Reynolds, 1993). To reduce the bias that may be created by participants who provide more than one ladder, LadderMap counts an association only once per participant when constructing the matrix (Gengler & Reynolds, 1993). Thus, in means-end laddering, the unit of analysis is the individual rather than the experience. The implication matrix displays two types of relationships (Reynolds & Gutman, 1988). Direct relationships describe links between adjacent elements of a ladder and are shown to the left of the decimal. Indirect relationships describe links mediated by one other element and are shown to the right of the decimal (Reynolds & Gutman, 1988). For example, novel experience (A1) was directly linked to high ropes in general (A12) four times and indirectly linked twelve times. The implication matrix for all participants in all programs is shown in Appendix M.

Hierarchical Value Maps (HVMs) provide a visual image of the information contained in the implication matrix. The goal of HVMs is to show significant content categories and summarize key linkages, thus, depicting every response is more confusing than useful. To create an understandable and visually appealing map, a cutoff point must

be established below which less frequently mentioned responses are not included (Reynolds & Gutman, 1988). In addition, the comparison of different groups (i.e. CbC vs. IOP, male vs. female, experience vs. no experience) is easier when the cut-off value is similar for all maps. The literature (e.g. Reynolds & Gutman, 1988; Gengler & Reynolds, 1995; Klenosky et al., 1993) recommends a cut-off value equal to five percent of all respondents, and this value was used to construct HVMs throughout this study.

The final step was to layout the HVM in a logical way. In general, attributes appear at the bottom of the HVM, consequences in the middle, and values at the top. This ordering conveys the increased level of abstraction as one moves up the map (Goldenberg et al., 2000). The overall shape of the HVM, however, is unimportant. Instead, the creation of a understandable graphic requires that circles be placed to minimise lines crossing over each other (Gengler et al., 1995).

Once an HVM has been constructed, the researcher uses it to identify patterns in participant responses (Gengler et al., 1995). Additional HVMs may be constructed to illustrate the differences associated with various groups (Klenosky et al., 1993). In this study 11 HVMs were generated. HVMs were created for ropes course programs overall, CbC programs, IOP programs, male and female participants in both types of programs, and participants with and without prior experience for each type of programs. Because understandable HVMs require a sample of about 40 study participants (Goldenberg & McAvoy, 2002), HVMs detailing interaction effects (e.g. female IOP participants who had never taken part in a ropes course program) were not created.

Interpreting HVMS requires understanding the meaning of each element. Circles represent content categories. The larger the circle, the more frequently the category was mentioned. Labels and colors are used to distinguish among attributes, outcomes, and values. Attributes use white circles and all lower case letters. Outcomes are shown in grey and labeled using upper and lower case letters. Black circles and all upper case letters represent values. The line segments illustrate associations between content categories. The wider the line, the more frequently two categories were linked and hence the stronger their association (Gengler et al., 1995). Very thick lines describe very strong linkages, moderately thick lines represent strong associations, thick lines represent modest connections, and regular lines depict weak relationships.

Overall findings. Figure 1 presents the HVM for the entire group of participants. Many of the program attributes shown on the HVM characterise some of the key design elements of adventure-based programs and include: “challenge,” (supportive and playful) “program atmosphere,” “novel experience,” and “working together.” Other attributes, specifically: “high ropes in general,” “specific high elements,” and “low ropes in general,” describe particular components of a ropes course program. Many of the consequences depicted, such as “transference,” “learning,” “group efficacy,” “trust,” “achieving goals,” also represent outcomes commonly associated with ropes course programs. The outcomes “funfillment” (the benefit of having fun and being playful) and “positive experience” were associated with recreation programs in general. “Anxiety” may not be a desirable program outcome, yet was identified by 34 of 209 participants and was linked to “high ropes in general.”

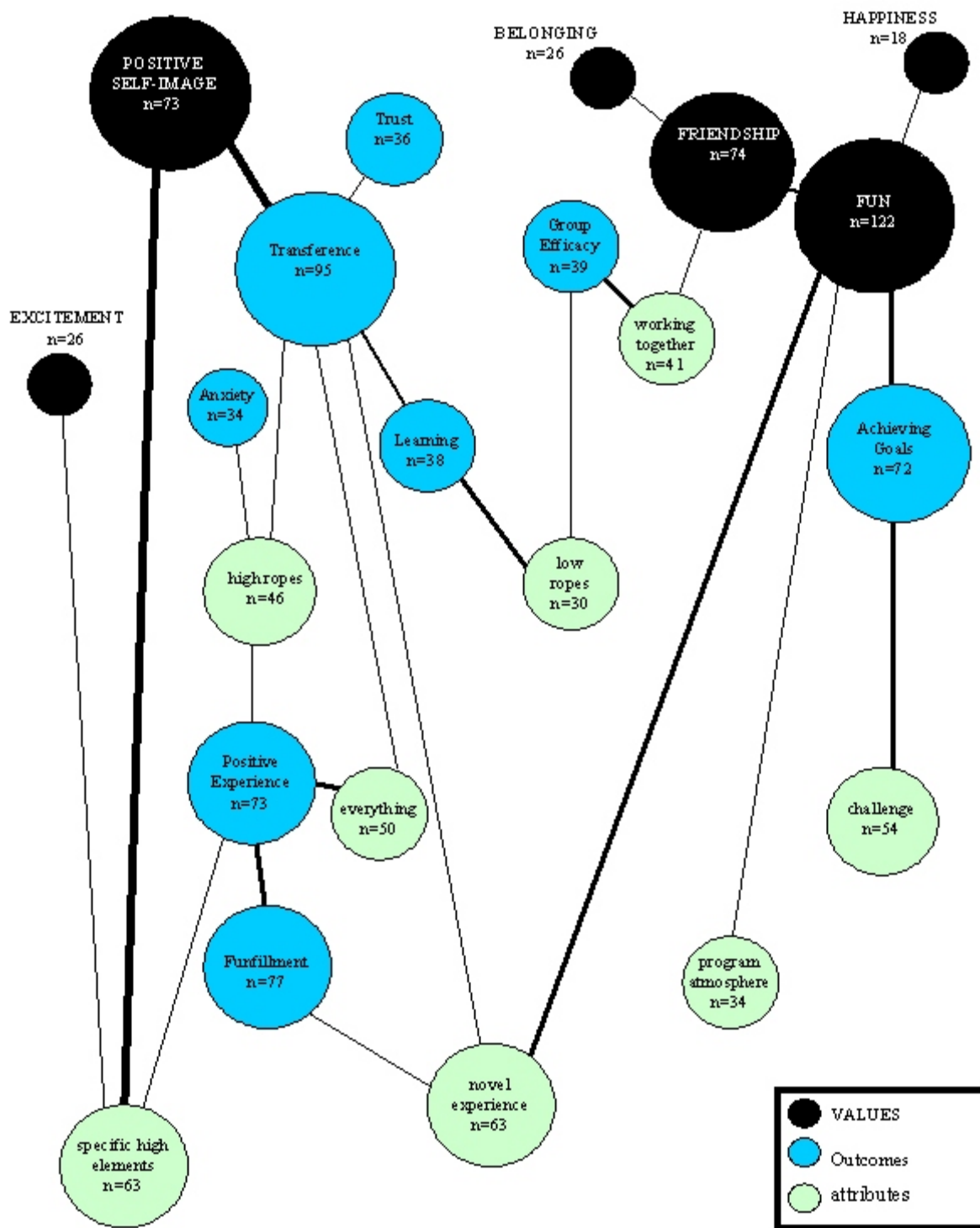


Figure 1. HVM for all participants in all program types (n=209).

“Specific high elements” and “novel experience” were the most frequently mentioned attributes, and “transference” was the most frequently mentioned outcome. “Novel experience” (n=63) was directly linked with “transference” (n=95) and subsequently was very strongly linked to the value “positive self-image” (n=73). Readers should be cautioned, however, not to interpret the line between “novel experience” and “transference” as indicating that all 63 of the respondents who identified “novel experience” reported a connection to “transference.” In an HVM, the lines merely indicate that some number of respondents equal to or greater than the cut-value linked two particular content categories (Gengler & Reynolds, 1993). Looking at the portion of the implication matrix for these linkages in the HVM (Table 16), one can see that six respondents directly connected “novel experience” (A1) with “transference” (C13) and an additional 10 respondents connected “novel experience” with “transference” via one other content category. Similarly, all 73 participants who identified the value “positive self-image” are not among the 95 participants who mentioned the outcome “transference.” Instead, there were 20 participants who connected “transference” with “positive self-image” and 28 participants who made this connection indirectly, so the line between “transference” and “positive self-image” is much thicker.

Other linkages in the HVM show that there was also a very strong direct link between the program attribute “specific high elements” and the value “positive self-image.” “Specific high elements” also had a weak, direct linkage with the value “excitement” and a very strong, direct association with the outcome “positive experience.”

Table 16
Portion of the Implication Matrix

	C11	C12	C13	C14	V1	V2	V3	V4	V5
A1: novel experience	8.11		6.10			9.14	2.4	1.2	3.8
A2: challenge	2.4		4.8			1.6		0.2	3.11
A3: program atmosphere	2.4		2.3		0.1	1.1	1.1	0.1	1.3
A4: physical activity			0.1			0.2			
A5: working together	1.4	0.1	1.1	0.1		5.6	1.5		1.1
A6: tangible rewards			0.1		0.1				2.2
A7: lunch							1.2		
A8: games	0.3		0.1			4.4			
A9: communication activities									
A10: trust exercises									
A11: low ropes	0.2					0.1	1.1		
A12: high ropes	0.1		0.1		0.1	1.1	0.1		
A13: the height			0.2						
A14: belaying									
A15: climbing			0.1			1.2			0.1
A16: specific high elements									
A17: everything						1.1			
A18: boredom				1.1					
C1: anxiety			5.7			0.1			4.7
C2: peer pressure									
C3: hindrances									1.1
C4: positive experience	6.12		4.5		1.1	11.11	2.3	3.6	0.1
C5: learning	1.4		12.14		1.3	2.6	3.4	0.3	4.8
C6: achieving goals	0.2		11.19			4.12		3.4	17.25
C7: new skills			1.3		0.1	3.5	0.1		2.3
C8: trust		6.9	6.10		0.3	1.3	5.6		1.5
C9: share ideas					0.2	0.1	3.3	0.1	
C10: group efficacy	2.6	1.1	1.2	1.1	0.1	6.7	4.4	0.1	
C11: fulfillment			2.5		1.2	3.4	1.1	8.8	2.3
C12: utility of interdependence			1.2				1.1		
C13: transference	1.4	1.1			1.1	10.14		0.2	20.28
C14: temporal shift	1.1								
V1: belonging	2.3		0.1			2.3		0.1	1.1
V2: fun	56.64		5.17		0.1		6.7	4.11	2.8
V3: friendship	9.21	2.2	1.3	1.1	19.23	10.19		0.2	1.2
V4: happiness	2.2		3.3						
V5: positive self-image		1.1	20.21		2.2	4.8	2.4	1.1	

“Fun” was the most important value in the HVM for all participants in all programs. It was mentioned by the greatest number of participants and was connected to other values including “happiness” and “friendship.” “Fun” was very strongly linked to the program attribute “novel experience” suggesting that participants value the unusual opportunities presented by ropes course programs. The very strong association from the program attribute “challenge” to the outcome “achieving goals” to the value “fun” suggests that participants consider challenges fun if they are achievable.

Differences between program types. Comparing HVMs for CbC programs (Figure 2) and IOP programs (Figure 3) revealed similarities as well as differences. Both groups identified adventure-based program attributes such as “working together,” “challenge,” and “novel experience” as important. Both groups also reported that the attributes “high ropes in general” and “specific high elements” were meaningful components of their ropes course program. However, CbC program participants included the program attributes “height” and “climbing” which relate to high activities, whereas IOP program participants included the program attributes “low ropes,” “trust exercises,” and “communication activities” which relate to low activities.

Regardless of the program they experienced, participants identified outcomes commonly associated with ropes course programs including: “trust,” “learning,” “achieving goals,” “transference,” “positive experience” and “fulfillment.” In both groups, the attribute “challenge” was connected with the outcome “achieving goals,” “achieving goals” was connected to the outcome “transference,” and “transference” was connected to the value “positive self-image.” This chain indicates that challenge was

associated with achieving goals and that participants intended to transfer this idea from the ropes course program to other parts of their lives since achieving challenging goals made them feel good about themselves. One major difference between the two maps was that in CbC programs the outcome “anxiety” was present while “group efficacy” was absent. In IOP programs, the reverse was true. “Anxiety” was absent while “group efficacy” was present. The outcome of “group efficacy” had a strong linkage with the attribute “working together” and a weak association with the value “fun.”

Finally, both groups connected the value of “friendship” with “belonging,” and “happiness” with “fun.” IOP participants reported a strong connection between the attribute “high ropes in general” and the value “positive self image.” Similarly, CbC participants reported a very strong connection from the program attribute “specific high elements” to the value of “positive self image.” Only CbC participants reported the value “excitement.”

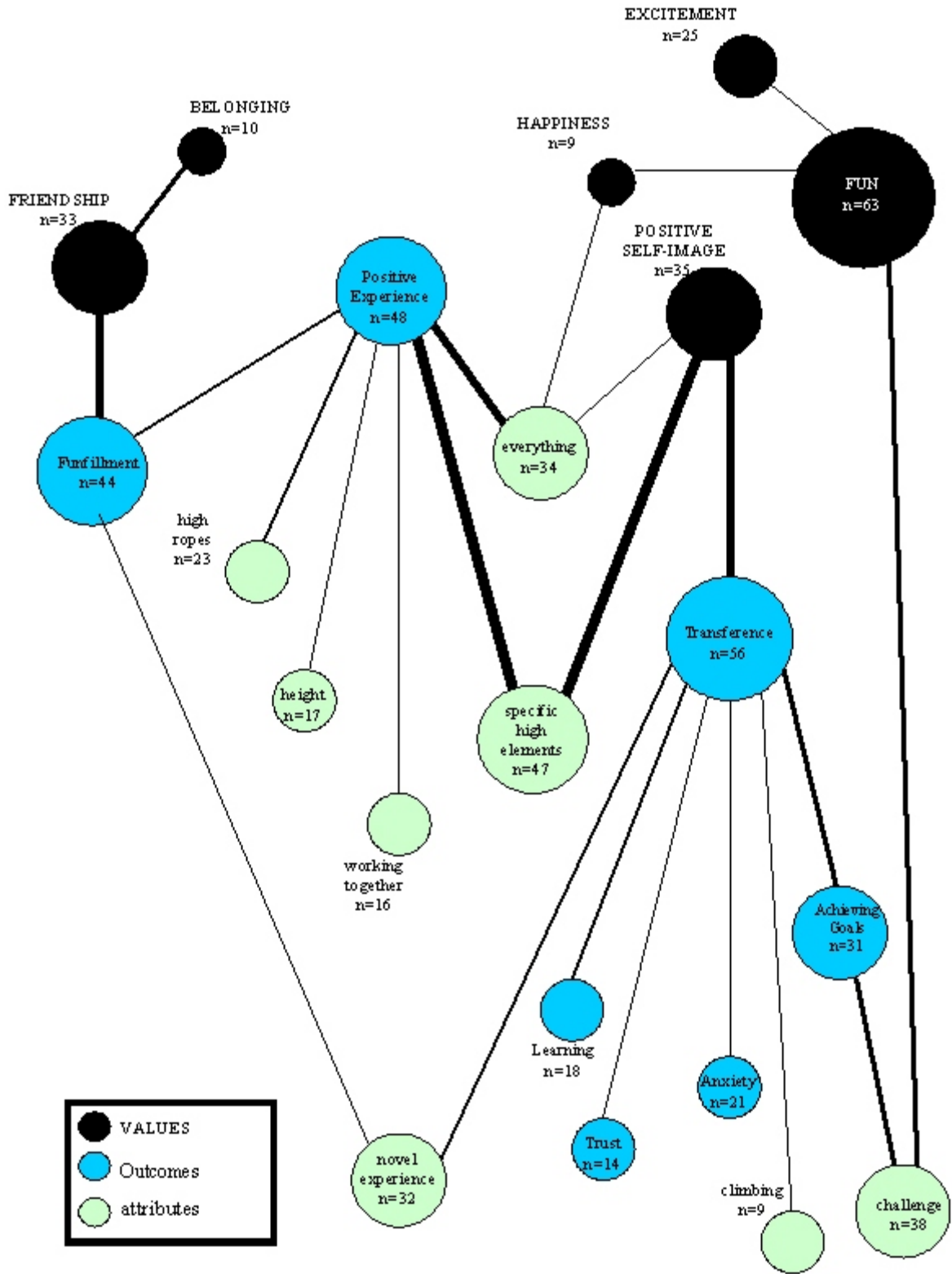


Figure 2. HVM for all participants in CbC programs (n=91).

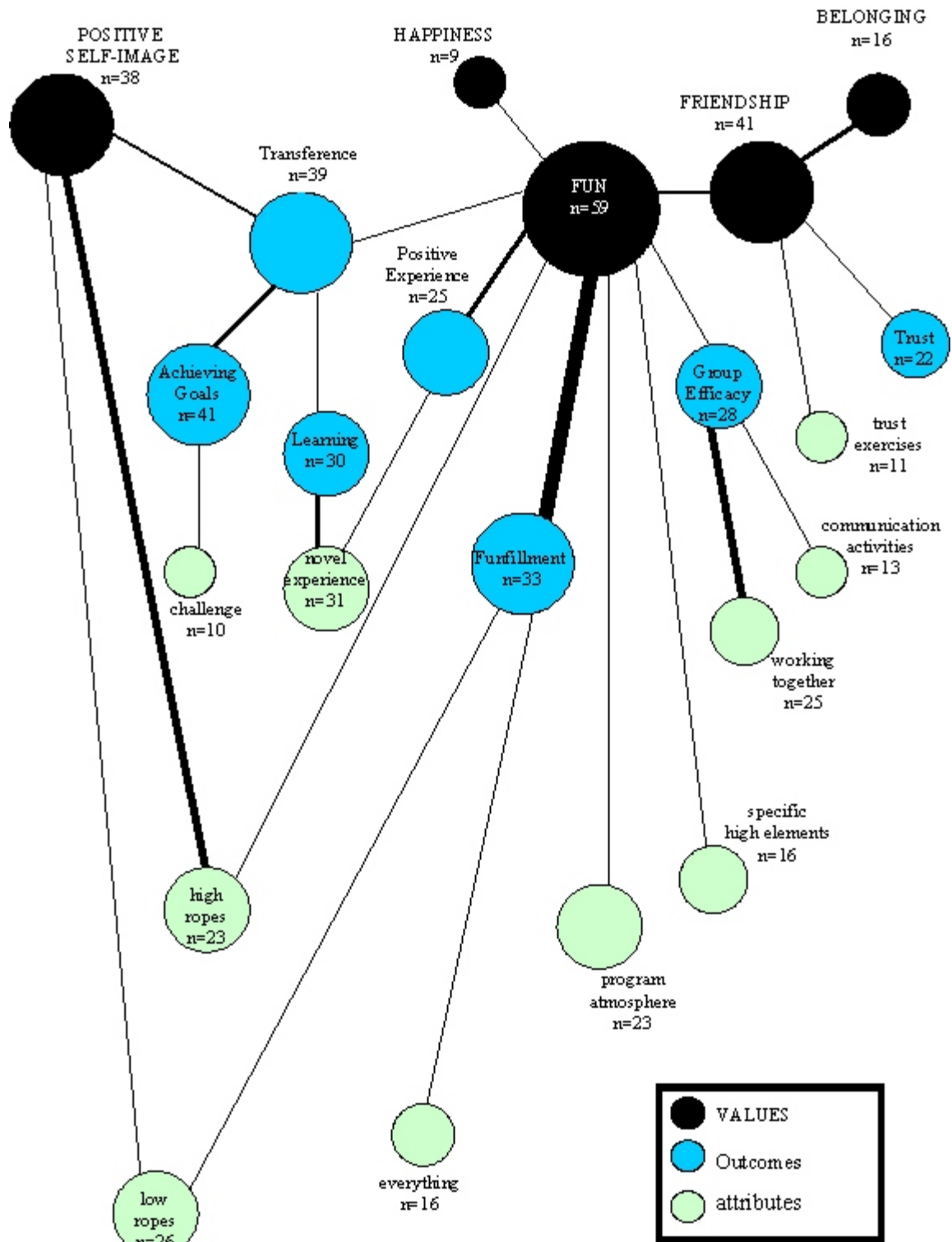


Figure 3. HVM for all participants in IOP programs (n=118).

Differences between program type by participant sex. To add to the understanding of differences in the programs, HVMs were constructed for male and female participants in each type of programs. These maps highlighted trends that remained consistent regardless of participant characteristics and revealed differences between participant groups that may warrant consideration in program design and delivery.

Male CbC participants identified nine program attributes (Figure 4). Similar to the HVM for all CbC participants, four attributes (“specific high elements,” “high ropes in general,” “the height,” and “climbing”) were related to high activities and none were specific to the low activities. The remaining five attributes were related to key principles of adventure and ropes course programs and included: “program atmosphere,” “everything” (the program overall), “challenge,” “novel experience,” and “working together.” Similar to the HVM for all IOP participants, the 10 program attributes identified by male IOP participants (Figure 5), included three program attributes (“low ropes,” “trust exercises,” and “communication activities”) related to low activities, two attributes related to high activities (“high ropes” and “specific high elements”), and the same five attributes related to the elements of adventure reported by male CbC participants.

Both groups of male participants reported outcomes commonly associated with ropes course programs that were included in the HVM for all participants in all programs. These outcomes included: “funfillment,” “transference,” “learning,” “achieving goals,” and “positive experience.” Male IOP participants strongly connected “positive experience” with “fun” and had a weaker link with “funfillment” suggesting they thought

the experience was positive because it allowed them to have fun and be playful. CbC participants strongly linked “positive experience” with “excitement” suggesting they enjoyed the experience because it was exciting. A key difference was that, like the HVM for all participants in IOP programs, male IOP participants included the outcomes of “group efficacy,” “trust,” and “new skills.” In contrast, the only additional outcome included by male CbC participants was “anxiety,” which they connected to the attribute of “height.” This linkage between “anxiety” and high activities was also present in the HVM for all CbC participants.

Congruent with the maps for all participants in all programs, all CbC participants, and all IOP participants, the most commonly identified value for both groups of male participants was “fun.” CbC participants reported a strong, direct linkage between “fun” and “challenge” suggesting that they saw challenges as being fun. IOP participants, however, had direct linkages between “fun” and “specific high elements,” “program atmosphere,” “positive experience,” “new skills,” and “achieving goals” suggesting that their program allowed them to experience fun in various ways.

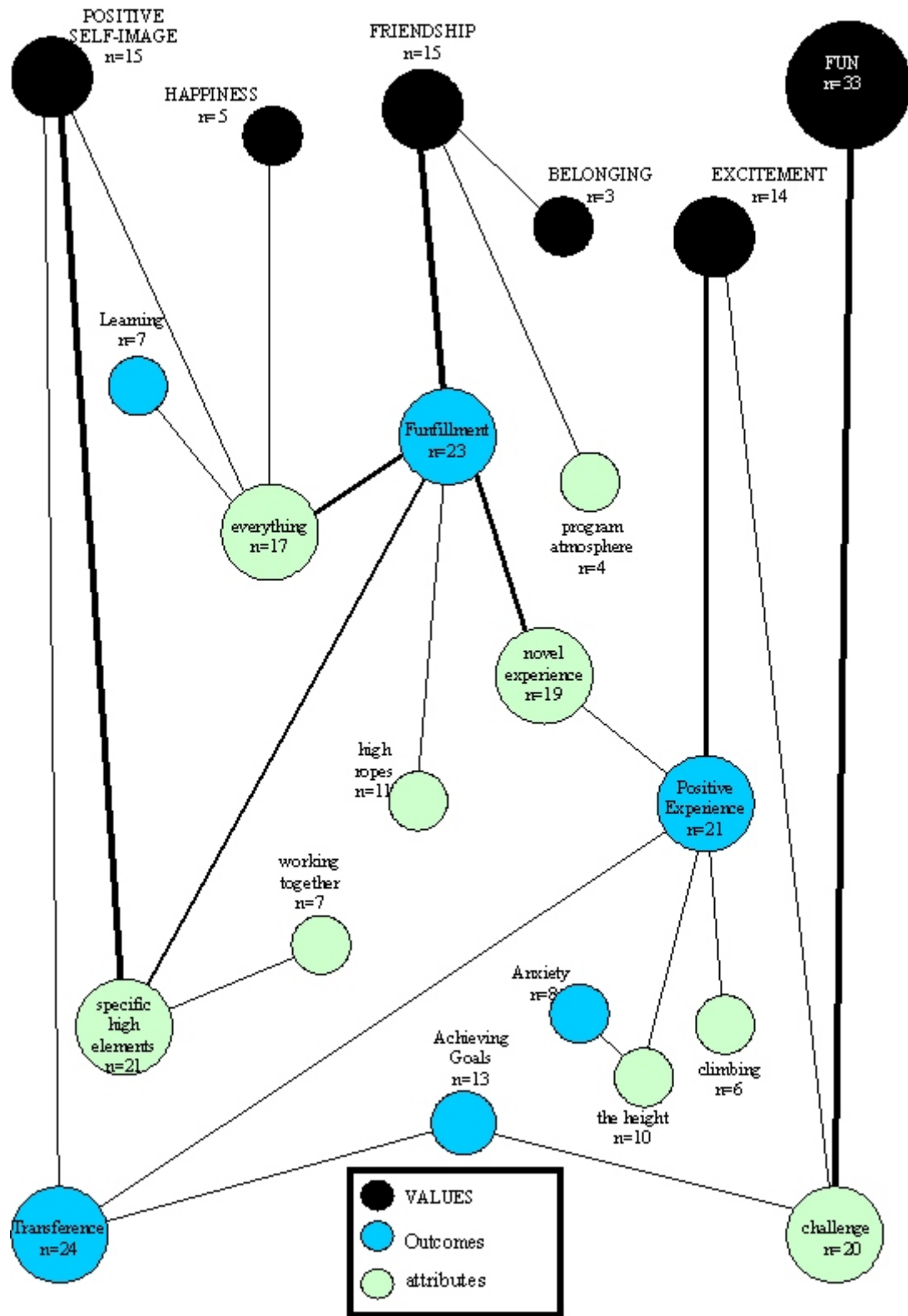


Figure 4. HVM for male participants in CbC programs (n=43).

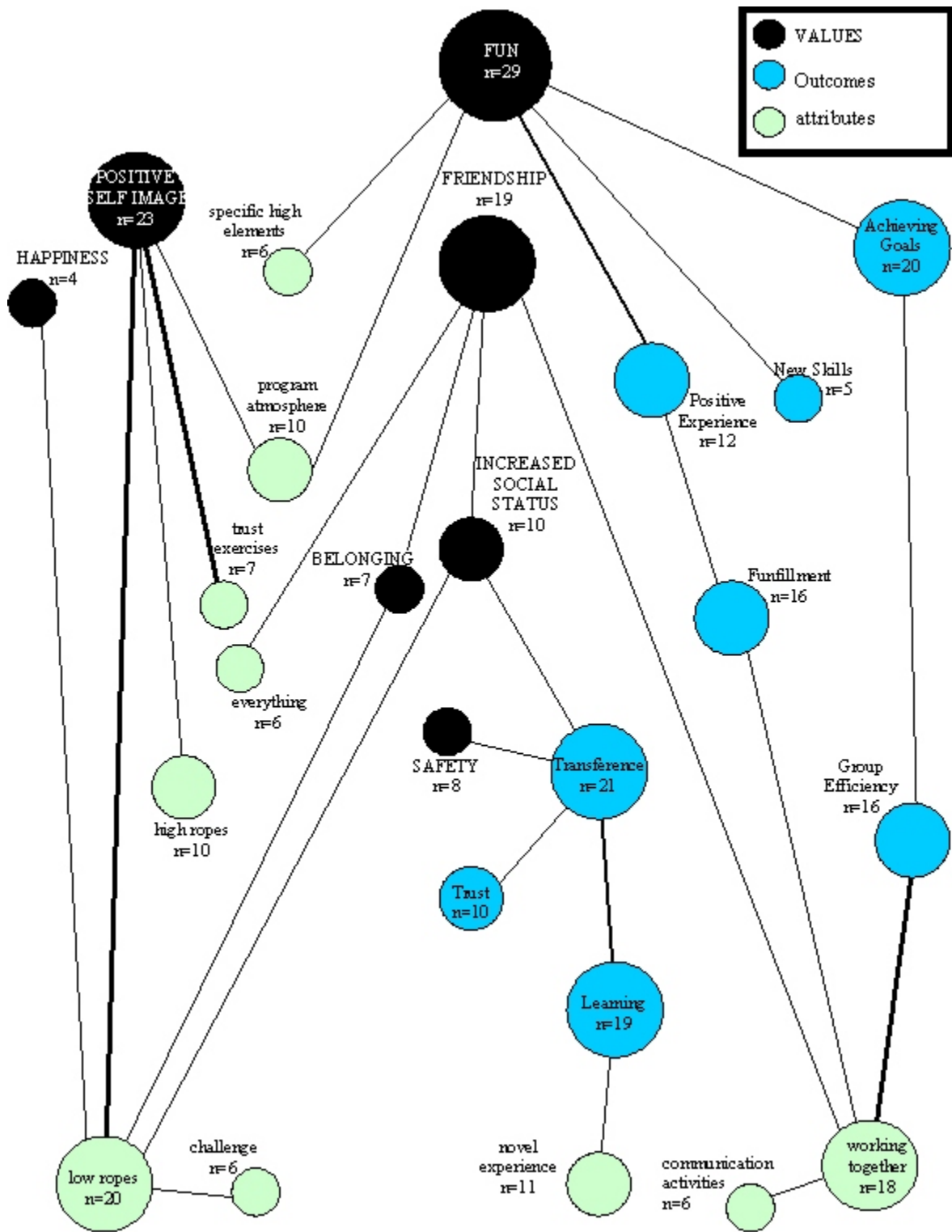


Figure 5. HVM for male participants in IOP programs (n=61).

Similar to previously described HVMs, the maps for female CbC participants (Figure 6) and female IOP participants (Figure 7) identified attributes related to adventure. These attributes were: “program atmosphere,” “challenge,” “novel experience,” “working together,” and “everything” (program as a whole). Both groups identified the attributes “high ropes in general” and “specific high elements.” Female IOP participants also reported the attribute of “height,” which relates to high activities. Like other IOP groups, female group members identified attributes related to low activities.

Both groups of female participants reported attributes not identified on previous HVMs. “Physical activity” was identified by IOP participants while CbC program participants identified “lunch.” Although one would expect “lunch” to be a positive or neutral experience, CbC participants associated lunch with “hindrances” to participation.

Both groups reported outcomes commonly associated with ropes course programs such as: “positive experience;” “funfillment;” “achieving goals;” “trust;” “group efficacy;” “learning;” “sharing ideas;” and “utility of interdependence.” The outcome “sharing ideas” was not present in the HVMs of male participants in CbC or IOP programs. In addition, HVMs for all CbC and IOP participants did not indicate “sharing ideas” was important. Unlike previous groups of CbC participants, female CbC participants identified “group efficacy” and both groups of female participants identified the outcome “anxiety.” CbC participants connected “anxiety” to “transference” and “safety” indicating that they were anxious about their safety and saw parallels between the anxiety they felt during the program and other parts of their lives. IOP participants associated “anxiety” with “specific high elements,” “high ropes,” and “transference” indicating that high ropes made them

anxious and they saw parallels between the anxiety they felt during high ropes and other parts of their lives. These findings suggest female participants experienced similar outcomes regardless of program type.

Both groups of female participants identified values commonly associated with ropes course programs such as: “fun;” “positive self-image;” “happiness;” “friendship;” and “belonging.” Unlike previous HVMS, both groups also identified “fitness” as a value indicating that female group members may see participating in ropes course programs as either requiring fitness or improving their level of fitness. IOP participants associated “fitness” with “physical activity” while CbC participants associated “fitness” with “transference.” Additional values identified by female CbC participants were “safety” and “excitement.” The presence of “excitement” was congruent with the HVMS for all CbC participants and male CbC participants. The presence of “safety,” however, was unique.

In general, the HVMS for male and female participants indicated that many of the differences between CbC and IOP programs were consistent regardless of participant sex. Only IOP participants mentioned low activities, and “excitement” was only mentioned by CbC participants. Beyond these differences, however, female participants also showed many similarities. Both groups identified the outcomes “sharing ideas” and “utility of interdependence” which were not reported on other HVMS. Whereas the maps for other CbC groups lack the outcome “group efficacy,” similar to the IOP maps, female CbC participants reported it. Although the maps for other IOP groups lack “anxiety,” congruent with CbC groups, female IOP participants reported this outcome. Finally, both groups of female participants reported the value “fitness” which was unique feature of these HVMS.

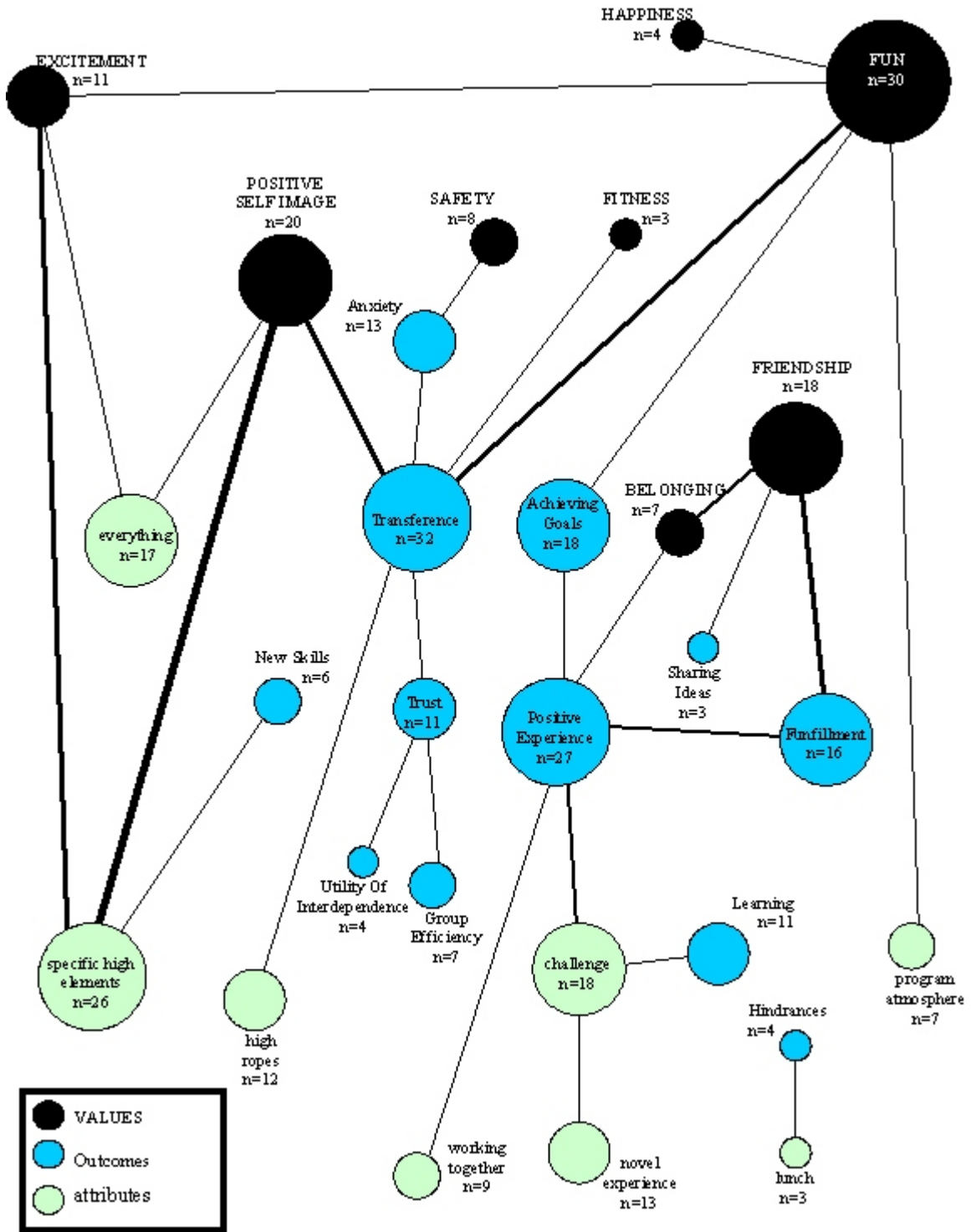


Figure 6. HVM for female participants in CbC programs (n=48).

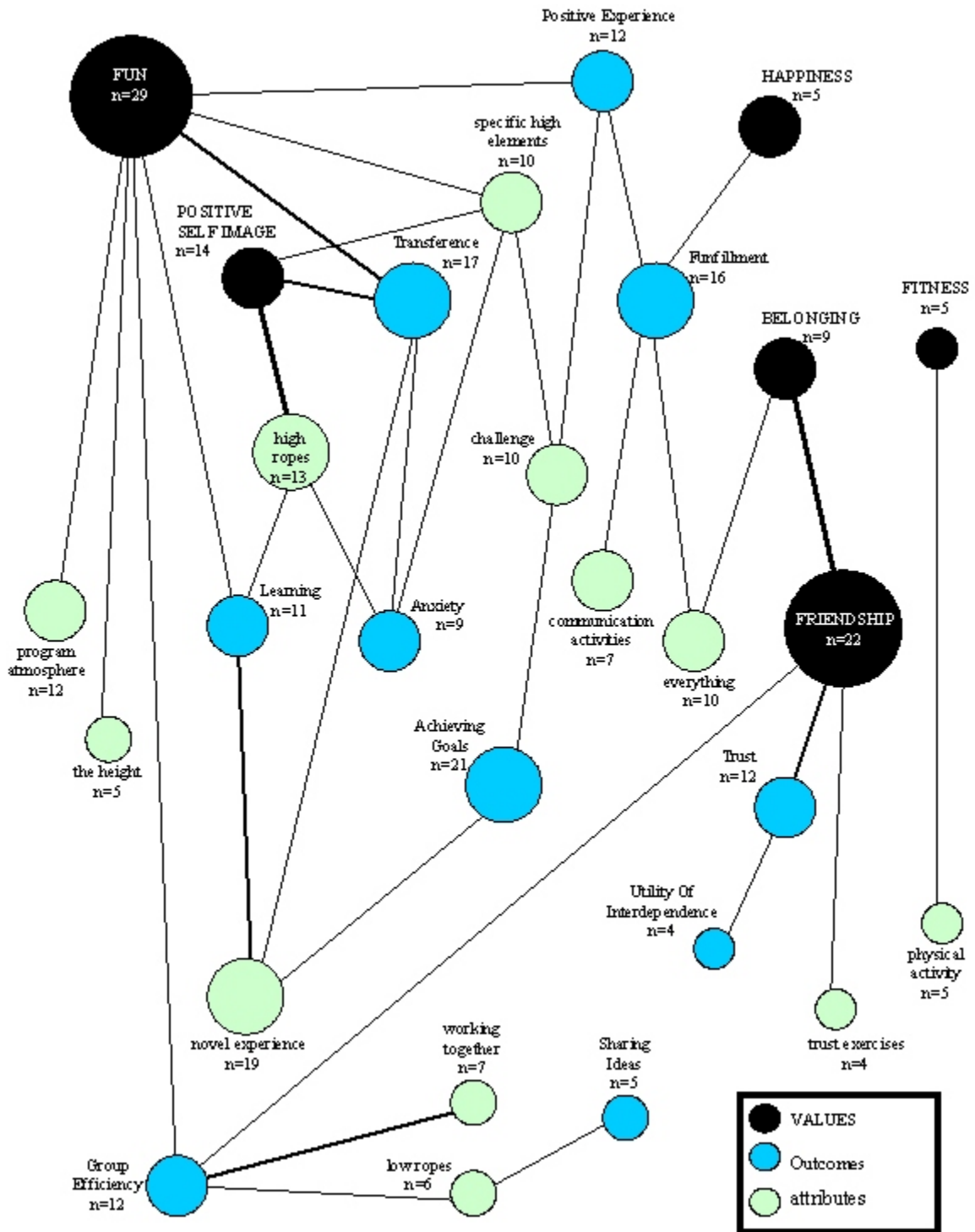


Figure 7. HVM for female participants in IOP programs (n=56).

Differences between program type by experience. Additional HVMs were constructed for participants who had and had not previously experienced ropes course programs. These maps add to the understanding of differences in programs reported by participants. The HVMs highlighted differences between participant groups that may warrant consideration in program design and delivery and reinforced the findings that certain trends remained consistent regardless of participant characteristics.

Like the previously described HVMs, participants who had previously experienced a ropes course program reported the attributes of “program atmosphere,” “novel experience,” “working together,” “challenge,” and “everything” regardless of whether they took part in a CbC program (Figure 8) or an IOP program (Figure 9). Specific ropes course attributes that were identified by both groups included “high ropes in general” and “specific high elements.” CbC participants also identified two attributes that related to high activities: “climbing” and “height.” As in the previous HVMs, only IOP participants identified ropes course program attributes such as “low ropes,” “communication activities,” and “trust exercises” that relate to low activities.

The program outcomes “transference” and “achieving goals” were connected to “positive self-image” in both HVMs. For CbC program participants, “achieving goals” was strongly connected to “transference” which was very strongly connected to “positive self-image.” This chain indicates that positive self-image relates to achieving goals since the feeling of success transfers from the ropes course experience to everyday life. Similarly, IOP participants strongly connected “achieving goals” with “transference” and associated “achieving goals” with “positive self-image.” Similar to the CbC participant

groups already discussed, CbC participants who had previously experienced a ropes course program also reported the outcome “anxiety” and did not include “group efficacy.” Similar to the IOP participant groups already discussed, IOP participants who had previously experienced a ropes course program also included the outcome of “group efficacy” and did not include the outcome “anxiety.” Finally, in a change from all previous HVMs, experienced IOP participants reported the outcome “peer pressure” connected to the attributes “challenge” and “low ropes.”

Both groups linked the program values of “fun,” “friendship,” and “belonging.” These values were present in all the other HVMs and “friendship” was consistently linked to “belonging” regardless of participant group or program type. There were, however, minor differences in the linkages. For CbC participants, “fun” led to “friendship” which led to “belonging.” For IOP participants, “friendship” led to “belonging” which led to “fun.” Unlike most other HVMs, both groups also identified the value “safety” and linked it to the outcome “trust.” This chain may indicate that participants felt safe during the program because they trusted the spotting procedures, belay system (equipment, instructors, and group members), and/or program norms to keep them safe. As with other CbC groups, CbC participants who had previously experienced a ropes course program identified “excitement” as value. These participants also mentioned the values “fitness” and “happiness.” Unlike all other HVMs, IOP participants who had previously experienced a ropes course program identified “increased social status” as a value.

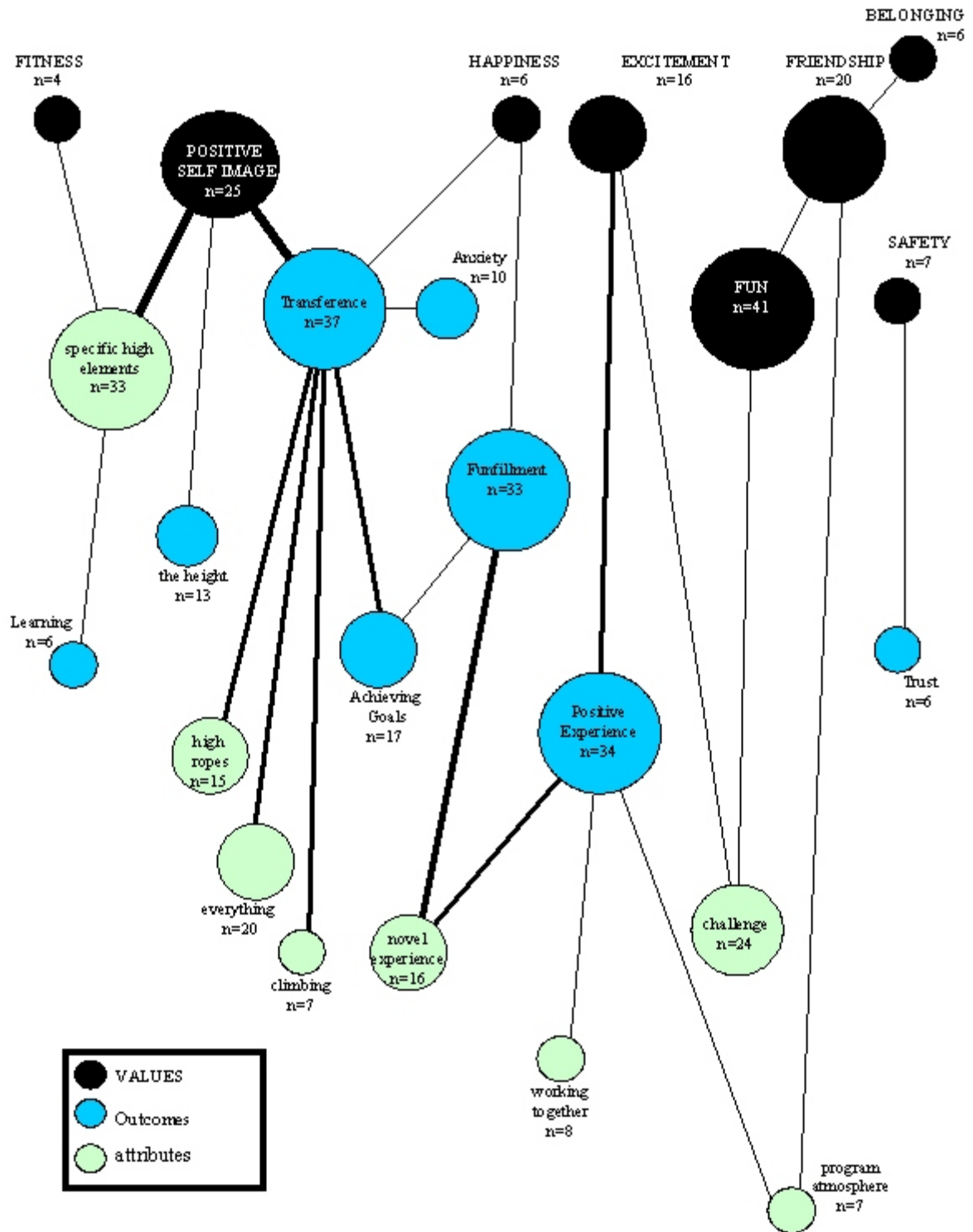


Figure 8. HVM for CbC program participants with experience (n=57).

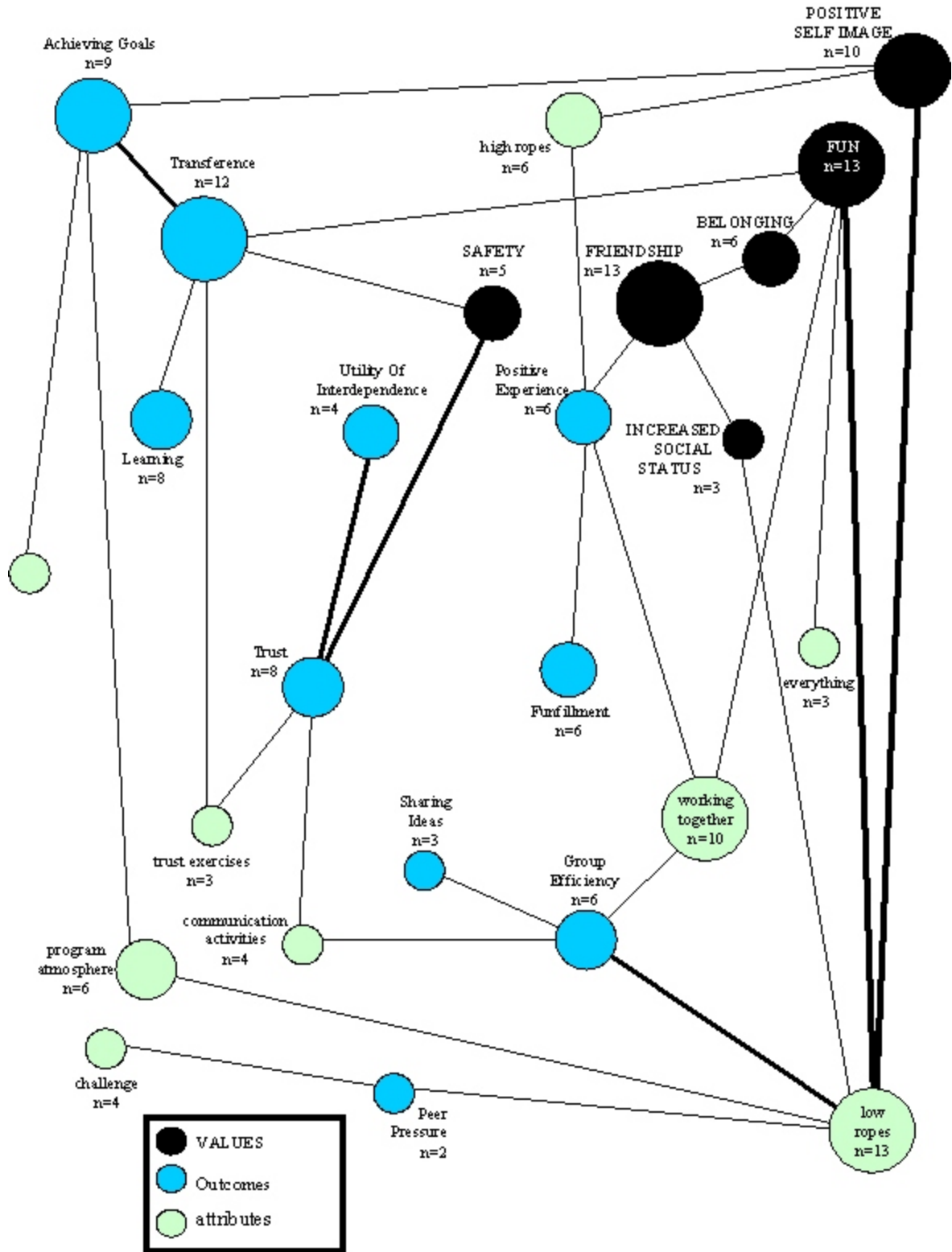


Figure 9. HVM for IOP program participants with experience (n=29).

Unlike all other groups of CbC program participants, individuals without ropes course program experience considered the attributes “low ropes” and “games” important. As Figure 10 illustrates, CbC participants without ropes course experience also identified other attributes related to adventure-based programs. These attributes were: “challenge,” “working together,” “program atmosphere,” “novel experience,” and “everything.” Attributes related to ropes course programs included: “specific high elements,” “high ropes in general,” and “height.” The HVM for IOP participants (Figure 11) did not include “games” and “height,” but was consistent with other IOP maps since it included “low ropes,” “communication activities,” and “trust exercises.” The map for IOP participants without ropes course program experience also included all the program attributes mentioned by CbC participants who had never experienced a ropes course program.

Similar to HVMs for female participants, both CbC and IOP participants without ropes course experience identified the outcome “anxiety.” Although the HVM for CbC participants was on a smaller number of individuals (n=34), “anxiety” was mentioned by 11 participants. In contrast, only nine of 85 IOP participants mentioned “anxiety.” CbC participants directly connected “anxiety” with “hindrances,” “challenge,” “safety” and “transference.” IOP participants, however, connected “anxiety” with “high ropes in general.” Like the maps for female participants, both CbC and IOP participants without experience included the outcomes “group efficacy” and “learning.”

As with previous HVMs, “fun” was the predominant value for both groups. CbC participants reported strong links between “fun” and “excitement,” “fun” and “challenge,” and “fun” and “novel experience.” There was also a very strong link between “fun” and

“funfillment.” IOP participants also reported a very strong link between “fun” and “funfillment.” There were strong connections between “fun” and “specific high elements,” “fun” and “positive experience,” “fun” and “program atmosphere,” and “fun” and “group efficacy.” Weaker linkages were reported between “fun” and “transference” and “fun” and “high ropes in general.” Thus, both HVMs conveyed the message that individuals without ropes course program experience consider fun important. Once again, only the CbC group mentioned “excitement.” The CbC group also included the value “safety” which has appeared on HVMs for both types of programs.

Overall, the HVMs for participants with and without ropes course experience revealed differences between CbC and IOP programs. In addition, many differences were consistent with trends identified by other groups in this study. For example, “excitement” was only mentioned by CbC participants. With one exception, IOP groups were the only ones to mention low activities. “Group efficacy” was a more common outcome in IOP maps while “anxiety” was a more common outcome in CbC maps. There were, however, also some similarities. “Fun,” “friendship,” and “belonging” were important values for all participant groups and most groups also valued “safety.” Finally, the outcomes “transference,” “funfillment,” and “positive experience” appear on all maps.

Constructing an HVM requires a sample size of about 40 (Goldenberg & McAvoy, 2002). Thus, due to small numbers, maps that could have provided more detail about specific participant groups (i.e. male CbC participants with previous ropes course program experience) were not created. To further explore the linkage among program attributes, outcomes, and values, the presence of various chains in the HVMs will be summarized.

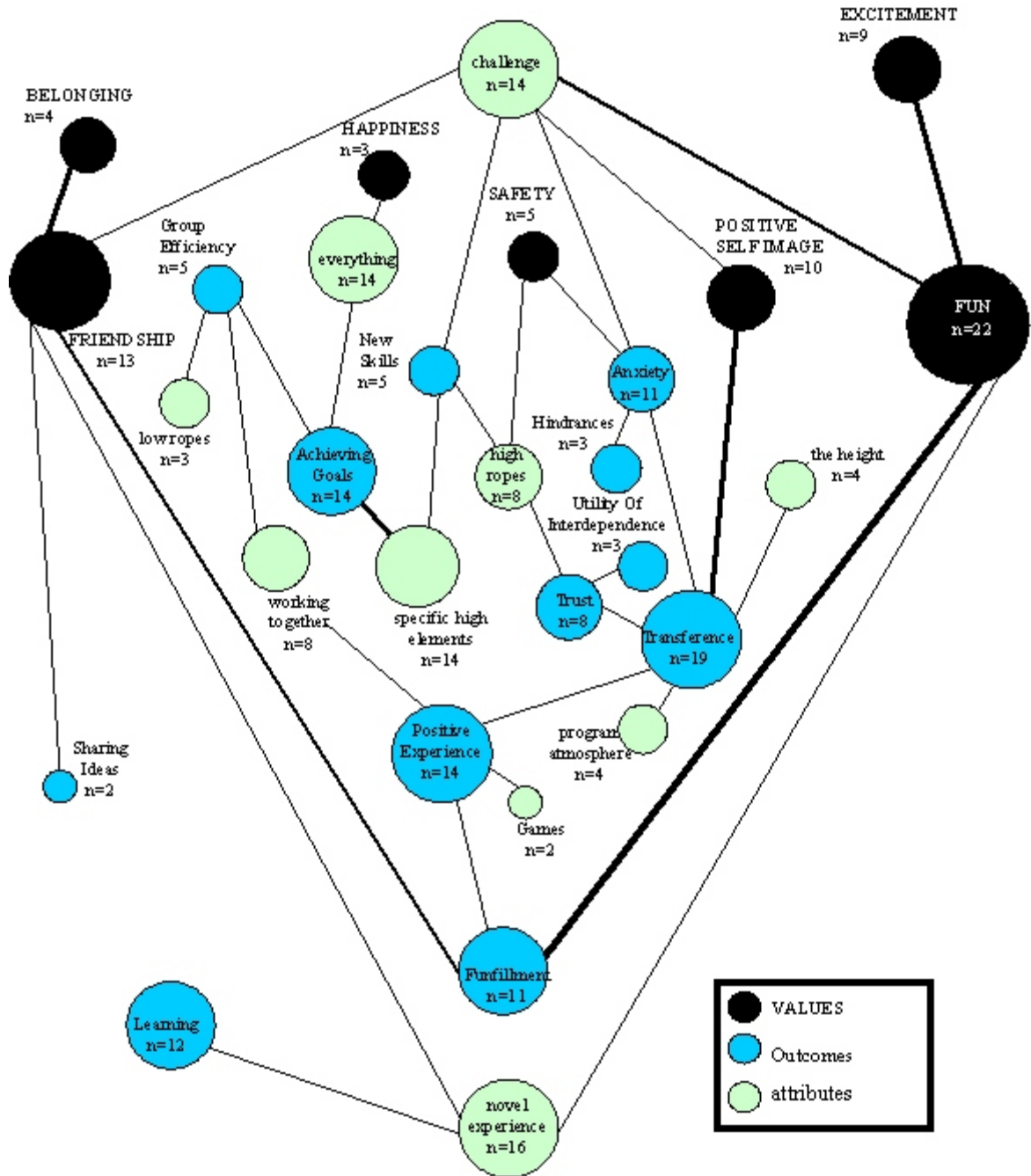


Figure 10. HVM for CbC program participants without experience (n=24).

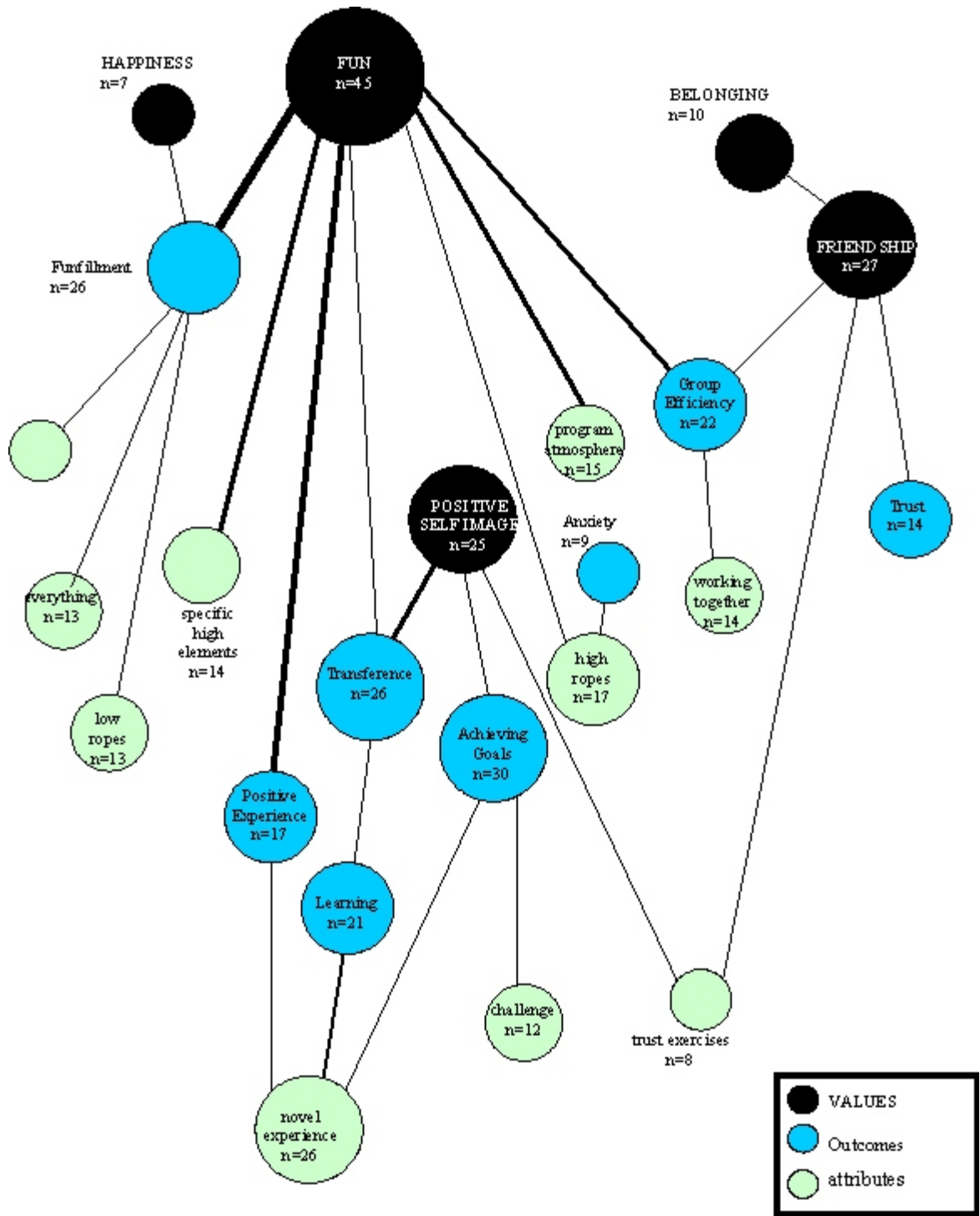


Figure 11. HVM for IOP program participants without experience (n=85).

Summary of Linkages

Means-end analysis not only identifies the program attributes, outcomes, and values reported by participants, but more importantly, it identifies linkages among these concepts and treats them as interrelated elements (Goldenberg, Klenosky, McAvoy, & Holman, 2002). A chain is a sequence of content categories that are linked together in an HVM (Reynolds & Gutman, 1988). The LadderMap software program displays chains and indicates the strength of the connection between two content categories via the thickness of the connecting lines shown on the map. Apart from the implication matrix, however, chains are not summarized in means-end analysis in any other way. Since one purpose of this study was to identify and compare the linkages among program attributes, outcomes, and values that participants report as significant in CbC and IOP programs, some method of identifying the presence of significant, re-occurring chains had to be developed.

To identify significant chains, the researcher looked for patterns among the content categories in all 11 HVMs. To minimize researcher bias, the search began by considering associations depicted on the HVM for all participants in all program types, then moved on to the HVMs for CbC and IOP participants overall, and then considered each of the remaining HVMs. Specific attention was paid to associations that LadderMap indicated were particularly strong (thicker lines). Content categories were considered linked when the HVM showed there was a direct connection between them or the HVM indicated the connection was mediated via one other content category. Since the implication matrix displays indirect relationships (Reynolds & Gutman, 1988), it seemed appropriate to use

this technique in the identification of chains. Once a chain was identified, it was marked on the HVM using a colored marker and the remaining 10 HVMs were examined for its presence. If the chain or some part of it was present, it was marked with the same color. The process of identifying chains was considered complete when all the content categories on the HVMs for all participants in all program types, all participants in CbC programs, and all participants in IOP programs were linked to a part of a chain. A total of twenty-seven chains were identified. The process of identifying chains was verified by one the researcher's co-chairs and was reviewed by the other co-chair.

The 27 chains were then grouped in several ways to facilitate understanding and discussion. First, chains that included an attribute, outcome, and value were identified. Because these types of chain included all three levels of abstraction illustrated in an HVM (Gutman, 1982), they were labeled *comprehensive chains*. Four comprehensive chains were identified and included: 1) "challenge" to "achieving goals" to "fun" and "happiness;" 2) "height", "climbing," "specific high elements," and "high ropes" in general which were all considered to describe high activities to "achieving goals" to "positive self-image;" 3) "trust exercises" to "trust" to "friendship;" and 4) "novel experience" and "program atmosphere" to "funfillment" and "positive experience" to "fun" and "excitement." Due to the number of links in the last chain, it was renamed fun is important.

In the second step, chains that were missing one or more levels of abstraction illustrated in an HVM were identified. These chains were labeled *component chains* because they contained some but not all of the components of a comprehensive chain.

Component chains could include an attribute and a outcome, an attribute and a value, two or more outcomes, an outcome and a value, or two or more values. Based on similarities in content categories, the component chains were then grouped with a comprehensive chain. Because “achieving goals” and “transference” to “positive self-image” captured a significant linkage not associated with any comprehensive chain, it was treated as the comprehensive chain associated with the value “positive self-image.” Finally, the component chains were grouped into themes based on similarities among their content categories.

One type of chain did not fit neatly into either the comprehensive or component category. One end of this chain was connected to the HVM but the other end did not make any other connections. Thus, a chain that was an “off-shoot” of a comprehensive or component chain was labeled a *branch chain*. The one branch chain that was identified was high activities to “anxiety.” All comprehensive, component, and branch chains along with the themes to which they belong are listed in Table 17.

Table 17
Summary of Linkages Found in HVMS

Type of Linkage	Description
Comprehensive chain	Challenge to achieving goals to fun and happiness
Branch chain	High activities to anxiety
Component chain	Achieving goals and transference to positive self-image
Theme	● High activities, goal achievement, and positive self-image
Component chain	1. Specific high elements to positive self-image
Component chain	2. High ropes in general to positive self-image
Component chain	3. Specific high elements to achieving goals
Theme	● Low ropes, everything, and positive self-image
Component chain	1. Everything to positive self-image
Component chain	2. Low ropes to positive self-image
Comprehensive chain	Trust exercises to trust and friendship
Theme	● Trust and safety
Component chain	1. Trust to safety
Component chain	2. Trust to transference
Component chain	3. Trust to utility of interdependence
Theme	● Friendship and belonging
Component chain	1. Friendship to belonging
Component chain	2. Working together to friendship and belonging
Component chain	3. Funfillment to friendship
Comprehensive chain	Fun is important
Theme	● Low ropes, group efficacy, and having fun
Comprehensive chain	1. Low ropes and everything to funfillment and fun
Component chain	2. Working together to a positive experience
Component chain	3. Low ropes and working together to sharing ideas and group efficacy
Component chain	4. Group efficacy to fun
Theme	● High activities, positive experience, and fun
Component chain	1. High activities to fun
Component chain	2. High activities to excitement
Component chain	3. Specific high elements to funfillment
Component chain	4. High activities and everything to positive experience
Theme	● Novel experience, transference and learning
Component chain	1. Novel experience to transference and learning
Component chain	2. Transference to fun
Component chain	3. Low ropes to learning

Challenge to achieving goals to fun and happiness. All the HVMs included the comprehensive chain that linked the attribute “challenge” with the outcome “achieving goals” and the values of “fun” and/or “happiness” (Table 18). This chain suggests that participants consider challenges fun if they are achievable and that both CbC and IOP programs elicited responses that led to these linkages. No additional component chains were associated with this comprehensive chain.

Table 18
Comprehensive Chain by Subgroup: Challenge to Achieving Goals to Fun and Happiness

Comprehensive Chain: Challenge to achieving goals to fun and happiness						
	All	X ^a	CbC	X	IOP	X
Sex						
male participants				X		X
female participants				X		X
Experience						
yes				X		X
no				X		X

^a X indicates the chain or elements of it were present in the HVM for that group

High activities to anxiety. The branch chain consisting of the attributes “high ropes in general,” “specific high elements,” “the height,” and/or “climbing” linked to the outcome “anxiety” was present in all HVMs of CbC program participants (Table 19). Only two maps for IOP participants showed this chain – female IOP participants and IOP participants who had never taken part in a ropes course program. This suggests that IOP

program participants experienced less anxiety during the high ropes component of their program. No additional component chains were associated with this branch chain.

Table 19

Branch Chain by Subgroup: High Activities to Anxiety

Branch chain: High activities to anxiety						
	All	X ^a	CbC	X	IOP	
Sex						
male participants				X		
female participants				X		X
Experience						
yes				X		
no				X		X

^a X indicates the chain or elements of it were present in the HVM for that group

Achieving goals and transference to positive self-image. The component chain consisting of the program outcomes “achieving goals” and “transference” to the value “positive self-image” appeared on nine of the eleven HVMs (Table 20). The only groups that did not associate “achieving goals” with “positive self-image” were female participants in CbC programs and male participants in IOP programs. Thus, the indication is that both program types provided opportunities that led to positive self-image. Five additional component chains were associated with this main component chain. The component chains were grouped into two themes: high activities, goal achievement, and positive self-image; and low ropes, everything, and positive self-image.

Table 20

Component Chain by Subgroup: Achieving Goals and Transference to Positive Self-Image

Component chain: Achieving goals and transference to positive self-image						
	All	X ^a	CbC	X	IOP	X
Sex						
male participants				X		
female participants						X
Experience						
yes				X		X
no				X		X

^a X indicates the chain or elements of it were present in the HVM for that group

The theme high activities, goal achievement, and positive self-image included three component chains: “specific high elements” to “positive self-image;” “specific high activities” to “achieving goals;” and “high ropes in general” to “positive self-image” (Table 21). The component chain made up of the program attribute “specific high elements” to the value “positive self-image” was present in the HVM for all participants in all types of programs. In general, all the HVMs for CbC participants, with the exception of participants who had never participated in a ropes course program, reported this component chain. Only the HVM for female IOP participants showed this chain. In contrast, the component chain consisting of the program attribute “specific high elements” leading to the outcome “achieving goals” was more common among IOP groups. This chain appeared in the HVMs for male, female, and previous ropes course participants in IOP programs. Only CbC participants who had never participated in ropes course

programs reported this chain. Finally, the component chain consisting of the program attribute “high ropes in general” leading to the value “positive self-image” only existed in the HVMs for IOP programs. The only IOP group for which this chain is missing is participants who have never participated in a ropes course program. This theme illustrates that the high ropes experience differed between CbC and IOP programs.

Table 21

Component Chains by Subgroup Related to the Theme High Activities, Goal Achievement and Positive Self-Image

Component chain: Specific high elements to positive self-image						
	All	X ^a	CbC	X	IOP	
Sex						
male participants				X		
female participants				X		X
Experience						
yes				X		
no						
Component chain: Specific high elements to achieving goals						
	All		CbC		IOP	
Sex						
male participants						X
female participants						X
Experience						
yes						X
no				X		

Table 21
Continued

Component chain: High ropes in general to positive self-image						
	All	X	CbC		IOP	X
Sex						
male participants						X
female participants						X
Experience						
yes						X
no						

^a X indicates the chain or elements of it were present in the HVM for that group

The theme low ropes, everything, and positive self-image included two component chains: “low ropes” to “positive self-image,” and “everything” (the program as a whole) leads to “positive self-image” (Table 22). The component chain consisting of the program attribute “low ropes” to the value “positive self-image” was predominately reported in the HVMs for IOP participants. The groups that reported this component chain were all IOP participants, male IOP participants, and IOP participants who had previously experienced a ropes course program. In contrast, the comprehensive chain connecting the program attribute “everything” with the value “positive self-image” was present in the HVMs for CbC programs. This chain was reported by all CbC participants, male participants, female participants, and participants who had previously participated in ropes course programs. This indicates that while both CbC and IOP participants considered activities other than high ropes important, the attributes they considered to be significant differed.

Table 22
Component Chains by Subgroup Related to the Theme Low Ropes, Everything, and Positive Self-Image

Component chain: Everything to positive self-image						
	All	X ^a	CbC	X	IOP	
Sex						
male participants				X		
female participants				X		
Experience						
yes				X		
no						
Component chain: Low ropes to positive self-image						
	All		CbC		IOP	X
Sex						
male participants						X
female participants						X
Experience						
yes						X
no						

^a X indicates the chain or elements of it were present in the HVM for that group

Trust exercises to trust to friendship. The comprehensive chain made up of the program attribute “trust exercises” leading to the outcome “trust” and the value “friendship” was reported by: all IOP program participants, female IOP program participants, and IOP participants who had never experienced a ropes course program (Table 23). Six additional component chains were associated with two trust-related themes: trust and safety; and friendship and belonging.

Table 23

Comprehensive Chain by Subgroup: Trust Exercises to Trust to Friendship

Comprehensive chain: Trust exercises to trust to friendship						
	All		CbC		IOP	X ^a
Sex						
male participants						
female participants						X
Experience						
yes						
no						X

^a X indicates the chain or elements of it were present in the HVM for that group

The theme trust and safety included three component chains: “trust” to “safety;” “trust” to “transference;” and “trust” to “utility of interdependence” (Table 24). The component chain “trust” leads to “safety” was reported almost equally by both CbC and IOP groups. This chain was reported by female CbC participants, male IOP participants, both CbC and IOP participants with ropes course program experience, and CbC participants without ropes course program experience. The component chain “trust” leads to “transference” indicated that trust transferred to situations outside the ropes course program. This chain was also reported almost equally by both CbC and IOP groups. It occurred in the HVMs of: all participants in all programs; all CbC participants, male IOP participants; female CbC participants; IOP participants with ropes course program experience, and CbC participants without ropes course program experience. Finally, one specific idea that transferred was the “utility of interdependence.” The component chain “trust” leads to “utility of interdependence” was present in two HVMs for each type of

program. This chain was reported by female CbC and IOP participants, IOP participants with ropes course program experience, and CbC participants without ropes course program experience. These findings indicated that trust was an important aspect of both types of programs but that only IOP participants were able to connect the outcome trust with a concrete program attribute.

Table 24

Component Chains by Subgroup Related to the Theme Trust and Safety

Component chain: Trust to safety						
	All		CbC		IOP	
Sex						
male participants						X
female participants				X ^a		
Experience						
yes				X		X
no				X		
Component chain: Trust to transference						
	All	X	CbC	X	IOP	
Sex						
male participants						X
female participants				X		
Experience						
yes						X
no				X		

Table 24
Continued

Component chain: Trust to utility of interdependence						
	All		CbC		IOP	
Sex						
male participants						
female participants				X		X
Experience						
yes						X
no				X		

^a X indicates the chain or elements of it were present in the HVM for that group

The theme friendship and belonging included three component chains: “friendship” to “belonging;” “working together” to “friendship” and “belonging,” and “funfillment” to “friendship” (Table 25). The component chain consisting of the values “friendship” and “belonging” appeared on all maps indicating that both types of programs allowed participants to make friends and develop of sense of belonging to their group. The component chain made up of the program attribute “working together” leading to the values “friendship” and/or “belonging” was mostly present in the HVMs of IOP groups. It was present in the HVMs for all groups of IOP program participants as well as in the HVM of female CbC participants indicating that IOP programs may have provided a greater opportunity for participants to work together and become friends. Finally, the component chain consisting of the outcome “funfillment” leading to the value “friendship” was present in seven of the eleven HVMs and appeared with almost the same frequency in CbC and IOP program groups. This chain indicates that participants felt one

of the benefits of being playful was the development of friendships. This chain was reported in the HVMs of all CbC and IOP participants, male CbC and IOP participants, female CbC participants, IOP participants who had previously experienced a ropes course program, and CbC participants who had never experienced a ropes course program. Thus, the findings related to this theme indicate that IOP programs may have provided slightly greater opportunities for developing friendships.

Table 25
Component Chains by Subgroup Related to the Theme Friendship and Belonging

Component chain: Friendship to belonging						
	All	X ^a	CbC	X	IOP	X
Sex						
male participants				X		X
female participants				X		X
Experience						
yes				X		X
no				X		X
Component chain: Working together to friendship and belonging						
	All	X	CbC		IOP	X
Sex						
male participants						X
female participants				X		X
Experience						
yes						X
no						X

Table 25
Continued

Component chain: Funfillment to friendship						
	All		CbC	X	IOP	X
Sex						
male participants				X		X
female participants				X		
Experience						
yes						X
no				X		

^a X indicates the chain or elements of it were present in the HVM for that group

Fun is important. All the HVMs showed linkages among the program attributes “novel experience” and “program atmosphere,” the outcomes “funfillment” and “positive experience,” and the values “excitement” and “fun” (Table 26). This comprehensive chain incorporated 11 component chains divided among three themes: low ropes, group efficacy, and fun; high activities, positive experience, and fun, and novel experience, transference, and learning.

Table 26
Comprehensive Chain by Subgroup: Fun Is Important

Comprehensive chain: Novel experience and program atmosphere to positive experience and fulfillment to fun and excitement						
	All	X ^a	CbC	X	IOP	X
Sex						
male participants				X		X
female participants				X		X
Experience						
yes				X		X
no				X		X

^a X indicates the chain or elements of it were present in the HVM for that group

The theme low ropes, group efficacy, and fun included four component chains (Table 27). The chains were: “low ropes” and “everything” to “funfillment” and “fun;” “working together” to a “positive experience;” “low ropes” and “working together” to “sharing ideas” and “group efficacy;” and “group efficacy” to “fun.” The comprehensive chain consisting of the program attributes “low ropes” and “everything” leading to the outcome “funfillment” and the value “fun” was mainly present in HVMs for IOP participants. This chain appeared in the maps for all participants in all program types, all IOP participants, male CbC participants, and female, experienced, and inexperienced ropes course program participants in IOP programs. This indicates that IOP participants considered low ropes to be more fun than CbC participants. The component chain made up of the program attribute “working together” leading to the outcome “positive experience” meant that many participants considered working together to be a positive

experience. This chain appeared much more frequently in the maps of CbC participants indicating that CbC programs were more effective in creating a positive group work environment. It was present in the HVMs for all CbC participants, male IOP participants, female, experienced, and inexperienced ropes course program participants in CbC programs, and experienced IOP participants. The component chain consisting of the program attributes “low ropes” and “working together” leading to the outcomes “sharing ideas” and “group efficacy” was present in all the HVMs for IOP participants. Only the maps for all participants in all programs and inexperienced CbC participants reported this linkage. Thus, the indication is that IOP programs were better at creating an environment where group members felt they could share ideas and be effective as a group. Finally, all five HVMs for IOP participant groups linked the outcome “group efficacy” with the value “fun.” This member chain was not evident in any other HVM indicating IOP programs provided an experience where group members found it fun to be productive as a group.

Table 27
Component Chains by Subgroup Related to the Theme Low Ropes, Group Efficacy, and Fun

Comprehensive chain: Low ropes and everything to fulfillment and fun						
	All	X ^a	CbC		IOP	X
Sex						
male participants				X		
female participants						X
Experience						
yes						X
no						X

Table 27
Continued

Component chain: Working together to positive experience						
	All		CbC	X	IOP	
Sex						
male participants						X
female participants				X		
Experience						
yes				X		X
no				X		
Component chain: Low ropes and working together to sharing ideas and group efficacy						
	All	X	CbC		IOP	X
Sex						
male participants						X
female participants						X
Experience						
yes						X
no				X		X
Component chain: Group efficacy to fun						
	All		CbC		IOP	X
Sex						
male participants						X
female participants						X
Experience						
yes						X
no						X

^a X indicates the chain or elements of it were present in the HVM for that group

The theme high activities, positive experience, and fun included three component chains: high activities to fun; high activities to excitement; specific high elements to funfillment; and high activities and everything to positive experience (Table 28). The component chain made up of program attributes related to high activities (“specific high elements,” “high ropes in general,” “climbing,” and “height”) leading to the value “fun” was predominantly reported in the maps of IOP groups. This chain appeared in the HVMs for: all IOP participants, female CbC participants; and all IOP groups except that of experienced ropes course participants. This indicates that most IOP groups considered high activities fun while most CbC groups did not. The component chain consisting of program attributes related to high activities leading to “excitement” was generally found in the maps of CbC groups indicating that participants considered the high ropes experience thrilling. This chain was found in the HVM for all participants in all programs and in the HVMs of male and female CbC participants. The component chain consisting of the program attribute “specific high elements” leading to the outcome “funfillment” appeared in the HVMs of male CbC participants, IOP participants overall, and IOP participants without previous ropes course program experience. Thus, both programs were effective at providing the benefits of play during the high ropes experience. In addition, the component chain made up of the program attributes related to high activities and “everything” leading to the outcome “positive experience” was reported by all participants in all programs, CbC participants overall, IOP participants overall, and male CbC participants indicating that participants in both types of programs enjoyed the overall experience as well as the high activities.

Table 28
Component Chains by Subgroup Related to the Theme High Activities, Positive Experience and Fun

Component chain: High activities to fun						
	All		CbC		IOP	X
Sex						
male participants						X
female participants				X ^a		X
Experience						
yes						X
no						
Component chain: High activities to excitement						
	All	X	CbC		IOP	
Sex						
male participants				X		
female participants				X		
Experience						
yes						
no						
Component chain: Specific high elements to fulfillment						
	All		CbC		IOP	X
Sex						
male participants				X		
female participants						
Experience						
yes						
no						X

Table 28
Continued

Component chain: High activities and everything to positive experience						
	All	X	CbC	X	IOP	X
Sex						
male participants				X		
female participants						
Experience						
yes						
no						

^a X indicates the chain or elements of it were present in the HVM for that group

The theme novel experiences, transference, and learning included three component chains: “novel experiences” lead to “learning” and “transference;” “transference” leads to “fun;” and “low ropes” leads to “learning” (Table 29). All the HVMs, except CbC participants who had experienced a ropes course program, included the component chain that began with the program attribute “novel experience” and included the outcomes “transference” and “learning.” This indicates that participants in both types of programs were exposed to a new environment that encouraged learning. The component chain beginning with “transference” leading to the value “fun” was generally present in the HVMs of IOP participants. This chain was found in the maps for IOP participants overall, female IOP and CbC participants, and experienced and inexperienced IOP participants. This suggests that IOP programs were more effective at providing an experience that enabled participants to see the fun in experiences beyond the ropes course. Finally, the HVM for all participants in all programs included the program attribute “low ropes”

leading to the outcome “learning.” This would seem to indicate that all participants in all programs learned from their low ropes experience but, strangely, no other HVM showed the presence of this chain.

Table 29

Component Chains by Subgroup Related to the Theme Novel Experience, Transference, and Learning

Component chain: Novel experience transfers to learning						
	All	X ^a	CbC	X	IOP	X
Sex						
male participants				X		X
female participants				X		X
Experience						
yes						X
no				X		X
Component chain: Transference to fun						
	All		CbC		IOP	X
Sex						
male participants						
female participants				X		X
Experience						
yes						X
no						X

Table 29
Continued

Component chain: Low ropes to learning						
	All	X	CbC		IOP	
Sex						
male participants						
female participants						
Experience						
yes						
no						

^a X indicates the chain or elements of it were present in the HVM for that group

Overall, the HVMs provide important insight into what participants value, the outcomes achieved through participation in ropes course programs, and the program attributes that led to these outcomes. Although there was similarity between the content categories and linkages reported by various groups of CbC and IOP participants, there were also important differences. This suggests that differences in program design and delivery influence participant experiences. Possible explanations for differences between HVMs and the congruence between the results of the means-end analysis and experience sampling will be explored in the next chapter.

CHAPTER V

DISCUSSION, RECOMMENDATIONS, AND CONCLUSIONS

The premise of ropes course programs is that opportunities for interpersonal and intrapersonal growth are provided when individuals are placed into difficult and demanding environments where the outcome, although uncertain, can be influenced by their knowledge, skills, and abilities (Green et al., 2000; Neill & Dias, 2001; Priest, 1999; Priest & Gass, 1997; Wurdinger, 1997). The intent is for participants to transfer their learnings from the ropes course experience to their everyday lives (Gass & Priest, 1993; Meyer & Wenger, 1998; Priest & Gass, 1997; Schoel & Maizell, 2002). Numerous studies have been conducted to determine the benefits realized from participating in ropes course programs. There are, however, two general questions that research on adventure-based programs such as ropes courses has struggled to answer: first, what types of experiences best provide the opportunities that may create the potential for positive development? Second, what program attributes are important to realizing particular outcomes?

This study focused on the construct of meaningful involvement, the concerted and voluntary engagement in a complex environment that participants find personally rewarding (Kleiber et al., 1986; Larson, 2000; Roth et al., 1998), to assess the impact of two different approaches to ropes course program design and delivery: Challenge by Choice (CbC) and Inviting Optimum Participation (IOP). Specifically, the purpose of the study was to: 1) determine if there is a measurable difference in experience of meaningful involvement between CbC and IOP programs and 2) identify the program attributes, outcomes, and values that participants reported as significant under each approach and

explore the various linkages among them. The goal was to describe the program features that increased meaningful involvement opportunities so that ropes course instructors will be able to consistently design and deliver more effective ropes course programs.

The study used a multidimensional approach that included experience sampling and means-end analysis. To ensure the study did not interfere with the ropes course experience, individuals were involved in only one aspect of the study: 1) an experience sampling survey related to meaningful involvement during ropes course activities or 2) a means-end laddering survey related to program attributes, outcomes, and values. To measure the degree of meaningful involvement, 151 participants completed experience sampling forms immediately after pre-selected program activities. Multivariate analysis of variance (MANOVA) was performed to determine if CbC participants differed from IOP participants regarding the degree of meaningful involvement they experienced during high (belayed) or low (non-belayed) ropes course activities. To identify program attributes, outcomes, values, and their linkages, 209 participants completed a means-end laddering questionnaire at the end of their ropes course program. The program attributes, outcomes, and values and the linkages among them were organized into Hierarchical Value Maps (HVMs) – tree-like network diagrams that graphically display the aggregate result of the means-end ladders identified by participants (Gengler et al., 1995).

*The Influence of Program Type on Participant Experiences
of Meaningful Involvement*

The CbC and IOP ropes course programs in this study included a variety of low (unbelayed) activities, such as cooperative games and de-inhibitizers, communication

activities, trust exercises, low ropes elements, and problem-solving initiatives as well as high (belayed) activities such as a high ropes course, climbing wall, or Giant Swing. Time, however, is limited during one-day programs and participants could not complete experience sampling forms for all six components of a ropes course program without negatively affecting their experience. Moreover, program design and delivery that is informed by context is a key element of the IOP approach. It would, therefore, have been undesirable to pre-select the ropes course activities to be surveyed. Thus, for the purpose of this study, participants were asked to complete four surveys during their program and the activities participants experienced were categorized as either high (belayed activities) or low (all non-belayed activities). This criteria was selected because of differences in the focus of these two categories of activities. High activities tend to have an individual focus while low activities tend to have a group focus (Bisson, 1999; Rohnke, 1999).

Each experience sampling form consisted of variables describing the construct of meaningful involvement including the areas of engagement, choice and view of self. Because the intent of this study was to describe the experience of participants in different situations, the unit of analysis was the experience and not the individual. Thus, each of the 614 reported instances of participation in ropes course activities counted as independent measurements. Individual scores collected after each experience were transformed into z-scores to adjust for each person's mean and standard deviation (Chalip et al., 1994).

Meaningful Involvement during High Activities

Results from a MANOVA on the experience sampling data from CbC and IOP programs showed a significant main effect for the degree of meaningful involvement

experienced during high activities. Thus, the null hypothesis of no difference between CbC and IOP programs can not be accepted. Follow-up ANOVAs indicated that choice was significantly higher in programs using the IOP approach.

Choice was clearly important to study participants during the high activities. All HVMs included the content category “specific high elements,” which indicates that participants were able to identify preferences among the elements that were available to them. Moreover, participants mentioned the category “specific high elements” more frequently than the category “high ropes in general.” Finally, the category “specific high elements” was often linked directly or indirectly to the value “positive self-image,” demonstrating the importance of choice to meaningful involvement.

Choice is an important principle in adventure-based programs. The belief is that people who choose to participate in an activity are more likely to attribute their resultant success (or failure) to themselves (Priest & Gass, 1997). Research findings regarding the importance of choice in adventure-based programs, however, have varied. Wagner and Roland (1992) found that group members who were required to attend adventure-based programs perceived their group efficacy to be higher after the program. Moreover, their increase in perceived group efficacy was similar to that of voluntary participants. Similarly, a qualitative study of female participants in outdoor adventure programs by Humberstone and Lynch (1993) found that the greatest increases in self-image occurred in individuals who initially had the most negative perception of their capabilities. These girls often indicated that they were glad they had been required to make an effort and participate in the adventure activities. In contrast, a qualitative study of court-referred

adolescents concluded that the positive development associated with participation in an adventure-based program may be hampered when choice is not available to participants (Holyfield and Fine, 1997). Finally, Eccles and Barber (1999) found that adolescents selected extracurricular activities that allowed them to be effective, successful, and connected to significant others. In turn, activity choice was likely to both reinforce and be reinforced by view of self especially as it related to sense of belonging and self-efficacy.

Csikszentmihalyi (1975) has suggested that creating meaningful experiences requires offering participants a variety of activities that provide a range of challenges which are congruent with an array of skills. He noted “...since the same challenges are unlikely to produce flow in people of very different skills, prescribing rock climbing to all is no solution...” (p. 100). The findings of this study are, therefore, not surprising because the CbC and IOP programs differed in their approach to high activities. Tight design specifications for IOP programs made it easy for ropes course instructors to create a challenge environment with multiple choices. The features required of IOP programs included: a minimum of two different types of access to the course; the availability of at least two different elements including choice regarding which element to do and the order of elements; and the option of deciding how much of an element to do with additional challenge options such as blindfolds and suggestions for associated tasks (clapping, catching a ball) readily available.

In contrast, the high ropes component of CbC programs lacked at least one and often more of these features. At one CbC program site, for example, the high ropes course used a static belay system. Participants used an aluminum ladder to access the central

platform and then could elect to stay on the platform or choose one of five elements that started from this location. Choice was plentiful (there were more than 10 elements) but also limited since getting back to the ground required returning to the platform. Thus, climbers could not try an element and change their minds half-way through. In addition, elements that did not begin from the platform could not be reached directly but first required the completion of a connecting element.

The challenge environment plays an important role in choice (Parker, 1981). Participants are more likely to benefit from an experience when they are presented with the opportunity to make choices freely, thoughtfully, and in context (Attarian, 1996). In addition, since making a choice may involve not only selecting the alternative but first identifying possible alternatives, individuals are more likely to select preferred options that are cognitively available (Posavac et al., 1997). Thus, the decision-making of novices (ropes course program participants) who have little familiarity with the potential action opportunities differs from experts (ropes course program instructors) who have extensive knowledge of the challenge environment (Posavac et al., 1997).

The difference in the degree of choice offered by the two challenge environments was evident during data collection. CbC program participants often asked the researcher for an explanation of the variable “alternatives for participation” while this almost never occurred with IOP program participants. Neither CbC nor IOP participants had difficulties with the variable “freedom to choose.” This observation seems to suggest that CbC participants knew they had choices but were unable to identify what action opportunities were available.

Literature on CbC programs also suggests a limited perception of action opportunities associated with high ropes activities. In a study of an adventure camp program that offered high ropes, climbing wall and rappelling within a CbC philosophy, Hastie (1995) found that when choice of participation was paired with the absence of a clear options, individuals used completion as their criteria for success. Similarly, Gass and Priest (1993) provided an example of transference that equates coming down before completing high ropes course element with the relapse of undesirable behavior such as substance abuse.

Eccles and Wigfield (Eccles & Wigfield, 1995; Wigfield & Eccles, 1994) indicated that expectation for success is not the only, or even the most important, variable considered when making choices. Participants may also consider how enjoyable they find engagement in the activity, how important doing well is to their view of self, and what influence a task may have in relation to a larger goal. They found that adolescents tended to select activities they were good at, less likely to select activities they perceived to be difficult, and ignored activities considered too difficult. This is congruent with Csikszentmihalyi's (1990) suggestion that for an activity to be meaningful, participants must possess a base level of skill and understanding. Although CbC program participants were similar regardless of whether they took part in the experience sampling or means-end analysis parts of the study, one way to determine how choice is linked to program design is to have study participants complete both types of surveys so that more accurate triangulation of the data is possible. Since the short duration of one-day programs meant

that participants could not complete both surveys without adversely affecting their ropes course experience, longer programs would need to be studied.

Meaningful Involvement during Low Activities

There was no significant difference between CbC and IOP programs in participants' experience of meaningful involvement during low (non-belayed) activities. There are several possible explanations for this finding. First, there may indeed be no difference between the two types of programs with regard to the meaningful involvement opportunities provided during low activities. Most low activities focus on developing communication, cooperation, teamwork, and leadership within the group (Holyfield & Fine, 1997; Schoel et al., 1988). Thus, even without design changes there are often more action opportunities available during low activities than during high activities. Ropes course instructors may still be interested in using the IOP model during low activities, however, because it provides a different yet apparently equivalent approach to rope course program design and delivery. Since IOP programs provide greater opportunities for meaningful involvement during high activities, it may be beneficial to use IOP as the program model overall. Determining more specifically how meaningful involvement differs between the CbC and IOP approaches would likely require replicating this study using ropes course programs that last more than one day. With a longer time period, it would be possible to include all six ropes course program components: games and de-inhibitizers, communication activities, initiatives, low ropes, trust exercises, and high ropes in the experience sampling and more detailed comparisons between CbC and IOP program approaches could be made. In addition, collecting experience sampling data for

the week prior to ropes course program would provide a basis for comparing ropes course program experiences with those in the participants' daily lives.

A second explanation for the lack of significant differences between CbC and IOP programs during low activities may be that the design specifications for low activities were not sufficiently developed. Tighter design specifications, similar to those developed for high activities, might be necessary to facilitate comparison among the large number of activities that fall into this category. There was anecdotal evidence relating to the need for tighter design. During the course of data collection during low activities both CbC and IOP participants' often asked the researcher for an explanation of the variable "alternatives for participation." While it is possible that participants had difficulty understanding the question and the variable should be re-phrased as "options for participation" or "choices for participation", there is another explanation. The request for an explanation of "alternatives for participation" was more common during CbC programs and occurred almost exclusively during the low components of IOP programs even though IOP participants had often already completed a form following their high ropes experience. This indicates that participants understood the question. As was the case with high activities, neither CbC participants nor IOP had difficulties with the variable "freedom to choose." Thus, the suggestion is that participants knew that they had choices but had difficulties identifying the various action opportunities available during low ropes. Since the keystone of the IOP model is numerous action opportunities within a single, inclusive design, the finding of no difference may suggest that more consistent activity design is needed. The recommendation is to develop tighter design specifications for low

activities including games, communication activities, trust exercises, initiatives, and low ropes and then replicate the study.

A third explanation for finding no significant difference in the meaningful involvement opportunities provided by the two program types during low activities may be the instrument used to gather data. Anecdotal evidence during data entry suggests there were differences between the experiences of CbC and IOP participants that were not captured. The variable “Why were you doing that ...” assessed motivation for participating. Consistent with previous studies on flow, study participants were provided with a choice of three responses: “had to,” “wanted to,” and “nothing else to do.” CbC participants’ interpretation of “had to” was generally associated with low scores while IOP participants’ interpretation of “had to” was generally associated with high scores. The responses seem to imply that “had to” was interpreted in two ways: “I had to participate because my role was important to the group’s success” or “I had to participate because I was externally compelled.” This interpretation is congruent with the small effect size (0.18) found for engagement between CbC and IOP participants in low activities and supports two of Kurt Hahn’s oft cited quotes on the necessary balance between participation and choice. The suggestion of external compulsion to participate is similar to “... I, unlike you, consider it culpable neglect not to guide and even plunge the young into experiences which are likely to present opportunities for self-discovery” (cited in Richards, 1999, p. 69). Similarly, necessity to the group’s effort is congruent with Hahn’s (cited in Schoel & Stratton, 1990) quote of:

There are three ways of trying to capture the young: one is to preach at them – I’m afraid that is a hook without a worm; the second is to coerce them.. and tell them “You must volunteer”; the third is the an appeal that never fails, “You are needed.”

The observation is that participants may consider motivation for participation in more than three ways but the survey question did not allow them to adequately differentiate their experiences. Future studies of adventure-based programs that use experience sampling should probably refine the ESF questionnaire by replacing “had to” with two responses: “I felt needed by my group” and “I felt forced to participate” or incorporating both of these items.

*Linkages among Program Attributes, Outcomes and Values under
Challenge by Choice and Inviting Optimum Participation*

Program Attributes

One of the initial steps in constructing an HVM is categorizing responses as either an attribute, consequence, or value based on their level of abstraction (Reynolds & Gutman, 1988). An attribute represents the lowest level of abstraction and was defined as a physical or observable characteristic (Gengler et al., 1995) that could be affected by program design. Both CbC and IOP participants reported program attributes relating to the adventure experience and ropes course components. All HVMs included high activities. All the HVMs for IOP program participants also included “low ropes,” “trust exercises,” and “communication activities.” Among the HVMs for CbC participants, however, only participants who had no experience with ropes course programs mentioned any low activities. The low activities mentioned were “games” and “low ropes.” This finding suggests that the second null hypothesis of no difference between CbC and IOP programs

can not be accepted. The implication is that low activities in IOP programs are designed and delivered in a way that differs from CbC programs. Moreover, the difference is of a magnitude that participants in IOP programs consider low activities an important component of the ropes course experience while CbC participants do not.

Program Outcomes

Means-end analysis defines consequences as any direct or indirect, positive or negative, functional, social or psychological effects associated with a product (Klenosky et al., 1993). When means-end analysis has been used to investigate recreation experiences, the terms benefits and outcomes have been used as synonyms for the term consequences (Frauman & Cunningham, 2001; Frauman et al., 1998; Goldenberg et al., 2000; Klenosky et al., 1993; Klenosky et al., 1998). A major difference between CbC and IOP programs was the program outcomes that were present in the various HVMs. In CbC maps, “group efficacy” tended to be absent. All IOP maps, however, reported the outcome “group efficacy.” Although “anxiety” was present in some IOP maps, it appeared on all CbC maps despite a high percentage of participants who had previously experienced a ropes course program and a program sequence where high activities are placed at the end of the program. This finding once again suggests that the second null hypothesis of no difference between CbC and IOP programs can not be accepted. The implication is that the outcomes of IOP programs differ from those of CbC programs. This finding suggests that the design and delivery of programs affects program outcomes and that IOP programs are more effective at creating group efficacy and minimizing anxiety.

Program Values

According to means-end analysis, a value expresses the underlying personal beliefs associated with an experience (Frauman & Cunningham, 2001). Values represent the highest level of abstraction and transcend specific situations (Frauman et al., 1998). Outcomes tend to reinforce values (Frauman et al., 1998). Study participants valued “positive self-image,” “friendship,” “belonging,” “happiness,” “fun,” and “excitement.” CbC participants tended to include “excitement” as a value while IOP participants did not. Once again, this finding suggests that the second null hypothesis of no difference between CbC and IOP programs cannot be accepted. The implication is that CbC and IOP programs may reinforce different values and that CbC programs may be more exciting. The suggestion is that program design and delivery plays a significant role in participant experience.

Linkages

The benefit of means-end analysis is that it not only delineates the program attributes, outcomes, and values participants report as significant, but more importantly, it also identifies the linkages among these concepts (Goldenberg et al., 2002). The key linkages that emerged from this exploration of meaningful involvement in ropes course programs include: 1) challenge connects to achieving goals, connects to fun and happiness; 2) high activities connect to anxiety; 3) achieving goals and transference connect to positive self-image; 4) trust exercises connect to trust connects to friendship; and 5) fun is important. Within these chains and their associated component chains, differences are reported by participants in the two program types.

Challenge Connects to Achieving Goals Connects to Fun and Happiness

All the HVMS included associations that linked the program attribute of “challenge,” the outcome “achieving goals,” and the value of “fun” or “happiness” which suggests that participants consider challenges fun if they are achievable. This finding is congruent with Davis et al. (1995) who found that adolescent ropes course program participants identified fun and the perception of challenge being fun as important to their ropes course program experiences. The finding is also similar to McKenzie’s (2000a) study of Outward Bound participants which found that challenge led to positive program outcomes and lack of challenge led to negative program outcomes. Dyson (1995) found that students in a Project Adventure-based physical education classes enjoyed challenging themselves. Both Hultsman (1996) and Hastie (1992) found that participants often suggested increasing challenge as a way of increasing the enjoyment resulting from participation. Finally, Ibbetson and Newell (1996) found that participants whose groups performed well during a ropes course program reported higher personal and group outcomes than participants whose groups performed poorly. This is congruent with individuals in the Goldenberg et al. (2000) study who identified task accomplishment as a central outcome of ropes course program participation.

The connection among challenge, achieving goals, and fun has significant implications for ropes course program design and delivery. Lisson (2000) writes that with the CbC approach, much emphasis has been placed on participant choice and less emphasis has been placed on the creation of varied challenge opportunities within the adventure experience. With the popularity of shorter adventure-based programs

(Hovelynck, 2003), providing only limited challenge options becomes problematic. Challenges that are too difficult for the achievement of goals discourage meaningful involvement. Challenges that make achieving goals too easy are not enjoyable. Since it is difficult to determine what any one participant considers a challenge, a variety of action opportunities connected to the central task of the activity need to be provided.

High Activities Lead to Anxiety

Anxiety is defined as "... an emotional state characterized by a sense of fear, apprehension, sometimes agitation, and often vigilance" (Davis-Berman & Berman, 2002, p. 307). Anxiety is related to the perception of risk and uncertainty. While some level of stress increases performance, if anxiety is too high, performance may suffer (Bandura, 1977; Bunting, Little, Tolson & Jessup, 1986; Bunting et al., 2000; Davis-Berman & Davis, 2003; Ewert, 1989; Holyfield & Fine, 1997). Participants may not even attempt the task if anxiety is too high, thus limiting their opportunity to benefit from the situation (Bandura, 1977; Ewert, 1989; Kemp, 1998).

The branch chain which consisted of program attributes associated with high activities ("high ropes in general," "specific high elements," "climbing," and "height") leading to the outcome "anxiety" was present in all HVMs constructed from the ladders of CbC program participants. This finding is notable because of the large number (63 %) of individuals in CbC programs who had previously participated in ropes course programs. In addition, all CbC participants experienced high ropes last in their program sequence. In contrast, IOP participants often experienced the high ropes component much earlier in their program. According to ropes course program philosophy (Bisson, 1999; Rohnke,

1999), these differences in sequencing would suggest that IOP participants should experience anxiety. This finding, however, suggests that CbC program sequencing may not reduce anxiety but builds anticipation. For example, researchers have speculated that even when participation is not a requirement, simply being in an environment where active participation is expected may increase stress levels (Bunting et al., 2000).

Only the HVMs of female IOP participants and IOP participants who had never taken part in a ropes course program included “anxiety.” This finding of limited anxiety in IOP programs is congruent with the findings of a study of university students involved in an outdoor experience practicum. Young and Ewert (1992) found that female participants consistently reported higher levels of anxiety. Moreover, levels of anxiety became lower as the program progressed. Ewert (1988) found similar results – female Outward Bound participants were more fearful and fears decreased during the experience. Thus, IOP program design and delivery may reduce anxiety but not to the extent desired by female participants and participants without previous ropes course experience.

Participants need to have an adequate level of skill to experience meaningful involvement and flow. When skill level is inadequate for the challenge, anxiety results (Csikszentmihalyi, 1975). Studies of flow in whitewater kayakers (Jones et al., 2000) and low ropes course program participants (Freeman, 1993) found that challenge environments which produced flow for some participants often produced anxiety for other participants. Similarly, data from Bialeschki and Henderson’s (1992) study of flow during camp experiences also indicated that activities with the highest percentage of participants in flow also had the highest percentage of participants in anxiety. Many CbC program

participants experienced a static high course, which requires more self-reliance and may also create a greater perception of risk, so this may provide an explanation for the findings.

The activities in adventure-based programs pose not only physical challenges but also psychosocial ones (Bunting et al., 2000). For example, Ewert (1988) reported that socially-based fears were commonly reported in outdoor adventure settings. These fears included rejection by the group and not being able to contribute. Priest (1996) points out that unlike low activities which often have a group focus and provide simultaneous participation opportunities, the high ropes experience is much more individually focused and allows the entire group to see how well a climber is doing. Thus, the reduced anxiety reported in IOP programs may have been the result of the greater number of simultaneous action opportunities that were provided.

Anxiety and the perception of risk also varies from participant to participant. Ropes course instructors, however, may find it difficult to understand how participating in less challenging activities can lead to positive outcomes for program participants (Bunting, 1999). Ropes course program instructors must remember, however, that they are highly skilled at many ropes course program activities. Thus, ropes course program instructors may require higher levels of challenge to receive the same benefits that participants may receive when engaging in less challenging activities (Bunting, 1999). Exposing participants to exactly the same activities may, therefore, create anxiety (Ewert, 1989). Studies have found that found that less physically fit individuals had greater levels of anxiety when anticipating outdoor adventure activities than fit individuals (Bunting et

al., 1986). One explanation is that less fit individuals perceive the same activities as more challenging because of their lack of previous success (and hence limited fitness) in physical tasks (Bunting et al., 2000). Although the effect sizes for view of self based on the meaningful involvement data were positive, indicating the IOP programs led to a higher view of self than did CbC programs, the effect sizes for female participants (0.18) and participants without experience (0.16) were smaller than those for other IOP groups.

The issues associated with anxiety go beyond negative experiences. In a study of university students with low self-esteem, Kemp (1998) reported that low self-esteem participants seemed unwilling to become meaningfully involved during low activities including games, low ropes, and initiatives. The study found no difference in the self-esteem of participants in the experimental and control groups. Numerous articles (i.e. Davis-Berman & Davis, 2002; Humberstone & Lynch, 1991; Kemp, 1998; Kohut, 1997; Mitten, 1992; Mitten, 1998) indicate that the creation of a safe and supportive environment is key to the involvement of participants. Wigfield and Eccles (1994), for example, found that a challenge environment that provides few opportunities for decision-making, little support, and limited choice does little to motivate participation and may indeed lead to non-participation. In contrast, environments that reduce anxiety may improve both performance and participants' view of themselves (McGowan, 1986).

Achieving Goals and Transference Leads to Positive Self-Image

The value "positive self-image" was present in all HVMs. This finding is consistent with Hultsman (1996) who found that adolescents valued recreation programs which helped them improve their skills and talents, developed self-confidence, generated

faith in their abilities, and contributed to a greater understanding of themselves. View of self, one area of meaningful involvement, was not significantly different between IOP programs and CbC programs for either high or low activities at the $p = 0.05$ level. However, view of self was greater in IOP programs during high activities and significantly different at $p = 0.10$. There was also a small effect size (0.22) indicating that IOP programs are somewhat more effective in this regard than CbC programs.

It would have been interesting to collect survey data on view of self some time after the program participation. While some research of adventure-based programs has found that constructs related to view of self diminish over time (for example Propst & Koesler, 1998), other research has indicated that constructs related to view of self actually increase (Davis et al., 1995; Hattie et al., 1997; Paxton & McAvoy, 2000; Newberry & Lindsay, 2000). Thus, a delayed follow-up might have revealed a greater difference between program types. Previous research on CbC ropes course programs, however, indicates that view of self is positively affected by participation in ropes course programs (Constantine, 1993; Newberry & Lindsay, 2000; Nyhus, 1993; Rastall, 1998). Future research should, therefore, specifically investigate the relationship between view of self and participation in IOP programs.

The component chain associated with the value “positive self-image” included the outcomes “transference” and “achieving goals” which suggests that participants transferred the feeling they received from achieving goals to positive self-image. This chain appeared on nine of the eleven HVMs. The only groups that did not associate “achieving goals” with “positive self-image” were female participants in CbC programs

and male participants in IOP programs. The various groups also made linkages related to the themes of: high activities, goal achievement, and positive self-image; and low ropes, everything, and positive self-image.

High activities, goal achievement and positive self-image. The HVM for all participants in all types of programs indicated linkages between “specific high elements” and “positive self-image” and “high ropes in general” and “positive self-image.” The presence of these two linkages, however, did not adequately describe the variation that exists between the two program types. Except for the HVM of CbC participants who had never participated in a ropes course program, all the HVMs for CbC participants reported a link between “specific high elements” and “positive self-image.” Only the HVM for female IOP participants showed this chain. In contrast, IOP groups (male, female, and experienced participants) were more likely to connect “specific high elements” to “achieving goals.” Only CbC participants who had never participated in ropes course programs reported this chain. These linkages are congruent with McKenzie (2000a) who found that the program components that resulted in the greatest increases in positive self-image allowed individuals to challenge themselves and achieve success. Participants identified rock climbing, which has many similarities with high ropes activities, as one activity that possessed these characteristics.

The component chain consisting of the program attribute “high ropes in general” to the value “positive self-image” highlights the difference between CbC and IOP programs. This chain only existed in IOP programs and the only group for which it was missing was participants who had never participated in a ropes course program. Thus, it

seems that CbC participants connected “specific high elements” to “positive self-image” while IOP participants connected “high ropes in general” to “positive self-image.”

It appears that the overall high ropes experience differs between the two types of programs. In IOP programs, participants’ choice of specific elements led to goal achievement and the overall high ropes experience led to positive self-image meaning that participants set goals and selected elements that allowed them to reach their goals. In CbC programs, it was “specific high elements” that led to “positive self-image” and the overall high ropes experience was not significant indicating that opportunities for choice and goal setting may have been less evident. Given the differences in activity design, the speculation is that less choice under the CbC approach meant that specific elements were more important to positive self-image than the activity as a whole. This interpretation is similar to Dyson’s (1995) finding that students in Project Adventure-based physical education classes felt that challenges were more meaningful when they were able to take ownership for what they were trying to achieve. The implication for ropes course program design, therefore, is that like challenge and anxiety, the high ropes elements that lead to positive self-image are highly personal. Only when individuals have numerous and varied options for participation does the overall experience have the potential to lead to positive self-image. This does not imply that positive self-image was curtailed in CbC programs but rather that the pathways available for reaching this goal were more limited. Since view of self had a small effect size of 0.22 and programs were different at $p = 0.10$, this explanation seems appropriate.

Low ropes, everything, and positive self-image. All the HVMs for IOP program participants included the program attributes “low ropes,” “trust exercises,” and “communication activities.” In the HVMs for CbC participants, however, only participants who had never taken part in a ropes course program mentioned any low activities. The low activities mentioned were “games” and “low ropes.” Thus, it is not surprising that only HVMs of IOP participants reported a component chain that linked the program attribute “low ropes” with the value “positive self-image.” The three groups that reported this chain were: all IOP participants, male IOP participants, and IOP participants who had previously experienced a ropes course program. One explanation for the presence of this chain is that IOP participants considered low ropes to be more valuable components of their ropes course program than did CbC participants. Since there was a small effect size (0.18) for engagement and all the effect sizes were positive, this suggests that low activities in IOP programs may have provided slightly increased opportunities for meaningful involvement.

The data collected in the meaningful involvement portion of the study indicate that there was no significant difference between CbC and IOP programs during low activities. An alternate explanation may be that there may simply be a difference in the response patterns of CbC and IOP program participants who completed the laddering questionnaires. Among IOP program participants, the researcher observed that individuals’ responses tended to focus on the activities they were doing immediately prior to receiving the survey. If the participants had just finished high ropes they wrote responses about this component. If participants had just completed low activities, the responses seemed more likely to include “trust exercises,” “communication activities,”

and “low ropes.” Because of CbC program sequencing, CbC participants always completed the high component immediately prior to completing the laddering survey. Thus, differences in the types of ropes course program components mentioned may reflect what participants did last and this finding may simply be an artifact of the data collection procedures that were used. Since the HVMs for all CbC participants, male participants, female participants, and participants who had previously participated in ropes course programs linked the program attribute “everything” (the program overall) with the value “positive self-image,” this explanation holds some merit.

In addition, IOP participants completed fewer ladders than CbC participants which indicates that IOP participants might have been more rushed when completing their surveys. Although collecting data away from the site may have affected the comparability of the real-time experience sampling data and the post-hoc means-end laddering data (Stewart & Hull, 1992), this approach might have allowed IOP participants to complete more ladders and could, therefore, have facilitated the comparison of CbC and IOP maps. The researcher is not aware of means-end laddering literature which has considered time pressure and post-program euphoria (Hattie et al., 1997) as it relates to the identification of program attributes, outcomes, and values so it is difficult to speculate how data collection may have affected the results. Goldenberg (2002) does, however, mention that investigating and comparing participant responses solicited some time after the completion of an adventure program may be a fruitful line of investigation. Thus, future studies should include longitudinal follow-up regarding program attributes, outcomes, and

values to determine more accurately how low activities are connected to positive self-image and the impact the timing of data collection has on results.

Trust Exercises Lead to Trust and Friendship

The purpose of trust exercises is to develop trust among group members. Thus, it is not surprising that participants associated the program attribute “trust exercises” with the outcome “trust” and the value “friendship.” The three HVMs that included this comprehensive chain were all IOP program participants, female IOP program participants, and IOP participants who had never experienced a ropes course program. This finding mirrors Priest (1998) who found that corporate groups exposed to ropes course program activities addressing trust increased their overall level of trust over a control group that did not participate in a ropes course program. In addition, the group that participated in more physical trust activities reported higher levels of dependability (willingness to depend on others) and encouragement (actively supporting others) than the group exposed to less physical activities. Additional themes in the HVMs that dealt with the outcome of trust included: trust and safety; and friendship and belonging.

Trust and safety. Given the human involvement in safety procedures for low activities (spotting) and high activities (belaying), the component chain consisting of the program outcome “trust” and the value “safety” was not unexpected. This chain was reported by three CbC groups (female participants and participants with and without ropes course program experience) and two IOP groups (male participants and participants with ropes course program experience). Aside from the common sense aspect of this component chain, Dyson (1995) found that students believed trusting others was

especially important during adventure activities. Participants in Priest's (1998) study commented that the physical nature of the ropes course program activities meant that they felt obligated to care for one another's safety. Finally, Witman (1987) found that adolescents in treatment who participated in a low ropes program became more cooperative and trusting than their peers who participated in a social recreation program or no program at all.

The component chain of the program outcomes "trust" and "transference" (transfer to situations outside the ropes course program) was reported in the HVM of all participants in all programs. It was present in three CbC groups (all CbC participants, female participants, and participants who had never experienced a ropes course program). It was also present in two IOP groups (male participants and participants who had previously experienced a ropes course program). "Utility of interdependence" was one specific program attribute that participants reported as transferring to situations outside the ropes course program. This chain was reported by two CbC groups (female participants and CbC participants who had not experienced a ropes course program) and two IOP groups (female participants and those who had experienced a ropes course program). This indicated that learning to depend on others and having others depend on them was beneficial to some participants. It is unclear why chains related to trust occur in some groups but not others. There does not appear to be a connection to either program type, sex, or experience. One explanation is that these findings reflect the pre-existing social context in the groups that were studied. For example, Bobilya and Akey (2002) found that students who were part of an academic learning community were able to

transfer the support and encouragement from their ropes course experience to academic support during their first year of university. Since the groups that supplied data for this study had different histories and reasons for existing, it is possible that only those groups that considered trust important outside the ropes course program reported this outcome. Although sample size did not allow for additional specific instances of transference related to trust to appear in the HVMs, Bobilya and Akey (2002) found that first-year university students also identified increased self-trust and trust of other group members as outcomes of ropes course program participation.

Friendship and belonging. The link between “friendship” and “belonging” appeared on all maps and these values have been identified as having a strong relationship with participation in recreation programs. Hultsman (1996) found that young adolescents (ages 11 to 15) identified friendship as an important aspect of recreation programs. The participants in her study valued spending time with their peers and disliked situations where they felt unwelcome or ostracized. These findings were also congruent but not identical with Goldenberg (1997; Goldenberg et al., 2000) who found that university-aged students who participated in a one-day ropes course program identified outcomes such as being more effective and efficient, building relationships, and developing understanding. Similarly, participants in Goldenberg’s (2002) study of North Carolina Outward Bound programs identified the outcome of relationships with others/teamwork. These results indicate that both CbC and IOP programs provided their participants with opportunities to develop a sense of friendship and belonging.

The HVMs of all groups of IOP program participants as well as the HVM of female CbC participants indicated that the program attribute “working together” led to the value of “friendship.” While this finding may appear unusual given that the participants were members of intact groups and thus knew each other, it underscores other research findings that indicate that cooperating with others during ropes course program activities leads to a better understanding of one’s peers and empathy with their experience (Bobilya & Akey, 2002; Dyson, 1995).

Finally, the outcome “funfillment” was associated with the value “friendship” in seven of the eleven HVMs indicating that participants felt one of the benefits of being playful was the development of friendships and that friendships were reinforced by having fun together. This component chain was reported in the HVMs of four CbC groups (all participants, both male and female participants, and participants who had never experienced a ropes course program). The chain was also reported by three IOP groups (all participants, male participants, and participants who had previously experienced a ropes course program). This finding is congruent with students in Bobilya and Akey’s (2002) study who indicated that a ropes course program provided an enjoyable way of developing friendships.

Fun Is Important

“Fun” was the most frequently mentioned value in all the HVMs. It was consistently mentioned by the greatest number of participants and was often connected to other values including “excitement,” “happiness,” and “friendship.” All the HVMs contained the comprehensive chain consisting of the program attributes “novel

experience” and “program atmosphere,” the outcomes “funfillment” and “positive experience,” and the values “fun” and “excitement.” Cason & Gillis (1994) have commented that ropes courses and other adventure programs are congruent with the high energy levels and desire for novelty of youthful participants. Much like the participants in this study of meaningful involvement in ropes course programs, adolescents in Hultsman’s (1996) study also had a very strong interest in fun.

Fun is not merely desirable but also important since most people learn best when they are comfortable and having fun (Davis-Berman & Berman, 2002; Mitten, 1992). Participants in Hultsman’s (1996) study saw the need to minimize pressure and competition in many recreation programs. Their suggestions for creating a positive and supportive environment included making sure that the skills and interests of group members were compatible, providing individually-focused action opportunities, and including choice and variety in programs. Interestingly, these suggestions mirror the foundations of the IOP model: program context; activity design; participant choice; and equity of experience.

Low ropes, group efficacy, and fun. The component chain that included the program attributes “low ropes” and “everything” leading to the outcome “funfillment” and the value “fun” was mostly present in HVMS for participants in IOP programs. The four IOP groups that reported this chain included all IOP participants, and female, experienced, and inexperienced ropes course program participants. The two non-IOP groups that reported this chain were all participants in all programs and male CbC participants. This

finding indicates that despite the less dramatic nature of low activities, participants in IOP programs nevertheless found them to be enjoyable.

The program attribute “working together” led to the outcome “positive experience” meaning that many participants considered “working together” to be a positive experience. This chain was more evident in the HVMS for CbC participants groups including: all CbC participants and female, experienced, and inexperienced ropes course program participants. The two non-CbC groups that also reported this chain were male and experienced IOP participants. This component chain indicates that CbC program were more effective at making working together an enjoyable experience.

All the maps for IOP programs reported “group efficacy” as a program outcome, but only two of the maps for CbC programs included this outcome. Since few of the CbC maps included low activities, it is not surprising that all the HVMS for IOP participants linked the program attributes “low ropes” and “working together” with the outcomes “sharing ideas” and “group efficacy.” Only the maps for all participants in all programs and inexperienced CbC participants reported this component chain. Although there have been numerous studies on the relationship between ropes course program participation and group cohesion (Bisson, 1997; Bronson et al., 1992; Fletcher, 2000; Glass, 1999; Kilty, 2000; Kopf, 1996; Meyer, 2000; Meyer & Wenger, 1998; Thompson, 1995), fewer studies (Ibbetson & Newell, 1996; O’Bannon, 2000; Priest & Lesperance, 1994; Wagner & Roland, 1992) have looked at group efficacy. Findings have generally indicated that participation in a ropes course program is beneficial to the development of group efficacy (Priest & Lesperance, 1994; O’Bannon, 2000). In addition, Wagner and Roland (1992)

found that members of intact groups increased their level of perceived group efficacy more than did individuals from non-intact groups. Finally, participants often report that low ropes provide more opportunities for teamwork than high activities (Bobilya & Akey, 2002).

The ropes course programs in these studies used the CbC approach, so it is difficult to postulate exactly what aspects of low activities may lead to group efficacy. While it is possible that differences in the ropes course program outcomes may reflect the activities that individuals participated in immediately prior to completing the laddering survey, it is also possible that IOP programs are more effective at creating group efficacy through low activities. This conclusion is supported by the finding that all five HVMs for IOP participant groups linked “group efficacy” with “fun” and this pattern was not evident in any other HVM. One explanation may be that action opportunities in IOP programs are deliberately designed to contribute to the achievement of the central task. Since participants often recognize that working together helps them achieve their goals (Dyson, 1995), and HVMs in this study have linked “achieving goals” with “fun,” this may provide another explanation. Including a survey instrument which explores the variable of group efficacy or placing group efficacy variables on the ESF would help to answer this question more definitively.

High activities, positive experience and fun. The program attributes associated with high ropes led to the value “fun” mainly for IOP groups. This component chain was reported by all IOP participant groups with the exception of inexperienced ropes course participants. It was also reported by female CbC participants. This finding indicates that

IOP participants found high activities to be enjoyable while CbC groups did not. Conversely, both male and female CbC participants considered high activities exciting. This chain was also found in the HVM for all participants in all programs. In addition, “specific high elements” were linked to “funfillment” by one CbC group (male participants) and two IOP groups (all participants and those without previous ropes course program experience). Finally, all participants in all programs, CbC participants overall, IOP participants overall, and male CbC participants indicated that “high ropes in general” and “everything” were connected to having a “positive experience.” Enjoyment during high ropes was also evident from the meaningful involvement data – mean z-scores were positive regardless of program type. Thus, the general conclusion that can be made is that high ropes are generally enjoyable regardless of the program approach.

These findings become interesting, however, since only the maps for CbC programs contained the value “excitement.” One possible explanation for this finding is that CbC programs were more exciting. Many CbC program participants experienced a static high course which requires more self-reliance and may also create a greater perception of risk and therefore excitement. Sequencing and framing may also explain why CbC participants perceived their programs to be exciting. When the high ropes component was placed at the end of the program, participants may have seen it as a culmination of their experience. According to CbC program philosophy, the purpose of sequencing is to bond the group, interweave the high ropes experience into the rest of the program, and make high ropes “...less of a cheap thrill” (Rohnke, 1999). However, the reverse may also true. When the high ropes experience occurs toward the beginning of the

program, the high activities might be viewed as a starting point for the experience rather than as a reward. The suggestion is that future studies remove the additional variability by studying only CbC sites that use dynamic rather than static belay systems. Along with program design and delivery, future studies could also consider the influence of framing and debriefing on the experience of meaningful involvement.

A second explanation for the lack of “excitement” in IOP maps may be the high percentage of previous ropes course program participants among those who took part in CbC programs. The potential exists that individuals who were interested in repeating a ropes course program experience purposely choose to participate because they considered the opportunity exciting. Hastie (1992), for example, found that 14 and 15 year old outdoor adventure program participants were most likely to select activities they considered novel, fun, or exciting, and least likely to select activities they considered boring or had already experienced. Thus, the explanation is that ropes course participants who had already experienced a program may have elected to participate again because their initial experience was fun or exciting. Although program participants were members of intact groups whose choice opportunities are considered more limited (Mitten, 1998; Smolowe, 1990; Wurdinger, 1997), they could still choose whether or not to attend the program. Surveying samples of participants who have more similar rates of previous ropes course program participation would help answer this question.

Novel experiences, transference, and learning. All the HVMs, with the exception of CbC participants who had previously taken part in a ropes course program, indicated the presence of a component chain consisting of the program attribute “novel experience”

leading to the outcomes “transference” and “learning.” This supports the wide-spread belief that a ropes course program serves as a learning laboratory. If participants are put into unusual situations in which they can eventually be successful, it seems reasonable to assume that learning has occurred.

The HVMs provide little information about where or how the learning participants associated with ropes course programs took place. The HVM for all participants in all programs shows a strong association between the outcome “learning” and the program attribute “low ropes” but no other HVM included this component chain. A second clue, however, is that the outcome “transference” was connected to the value “fun” by four IOP participant groups (all, female, and experienced and inexperienced participants). The only CbC group with this chain was female participants. Given the linkage of “fun,” “achieving goals,” and “challenge,” one explanation is that achieving goals and experiencing challenge also contribute to learning. Clearly, more research is needed to answer how learning occurs in ropes course programs.

Contributions of the Study

This study has made a number of unique contributions to the knowledge about ropes course programs and the outcomes they may achieve. Researchers now know things they did not know before this study was completed. The study was able to identify program attributes that led to specific outcomes that have previously been found in ropes course program participation. This was the first study to attempt specific program attribute identification. Additionally, this was the first comparison of program attribute, outcome, and value linkages between two different types of ropes course program design and

delivery. Because of the comparisons made in this study, practitioners can be better informed and potentially more successful when designing and delivering programs to reach specific objectives. While the results were based on the experiences of young adolescents in one-day programs, and thus cannot be generalized to other populations, a useful protocol has been established. Although there were numerous methods-based limitations including inadequate program length for sampling all components of a ropes course program, no long-term follow-up of program effectiveness, and no factor analysis and correlation of linkages due to the exploratory nature of the study, these limitations can easily be addressed in future research efforts. This study has provided a foundation on which future studies may build. Other contributions include identifying the role of program design, confirming hypothesized linkages between program attributes and outcomes, describing significant program attributes, outcomes, and values, and providing direction for how to achieve specific benefits.

Role of Program Design

The study was able to confirm that choice was measurably different between program types during the high activities. In addition, differences in program types regarding program attributes, outcomes, values, and the linkages among them were identified. One of the more surprising findings in the means-end analysis aspect of this study was the presence of “excitement” and “anxiety” in CbC programs. “Excitement” appeared on all CbC maps but not on any IOP maps. “Anxiety” appeared on all CbC maps but only two IOP maps. Aside from their co-existence on the same maps, there was no linkage between “anxiety” and “excitement.” This finding suggests that IOP programs

may be less exciting, but also create less anxiety. It is interesting to note that IOP participants associated high activities with “fun” but CbC participants almost never reported this association. Thus, ropes course instructors may need to decide between creating excitement and anxiety or creating fun.

The second surprising finding was the association of low activities (communication activities and low ropes) with “group efficacy” in IOP programs. Although the literature has speculated that this connection exists, it is interesting to note that it was reported mostly in conjunction with IOP programs. The suggestion, therefore, is not only that low activities lead to different outcomes than high activities, but that low activities may need to be designed and delivered in a particular way to achieve group efficacy. More research is needed to confirm this proposition.

Confirmation of Hypothesized Linkages between Program Attributes and Outcomes

The study confirmed that certain program attributes led to specific outcomes as suggested by the literature. Some of these linkages are: achieving goals leads to positive self-image (Green et al., 2000; Hans, 2000; Hattie et al., 1997; Neill & Dias, 2001; Walsh & Golins, 1976; West & Crompton, 2001); novel experience leads to learning (Hart & Silka, 1994; Hattie et al., 1997; Rhoades, 1972; Stopha, 1994; Walsh & Golins, 1976); choice (as expressed through the selection of specific high elements) leads to positive self-image (Hans, 2000; Priest, 1991; Priest & Gass, 1997; Schoel & Maizell, 2002; Wurdinger, 1997); choice leads to achieving goals (Hans, 2000; Holyfield & Fine, 1997); trust exercises lead to trust (Rohnke, 1984; Schoel et al., 1988); low activities lead to

group efficacy (Havens, 1992; Rohnke, 1984; Rohnke, 1989); and high activities lead to positive self-image (Schoel et al., 1988).

Identification of Attributes, Outcomes, and Values Specific to Ropes Course Programs

Program participants were able to generate a list of program attributes, outcomes, and values and linkages specific to ropes course programs. When combined with a review of previous studies and theoretical literature, this list can be used in future studies which may prefer to employ a pre-determined response set that allows for more sophisticated statistical analysis of the data.

Direction for Achieving Specific Benefits

The general goal of ropes course programs is the interpersonal and intrapersonal development of participants. As a result of this goal, many ropes course providers are interested in designing and delivering programs that increase individual and group efficacy. The results of this study suggest that the pathway to these outcomes varies with program type. In CbC programs, “positive self-image” depends on “specific high elements.” In contrast, IOP programs provide numerous paths including “high ropes in general” and “low ropes.” The IOP participants’ association of “high ropes in general” with “positive self-image” when CbC participants linked “specific high elements” to “positive self-image” was unexpected and somewhat difficult to explain. What were participants experiencing that led them to make these similar yet not identical linkages? More research is needed to definitively answer this question.

Future Directions

Despite the knowledge gained from this study, many questions remain unanswered. For example, what is the long-term effect of IOP program participation? Given the nearly significant difference between CbC and IOP programs regarding view of self during high activities, and the trend of follow-up increases in self-efficacy and locus of control in many adventure-based programs, this may be a particularly interesting question to explore.

A second question that needs to be answered is how does self and group efficacy differ between CbC and IOP programs. Previous research has indicated CbC programs generally have a positive impact on both of these outcomes. How does IOP compare?

Finally, what impact did the researcher's involvement with the development of the IOP model have on the results that were obtained? Although the researcher was not involved in program design and delivery, she was involved in the coding of the means-end data and interpretation of the results. The thorough description of research procedures, use of additional coders and combination of quantitative (experience sampling) and more qualitative (means-end analysis) approaches have hopefully minimized much of the potential for bias. Until this study is repeated by a less partial investigator, the answer to this question remains somewhat of an unknown.

Recommendations

This study has a variety of implications for future research. The study may also provide ropes course instructors with greater direction for the design and delivery of effective programs.

Further Research

1. Use larger sample sizes. This would allow the findings to be broken down by age and would allow researchers to look at more interactions using means-end analysis. Since the findings of this study can only be generalized to intact groups of young adolescents, this additional information would be useful to researchers and ropes course instructors working with other populations.
2. Repeat the study with other participant groups. Adult corporate groups may represent an especially interesting study population since they consist of participants in intact groups who have limited choice about participation. In addition, the program focus is often on group efficacy.
3. Replicate this study employing multiple data collection times. This approach will help determine if there are additional differences between the program types and what the long-term effects of Inviting Optimum Participation program participation may be.
4. Duplicate the study using a pre-determined set of responses for attributes, outcomes, and values. Use factor analysis and correlation to determine linkages among attributes, outcomes, and values as has been done in other studies (Frauman & Cunningham, 2001; Frauman et al., 1998). Compare the results with those obtained by this study.
5. Study non-intact groups. Are the results the same when group members know each other as when they do not? The impact of sequencing may be more evident than when intact groups are studied.

6. Apply this multidimensional approach to other types of programs and participant experiences. Areas that may benefit from this strategy include youth development organizations such as those offering after-school programs, and public, private, and non-profit recreation program providers.

Program Design and Delivery

1. When providing high activities, ropes course instructors should ensure that choice is not merely a promise but is operationalized in a manner that is accessible to participants. The results of this study indicate IOP programs provided participants with significantly more choice during high activities. The required features of IOP programs included: a minimum of two different types of access to the course; the availability of at least two different elements including choice regarding which element to do and the order of elements; the option of deciding how much of an element to do; and the availability of additional challenge options such as blindfolds and associated tasks (clapping, catching a ball). Since the effectiveness of this approach has been confirmed by research, it should continue to be used.
2. To improve the opportunities for meaningful involvement available during low activities, design specifications for games, communication activities, trust exercises, initiatives, and low ropes that are similar in style and format as those provided for high ropes should be developed. Based on the results obtained from the study of high activities, the criteria should include a minimum of two different action opportunities directly associated with the central task. When spotting is used for safety, it should not be considered an action opportunity since participants

are required to spot and do not have a choice in assuming this role. The action opportunities need to allow for self-selection and offer challenge, uncertainty, and risk regardless of choice. Moreover, the action opportunities should be significantly different from each other so that there is an element of quality to the choice, not simply a difference in the degree of participation. Finally, the action opportunities need to be novel and fun since the results of means-end analysis suggest that these characteristics enhance learning.

3. The results of this study indicate that ropes course program design and delivery should not be considered a set process but rather a system that can be intentionally manipulated to facilitate meaningful involvement opportunities, especially choice, for all participants during high activities. Ropes courses are often considered the Swiss army knife of adventure programs (Rogers, 2000) because of the many benefits they may provide and the many types of groups that participate in them. The findings of this study indicate that benefits of ropes course programs depend not only on the tool but also on how it is used. Differences in program design and delivery attributes were associated with notable distinctions in program outcomes and values. Ropes course instructors need to be prepared to make deliberate design changes to classic activities so all participants will benefit from the experience.

Conclusion

Neill & Richards (1998) have speculated that program design and delivery are among the most critical factors influencing program effectiveness. This study found that participants in ropes course programs based on the Inviting Optimum Participation model

perceived a significantly greater degree of choice during high activities and were more likely to have experienced this aspect of meaningful involvement than participants in a Challenge by Choice program. The degree of meaningful involvement was not significantly different during low activities. These study findings indicate that program design and delivery may have a significant impact on participant experience.

Studies of adventure programs have often assumed the program attributes leading to program outcomes to be constant (Sibthorp, 2003). This study found that participants in IOP ropes course programs identified different linkages among program attributes, outcomes, and values than did participants in CbC programs. Although it may be an artifact of the data collection methods used, IOP program participants were more likely to mention low activities and group efficacy as significant and less likely to mention anxiety and excitement. CbC participants were less likely to mention low activities and group efficacy and more likely to mention anxiety and excitement. Thus, there are indications that program design and delivery can be manipulated to reduce negative outcomes such as anxiety and increase positive outcomes such as group efficacy.

Finally, many adventure education experiences, including Challenge by Choice ropes course programs, have been based on the Outward Bound Process Model including its approach to sequencing. Ewert and McAvoy (2000) have suggested that researchers question whether this is the most effective model for the design and delivery of adventure programs. The results of this study suggest that the Inviting Optimum Participation model may be an effective alternative to Challenge by Choice for the design and delivery of ropes course programs.

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APPENDIX A

PARENTAL CONSENT FORM

An exploration of meaningful involvement in ropes course programs

My child is going to be participating in a ropes course program. I understand that those who will participate in this program are eligible to take part in a research study being conducted by Kathy Haras, a Ph.D. student in Recreation, Park, and Tourism Sciences at Texas A&M University. The study is occurring at six ropes course sites around Ontario during spring 2003 and involves 300 young adolescents ages 10-15.

The purpose of the study is to assess the impact different ropes course program design and delivery models have on participant experiences and describe the program features that may account for these differences. So that participating in this study does not interfere with the ropes course experience, I understand my child will participate in only one part of the study. In accordance with the group to which they are assigned, my child may answer questionnaires during or after the ropes course experience. The maximum time participating in the study will not exceed 15 minutes. Regardless of whether my child participates in the study, he/she will be involved in the ropes course program.

In responding to the questionnaires, my child will be able to reflect on his/her experience and may learn something new about him/herself. Participating in the study is not expected to expose my child to any risks. My child may refuse to respond to any item on a questionnaire that makes him/her feel uncomfortable. If my child or I change our minds, my child can leave the study at any time without effecting his/her involvement in the ropes course experience. Responses will be anonymous. As a result of my child's participation in this study, I may choose to receive a summary of the final report.

I understand that this research has been reviewed and approved by the Institutional Review Board – Human Subjects in Research, Texas A&M University. For research related problems or questions regarding subjects' rights, I can contact the Institutional Review Board through Dr. Michael W. Buckley, Director of Support Services, Office of the Vice-President for Research at (979)458-4067.

I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and voluntarily agree for _____ to participate in this study.
Name of Child

I have been given a copy of this consent form.

Signature of Parent or Guardian

Date

For further information, please contact Kathy Haras at (905)892-8358 or ksharas@hotmail.com or her advisors, Dr. Camille Bunting cbunting@tamu.edu or Dr. Randall Burtz rburtz@rpts.tamu.edu

I would like to receive a summary of the final report _____ Yes _____ No

Address:

APPENDIX B

PARTICIPANT ASSENT FORM

An exploration of meaningful involvement in ropes course programs

I am going to be participating in a ropes course program. I understand that those who will participate in this program can be part of a research study being conducted by Kathy Haras, a Ph.D. student in Recreation, Park, and Tourism Sciences at Texas A&M University. The study involves 300 young people ages 10 - 15 and is taking place at six ropes course sites around Ontario during spring 2003.

The goal of the study is to find out what impact different ropes course design and delivery models have on participant experiences and describe the program features that may explain these differences. So that participating in this study does not interfere with my ropes course experience, I understand that I will take part in only one part of the study. Based on my group during the ropes course program, I may answer questionnaires during or after the ropes course experience. The maximum time spent participating in this study is 15 minutes. Regardless of whether I participate in the study, I will be involved in the ropes course program.

In responding to the questionnaires, I may learn something new about myself. Participating in the study is not expected to create any risks. I may leave out any item that makes me feel uncomfortable. I can change my mind and quit the study at any time without changing my ropes course program participation. Responses will be anonymous. I may ask to receive a summary of the study findings.

I understand that this research has been reviewed and approved by the Institutional Review Board – Human Subjects in Research, Texas A&M University. For research related problems or questions regarding subjects' rights, I can contact the Institutional Review Board through Dr. Michael W. Buckley, Director of Support Services, Office of the Vice-President for Research at (979)458-4067.

I have read and understand the explanation provided to me. I have had my questions answered to my satisfaction, and voluntarily agree to participate in this study.

I have been given a copy of this assent form.

Printed Name: _____

Signature: _____

Date: _____

Kathy Haras

For further information, please contact Kathy Haras at (905)892-8358 or ksharas@hotmail.com or her advisors, Dr. Camille Bunting cbunting@tamu.edu or Dr. Randall Burtz rburtz@rpts.tamu.edu

I would like to receive a summary of the final report _____ Yes _____ No

Address:

APPENDIX D
INSTRUCTOR INFORMATION FORM

Site: _____

Age: _____ Sex: _____ M _____ F

How many ropes course sites have you worked at?

How long have you worked as a ropes course instructor?

What is your level of education? What did/do you study?

What ropes course/adventure related certification do you have?

What ropes course/adventure training have you had in the last five (5) years? List the trainings and the number of days involved.

APPENDIX E

DESCRIPTION OF ROPES COURSE PROGRAM PROVIDERS

Kettleby Valley Outdoor Center

The Kettleby Valley Outdoor Center is located in Kettleby, ON. The site has a limited number of low ropes elements and a combination high ropes course and climbing wall. The majority of high elements are belayed using belay posts (aka Just Rite Descenders). The ropes course instructors at Kettleby Valley were all female, had worked on ropes courses exclusively at Kettleby Valley, and had instructed for an average of four years. Average age was 25.5. One instructor had completed a Bachelor of Education degree while two others were to start this one year program in the fall. The instructors had Bachelor's degrees in kinesiology, arts, sociology, and environment and resource studies. While only one instructor had formal ropes course certification lasting three days, all had in-house training that exceeded five days. Due to the desire to offer prices that are competitive with school board run sites, the cost of a program was \$15 per person. The program approach used was Challenge by Choice and approximately 12% of study participants (42) came from Kettleby Valley.

Seneca Outdoor Center

The Seneca Outdoor Center is associated with the Seneca College of Applied Arts and Technology. Their site is located on the College's King City Campus in King City, ON. The site has a variety of low ropes elements, a static high course, climbing wall, Giant Swing, and paired zipline. The average age of the four instructors at Seneca Outdoor Center was 23.5. Half were male. Two of the instructors had degrees in recreation, one had a degree in computer and electrical engineering, and one in sociology and family and human development. They had worked as ropes course program instructors for approximately four years. Two had worked on only one site and two had worked on two sites. Two instructors had completed a formal ropes course instructor certification course lasting seven days and all had first aid certification. One instructor had completed a formal ropes course instructor certification course lasting four days, and one instructor had 10 days of in-house training. In the last five years, they averaged about 25 days of ropes course/outdoor adventure program related training. The program approach used was also Challenge by Choice and 115 participants (32% of the study) experienced their program at Seneca.

Norval Outdoor Education School

The Norval Outdoor Education School is associated with Upper Canada College – a private boys school. The site is located in Norval, ON, has a variety of low ropes elements and a dynamically belayed high course. The two instructors who delivered the programs included in this study were both 24 years and female. They both had an average of six years experience as ropes course instructors, had Bachelor of Education degrees focusing on outdoor and experiential education along with Bachelor of Science (biology) degrees. One instructor also had a degree in physical and health education. The instructors had completed a formal ropes course instructor certification course lasting four days, had current first aid certification, and had worked at 2.5 ropes course sites. Over the last five years, they had accumulated an average of 31 days of ropes course/outdoor adventure program training. The cost of a ropes course program at Norval was \$25 per person. Only 19 participants came from the Norval site which used the Inviting Optimum Participation program model.

Adventureworks! Associates Inc.

Programs delivered by Adventureworks! Associates Inc. took place at Canterbury Hills Camp in Ancaster, ON and Crieff Hills Conference Center in Puslinch, ON. Both sites have a variety of low ropes elements and a dynamically belayed high course. The average age of the four instructors at Adventureworks! was 25.5. Half were male. Two of the instructors had degrees in recreation, one had a degree in English and philosophy, and one in kinesiology. They had worked as ropes course program instructors for approximately four years and worked on five different sites. All had completed a formal ropes course instructor certification course lasting seven days and had first aid certification. In the last five years, they averaged about 28 days of ropes course/outdoor adventure program related training. The cost of a one-day program with Adventureworks! is \$31.60 person. Adventureworks! offered programs using the Inviting Optimum Participation model and was the largest source of study participants with 184 or 51% of the total study.

APPENDIX F

SAMPLE ACTIVITIES

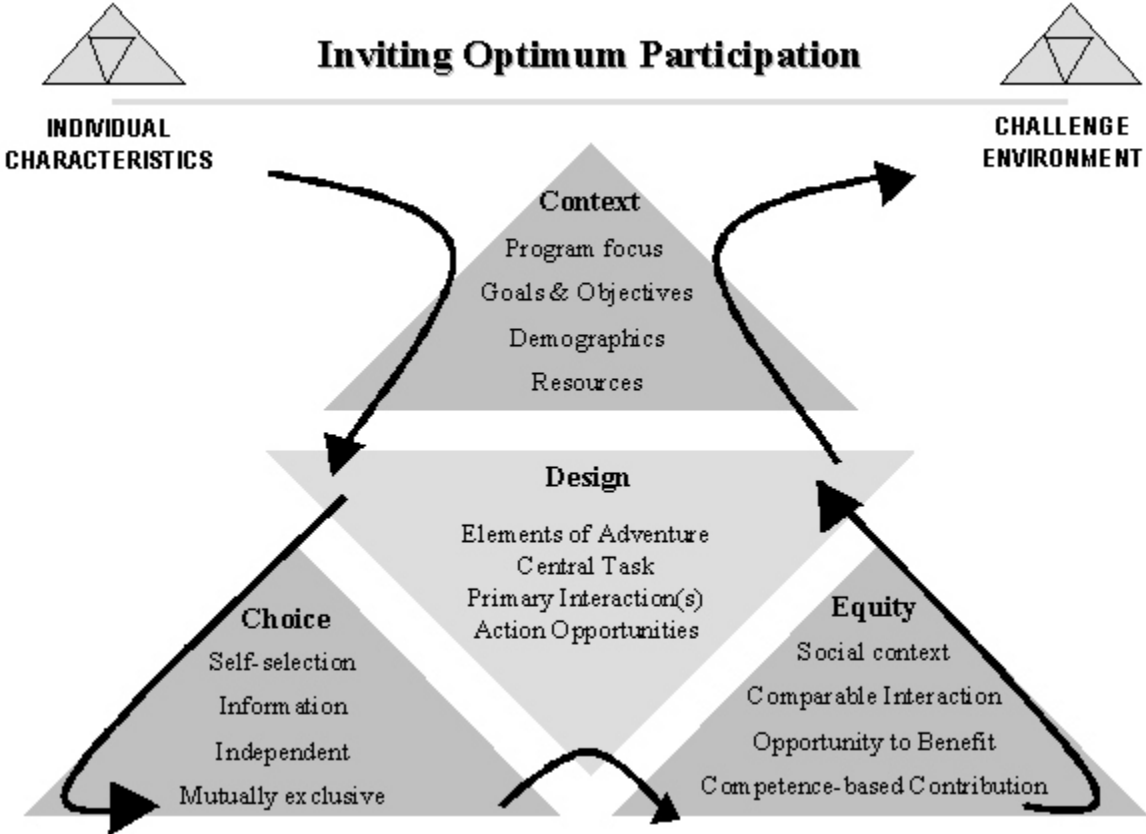
ELEMENT	IOP	CbC
High ropes or climbing wall	<p>Central Task: participate in climbing and/or traversing activities at a height which necessitates use of belay system.</p> <p>Features:</p> <ul style="list-style-type: none"> – 2 different types of access – 2 different elements – choice which element to do – choice how much of element to do – choice order of elements – additional options readily available <ul style="list-style-type: none"> – blindfold – ball 	<p>Central Task: participate in climbing and/or traversing activities at a height which necessitates use of belay system.</p> <p>Features:</p> <ul style="list-style-type: none"> – choice how much of element to do
Spider's Web	<p>Central Task: weave rope through each opening in the web without rope or group members touching sides. Any group member who wishes to be on the other side must pass through a unique web opening without any group member touching the web.</p> <p>Features:</p> <ul style="list-style-type: none"> – choice of passing through web 	<p>Central Task: for each group member to pass through a unique web opening without any group member touching the web (Rohnke, 1984).</p>

Swing Rope	<p>Central Task: for group members to use a swing rope to rearrange themselves in a particular formation</p> <p>Features:</p> <ul style="list-style-type: none"> – choice how to swing <ul style="list-style-type: none"> – footloop – no footloop – choice how far to swing <ul style="list-style-type: none"> – closer spot – further location 	<p>Central Task: for group members to use a swing rope to move from one side of a boundary to another</p>
Debris Field	<p>Central Task: for blindfolded individual to be verbally guided to retrieve articles from a debris field without touching any forbidden objects. Retrieved articles contribute to the accomplishment of the activity's ultimate task (i.e. building an item, retrieving an object)</p> <p>Features:</p> <ul style="list-style-type: none"> – choice of role <ul style="list-style-type: none"> – blindfolded retriever – guide – other 	<p>Central Task: for blindfolded individual to be verbally guided through a debris field without touching any object (Rohnke, 1984).</p>
Zig Zag	<p>Central Task: for group members to cross a designated area without them or their boards touching the ground</p> <p>Features:</p> <ul style="list-style-type: none"> – choice how to cross <ul style="list-style-type: none"> – single board – two parallel boards – incomplete decking – complete decking 	<p>Central Task: for group members to cross a designated area without them or their boards touching the ground (Rohnke, 1984).</p>

The Wall	<p>Central Task: for group members to transport everyone up and over a 10-14 ft wall. Individuals may only assist those who are going up a different side of the wall from them. Once someone has gone over the wall and is back on the ground, he/she can not physically help anyone else.</p> <p>Features:</p> <ul style="list-style-type: none"> – choice of height – choice of style of access <ul style="list-style-type: none"> – sheer wall – recessed rungs – climbing holds – cargo net 	<p>Central Task: for group members to transport everyone up and over a 10-14 ft wall. Once someone has gone over the wall and is back on the ground, he/she can not physically help anyone else (Rohnke, 1989).</p>
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APPENDIX G

INTERACTIVE MODEL FOR INVITING OPTIMUM PARTICIPATION



APPENDIX H
PROGRAM REPORT FORM

Date: _____ Site: _____

Program Duration: _____ # of Group Members: ____ M ____ F

- 1) The group was: _____ one class
 _____ random part of one class
 _____ random part of multiple classes (same grade)
 _____ random part of multiple classes (different grades)
 _____ specific part of a class
 _____ specific part of multiple classes (i.e. TAG, Student
 Council)
 _____ other (please describe)

2) Have the members of this group worked together before? YES NO

3) Have group members done adventure activities before? YES NO

4) Age range: _____

5) Did the teachers have any specific program goals? ____ YES ____ NO

If YES, please list

6) In order, list all elements/activities this group did

1) Describe key events that occurred during the program

APPENDIX I

ACTIVITY DESCRIPTIONS

*Games and De-inhibitizers**Chuck the Chicken*

A group of 25 or more participants is divided into two groups. One group throws the chicken which the other group receives. Upon throwing the chicken, the throwing group huddles together and one member runs laps around the group while the group keeps count. The receiving group recovers the chicken, lines up one behind the other, and passes the chicken over the head and under the legs of its members. When the chicken reaches the end of the line, the last person yells STOP and throws the chicken. The two groups then exchange tasks. Subsequent laps are added to the total for previous rounds. The game is played until one group reaches 25 or some other predetermined number. The game is also known as Pig Dog.

Energy Ball

Standing in a circle, a group of 10-12 people pass an action associated with an imaginary ball. The actions and associated sounds are a one-handed *pass* (to the next person), *bink* where the ball bounces off the forearm (reverse direction), *bounce* where the ball skips one person, *over* – a two-handed pass to anyone in the circle, and *schwaa* where the ball goes behind the back, reverses direction, and skips one person (Cain & Jolliff, 1998, p. 310). Energy ball can also be played “Rodeo Style” where the sounds and actions include *howdy*, *yee-haw*, *Ford truck gear box*, *round-up*, and *hayride*.

Everybody's It

During this fast-moving tag game, all players are IT at the same time as they are not it. People who are tagged in the center of the back are out until the next round (Fluegelman, 1981, p. 159; Rohnke, 1984, p. 153).

Find the Leader

In this guessing game, one person leaves the group while the rest of the group selects a leader. When the person who left returns, the leader establishes a motion which everyone else in the group mimics. The action changes periodically. The goal is for the person who left the group to correctly identify the leader (Hohenstein, 1980, p. 173). This game is also known as Detective (LeFevre, 1988, p. 62).

Have You Ever...

The group stands in a circle with one person in the middle. Regardless of their position, each group member stands on a place marker. The person in the middle asks a "have you ever..." question to which he/she can answer yes. Upon hearing the question, other group members who can also answer yes to the question must move to a different place in the circle. Since the person in the middle wants to be in the circle rather than in the middle, the last person to reach a new location occupies the middle spot and asks another "have you ever..." question (Rohnke, 1994, p. 127).

Human Tic Tac Toe

A large tic tac toe game is marked on the ground and two groups play tic tac toe using people as markers. The game is also known as Tic-Tac-Toe Live (Rohnke & Grout, 1998, p. 94).

In Groups Of...

During this get to know you game, people get in groups with other people with whom they have something in common. For example, if the caller says “get in groups of the color of your socks” all the group members wearing white socks would need to find each other, all the people wearing green socks, and so on. After the groups are formed, the caller yells out another category. The game is also known as Categories (Rohnke & Butler, 1995, p. 85).

Partner Tag

During this tag game, partners play tag only with each other. One partner is IT while the other is not IT. The IT chases the not IT who tries to hide in the confusion of other pairs. When the not IT is tagged by his/her partner, the partners switch roles (LeFevre, 2002 p.184). The game is also called Pairs Tag (Rohnke & Butler, 1995, p. 90) and a common rule is that players are only allowed to walk.

Smaug's Jewels

During this game, Smaug guards his/her jewels (tennis balls or other small objects) which other group members are attempting to steal. If Smaug tags a would-be thief, the thief is out. If the thief is successful, he/she becomes the next Smaug (Fluegelman, 1976, p. 61; Hohenstein, 1980, p. 76). Smaug may be blindfolded and may be armed with a pool noodle. The game is also known as Steal the Bacon (Cain, 2001).

Squirt

The premise of the game is that all group members are participants in an imaginary water gun fight. Everyone stands in a circle with one person in the middle. The person in

the middle points his/her gun at someone in the circle and says “squirt”. This person needs to duck which allows the two people on either side to try to eliminate each other by pointing at each other and saying “squirt”. People who get squirted (are too slow, do not duck, do not say squirt quickly enough) are eliminated.

Streets and Alleys

This is a game of chase in which two cops chase one criminal through a maze of streets and alleys. Group members create the streets and alleys by standing in a grid with either with their arms out to the sides (streets) or in front and back (alleys). The chase must occur within the streets or alleys and the no one is allowed to pass through anyone’s arms. A caller switches the arrangement from streets to alleys.

Sword in the Stone

The group stands in a circle with one person in the middle. Regardless of position, everyone stands on a place marker. The person in the middle has a pool noodle with which they tag someone on the outside of the circle. The goal is for the person in the middle to deposit the sword (pool noodle) on the center place marker and return the place marker of the person who was tagged before that person is able to pick up the sword and tag the person who was originally in the middle. If the original middle person is successful, the person who was tagged takes the middle position. If not, the original middle person tags someone else and tries again. The game is also called Swat (Fluegelman, 1981, p. 45).

Surfers, Sharks, and Waves

In this giant tag version of rock, paper, scissors, the group is split into two teams who huddle at their respective home bases and decide whether they will be surfers (stand

in surfing position), sharks (hands over head making a fin), or waves (making a wave motion with their arms). Once they have their sign, the teams line up in the middle, one team on one side of the line and the other team on the other side. On the count of three the teams show their sign. Surfer beats wave, shark beats surfer, and wave beats shark. The goal is for the losing team to run back to their home base without being tagged by the winning team. People who are tagged join the other team. If the sign is the same, the groups re-huddle. The game is also called Rock, Paper, Scissors (Fluegelman, 1976, p. 109; Hohenstein, 1980, p. 73), and Giants, Elves, and Wizards (Fluegelman, 1981, p. 167) and the signs change with the name.

Ultra Being

This game is also based on rock, paper, scissors. Everyone starts as an egg and plays rock, paper, scissors. Winners become chickens (and make appropriate clucking noises and actions so they can be identified) while losers remain eggs. Chickens then look for other chickens to play with while eggs play with eggs. Chickens who win become dinosaurs (with suitable sound effects and motions) while losing chickens revert to egg status. Finally, winning dinosaurs become Ultra Beings while losing dinosaurs become chickens. The game is also known as Metamorphose (Rohnke, 1996b, p. 12), Evolution, and Ultimate Being.

Name Games

Boppity Bop Bop Bop

This name game is played with all group members in a circle except for one person who is in the middle. When the middle person points at someone and says “left”, the

person needs to say the name of the person on his/her left before the middle person finishes saying “boppity, bop, bop, bop.” If the person who was pointed at is successful, the person remains in the middle, if not, the group members exchange roles. Other commands that may be given by the person in the middle are “right” (name of the person on the right), “you” (the person’s name who is being pointed at), or “me” (name of the person in the middle). The game is also known as Bumpity, Bump, Bump, Bump (LeFevre, 1988, p. 107; Rohnke & Butler, 1995, p. 84).

Name Swat

This name game is played with all group members in a circle except for one person who is in the middle who is armed with a pool noodle. A person on the outside of the circle begins the game by saying his/her own name followed by the name of somebody else in the circle. The goal for the person in the middle is to tag that second person before he/she says his/her own name and the name of a third person. If the tag is successful, the middle person steps into the circle while the person who lost becomes the swatter in the middle. The game is also known as Wampum (Rohnke, 1994, p. 10).

Name Toss

Group members stand in a circle and toss objects to each other. A toss must be preceded by the tosser saying the catcher’s name. The goal for the group is to not drop any of the many objects that are being tossed. It is also known as Toss-A-Name Game (Rohnke, 1984, p. 17).

Communication Activities

Bobsleds

The central task of this activity is for the group to transport a round object (marble, tennis ball, egg) from point A to point B using only pieces of PVC that have been cut in half longitudinally. The object may only contact the PVC and while the object is in their piece of track, group members may not move their feet. If the object falls off the track, the group must start from the beginning. The activity is also known as Marble Tubes (Cain & Jolliff, 1998, p. 128) and Half Pipe (Rohnke, 1996b, p. 19).

Bullring

The central task of this activity is for group members to transport a tennis ball that is balanced on a ring through a series of obstacles with as few drops as possible. Group members are only permitted to hold the last six inches of a series of strings that radiate out from the ring (Cain & Jolliff, 1998, p. 79).

Four Quad

The group is divided into four, each of the four groups occupy a section of a quadrant, and hold four different objects in their hands. The central task of this activity is for group members to sort objects into their respective quadrants as quickly as possible. Only objects may break the plane of the quadrants and time is added on for plane violations. Time may also be added for dropped objects (Rohnke & Butler, 1995, p. 114). Speaking is often not permitted during the passing process.

Group Juggle

The central task of this activity is for the group to establish a random passing pattern and then collectively juggle a number of throwable objects, dropping as few objects as possible (Fluegelman, 1981, p. 61; Rohnke, 1984, p. 112; Rohnke, 1989, p. 84).

Hot Chocolate River

The central task of this activity is for the group to move all its members from across a hot chocolate river (from point A to point B) without anyone getting burned (touching the ground). Providing they do not touch the hot chocolate, any number of people may balance on a marshmallow (place marker) but marshmallows that are out of human contact are lost to the group. Marshmallows may only be moved forward and the group starts with one less marshmallow than there are people in the group.

Is it a Knot?

The central task of this activity is for group members to come to consensus regarding whether or not the random arrangement of rope in front of them would create a knot if the two were pulled. Group members are not allowed to touch the rope. The activity is also known as Not Knots (Cain & Jolliff, 1998, p. 142).

Keypunch

The central task of this activity is for the group to punch the 26 numbered keys laying in a roped off area in order as quickly as possible. Only one group member may be in the roped off area at a time and numbers may not be moved. Time penalties are given for touching keys in the wrong order or for having more than one person in the roped off

area. The activity is also known as The Calculator (Rohnke & Butler, 1995, p. 167) or Alphabet Soup when letters are used instead of numbers (Cain & Jolliff, 1998, p. 72).

Knot Fun

The group is presented with a rope with one less knot in it than there are group members. Each group member places one hand between two knots. The central task is for the group to untie all the knots in the rope. Group members may not take the hand they have placed between the knots off the rope but may slide it up and down the rope provided it does not pass over any knots. The activity is also known as Knots in a Rope (Priest & Rohnke, 2000, p. 5) and A Knot Between Us (Cain, 2001).

Virtual Group Juggle

This game is played much like group juggle except that there are no objects being tossed – the objects are virtual. Usually three different patterns are established for three different categories of items. Often, one pattern requires that group members follow their pass thereby changing their position in the circle.

Warp Speed

The central task of this activity is to move one tennis ball as quickly as possible through a pre-established pattern. The pattern in which group members receive the ball may not change but participants are welcome to alter how they are arranged (Rohnke, 1989, p. 83).

Trust Exercises

Lap Sit

The central task of this activity is for group members standing in a circle to assume a sitting position on each others' laps. An additional goal may to maintain this position for a brief period of time or to take a few steps without anyone losing balance. This activity is also known as The Lap Game (Fluegelman, 1976) and Lap Sit Step, Step, Step (Orlick, 1982).

Raccoon Circle

Group members stand in a circle and hold on to a piece of climbing webbing that has been tied into a loop using a water knot/ring bend/tape knot. The central task of this activity is for group members to gently lean back and create an equilibrium that supports everyone's lean. The group may then try a wave, to sit down and stand up, or other motions (Cain & Jolliff, 1998, p. 151).

Trust Fall

Group members stand shoulder to shoulder in two lines facing each other. Arms are zippered – the arms of two different people from the opposite side should be between each person's arms. One group member climbs onto a platform approximately three to four feet off the ground, folds his/her arms across his/her chest, stiffens up, goes through a communication sequence with the rest of the group, and falls into the waiting arms of his/her group members (Rohnke, 1984, p. 80; Rohnke, 1989, p. 53).

Non-Traditional Trust Sequence

Unlike a traditional trust sequence that begins with a series of leans and often culminates in a trust fall (Schoel et al., 1988; Rohnke, 1984), a non-traditional trust sequence incorporates a number of partner-based contests to promote the notion of active participation and fun, convey the importance of cooperation, provide an opportunity to model and practice appropriate use of individual strength, develop unselfconscious touch, and begin the process of creating mutual trust among group members.

Aura. Partners begin this activity standing face to face and with their hands palm to palm. The partners then close their eyes, break hand contact, and spin individually three times. The central task of the activity is for the partners to resume their initial palm to palm position without talking or opening their eyes (Fluegelman, 1976, p. 37; Orlick, 1978, p. 48).

The Bends. Participants begin this activity facing their partners, shaking hands. Partners then reach down to with their free hands to pick up their ankle. The central task of the activity is pull one's partner off-balance (Rohnke & Butler, 1995, p. 240).

Stand-off. Participants begin this activity with feet together, standing palm to palm with their partner. Without moving their feet and using only hand contact, the central task of this activity is to try to cause one's partner to lose balance (Fluegelman, 1976, p. 35).

Toe Fencing. Partners place their hands on each others' shoulders and then attempt to tag one's partner's feet with one's own feet while one's partner attempts to do the same thing (Fluegelman, 1981, p. 13).

Human Spring. Partners stand facing each other slightly more than arms length apart. On a pre-arranged signal, the partners gently lean towards each other and then use palm to palm contact to spring back to their original positions. Partners may move back with each subsequent attempt (Fluegelman, 1981, p. 17).

Me Switch. Partners face each other and show one of three actions: hand across the forehead; one hand up other hand touching elbow; and both hands crossed in front of the chest when someone utters the words “me switch.” When the actions match, the pair earns a point (Fluegelman, 1981, p. 19). This game is also called Cage is Open when elephant (make a trunk), moose (make antlers), and pterodactyl (make wings) are used as symbols. Players callout “Cage is Open”.

Squat Thrust. Partners face each other, assume a squatting position, and touch palm to palm. The goal is to knock one’s partner off balance without losing one’s own. The squatting position must be maintained through out the activity (Rohnke, 1984, p. 94).

Everybody Up. Sitting on the ground with the soles of their feet pressed against their partner’s, pairs of participants grasp hands and attempt to stand up using only each other. The activity may also be expanded to include triads, quads, and even larger groups of participants (Rohnke, 1984, p. 100).

Mirroring. One partner initiates a slow series of motions that the facing partner then mirrors. Partners exchange roles (Rohnke, 1989, p. 51; Schoel et al., 1988, p. 294).

Finger Jousting. Partners clasp each other by one hand but each leave the index finger pointing out. Using their index finger as a sword, they then try to touch their partner on the arms or legs at the same time as their partner tries to the do the same to them. The

game is often played until one partner has registered three touches. This game is also known as Can't Touch Me (Rohnke, 1998, p. 22).

Yurt Circle

Participants stand in a circle and hold onto a rope that has been tied into a loop with both hands. Every other person in the circle leans in while every other person leans out. This creates a balance where group members are supporting each other. The groups then switch position – those leaning in lean out and those leaning out lean in (Priest & Rohnke, 2000, p. 26).

Initiatives

Shrinking Island

The central task of this activity is for the group to get on a tarp without allowing any group member to touch the ground. With each round the tarp is folded and the space on which everyone must balance becomes progressively smaller. The activity is also known as Sinking Island (Byl, 2001, p.13).

Low Ropes

Disc Jockeys

Participants use a swing rope to rearrange themselves on place markers located on the opposite side of a boundary line. The central task involves not only retrieving the swing rope without crossing the boundary but also organizing who will end up on what place marker and in what order. Participants are often required to remain on the place marker where they placed their second foot (Rohnke, 1989, p. 105).

Do I Go?

The central task of this activity is for participants rearrange themselves in the four large place markers that surround a swing rope. The goal is to end up on a different place marker with a different set of group members and for the group to complete this assignment in as few moves as possible. The number of people permitted on a place marker at any one time is often limited (Rohnke & Butler, 1995, p. 152).

Low Multivine

Participants use ropes suspended from an overhead cable to traverse a cable located at knee level. The ropes are anchored at the top end so moving from point A to point B requires stretching and reaching for the next rope (Rohnke, 1989, p. 123).

Low V

The central task of the activity is for partners to make their way across two diverging cables located at knee level. In order to be successful, partners are required to lean on each other. As the cables move apart, partners need to depend more and more on each other. The activity is also known as the Wild Woosy (Rohnke, 1977 p. 35; Rohnke, 1989, p. 110).

Mohawk Walk

The central task is for the group to make their way across a series of cables without any member touching the ground. The cables are attached to trees and group members may use the trees, each other, and the ropes hanging down from some of the trees to successfully complete the traverse (Rohnke, 1984, p.140; Rohnke, 1989, p. 101).

Rohnke's Web

A version of the classic Spider's Web (Rohnke, 1984), the central task of this activity is for group members to weave a rope back and forth through all the openings in a constructed web without either the rope or participants touching the web (Lisson, 2000). Participants who wish to hold the rope on the opposite side from where they started the activity must pass through a unique opening without either themselves or the people helping them touching the web. Various penalties may be assigned for touches.

Swinging Log

The central task is for a participant to walk across a swinging log without falling off or losing balance. The log suspended approximately 12 inches off the ground with cables and swings both laterally and horizontally (Rohnke, 1977 p. 44; Rohnke, 1977, p. 108).

Tension Traverse

The central task of this activity is for participants to make their way across a cable using a rope hanging from one tree for balance. The rope is attached 15 to 20 feet above the ground and when stretch out on a diagonal is just long enough to reach the other side of the cable (Rohnke, 1977, p. 33; Rohnke, 1989, p. 109).

Tire Traverse

The central task of this activity is to move the entire group from point A to point B using a series of hanging tires. The goal is to complete the activity without anyone touching the ground (Rohnke, 1977, p. 75; Rohnke, 1989, p. 115).

TP Shuffle

The TP in TP shuffle stands for Telephone Pole. The central task is for a group to stand on a telephone pole that is laying on the ground and for the participants standing one half of the pole to exchange positions with those standing on the other half of the pole. Stepping off the pole or touching the ground often requires that the group restart the exchange process (Rohnke, 1984, p. 110; Rohnke, 1989, p. 112).

Troll Traverse

The Troll Traverse consists of three connected traversing activities. It includes a tension traverse (described previously), a Heebie Jeebie (Rohnke, 1989, p. 129) which consists of two crossing ropes connected to a footcable in an hourglass fashion, and a series of hanging footloops. As with other traversing activities, the goal is to complete the activity without touching the ground.

The Wall

One of the oldest ropes course activities, the central task is to get all group members over a blank 12 ft wall. There is a ledge on the other side on which a limited number of group members can stand and provide help from above. Group members who have gone over the wall are required to spot but are not permitted to physically assist other members in getting over the wall. The sides of the wall and other resources are often considered out of bounds (Rohnke, 1977, p. 71; Rohnke, 1989, p. 113).

Whale Watch

The central task of this activity is for the entire group to be balanced on an element that resembles a very wide and low teeter-totter. The group is often encouraged to tackle a

variety of challenges including maintaining balance for an extended period of time, changing positions without the platform touching the ground, or getting on and off the platform while maintaining its balanced position (Rohnke & Butler, 1995, p. 192).

Zig Zag

This traversing activity incorporates a series of five stumps that have slots for boards cut into them. The stumps are spaced at two separate distances and the group is provided with three boards that match one of the two distances. Group members must work together to balance on the stumps, place and move the boards, and travel across them without either boards or people touching the ground (Rohnke, 1984, p. 124).

High Activities

Climbing Wall

This artificial climbing structure uses lumps of a solid material, often some type of plastic polymer, attached to a vertical surface to simulate a rockface. As in rock climbing, the central task of the activity is to climb up the wall without falling off. In all the ropes course programs in this study, safety was provided through the use of a top rope belay system.

Giant Swing

This high activity starts near the ground. The rider is attached to lanyards hanging from a horizontally strung cable. A haul line that passes through a series of directional pulleys allows the group to pull the rider up to his or her desired height. At this point, the rider disconnects from the haul line and swings back and forth until he or she comes to a stop near ground level.

High Ropes

Several types of high ropes activities exist but the central task of the experience is to climb up or traverse across elements suspended above the ground. Some of the common elements that participants experienced were the *Burma Bridge* – two handcables at waist levels on either side of a footcable (Rohnke, 1977, p. 56), the *Balance Beam* or *Catwalk* -- a horizontal log (Rohnke, 1977, p. 52; Rohnke, 1989, p. 131), the *Two-line Bridge* or *Postman's Walk* -- a footcable with a single handcable at chest level (Rohnke, 1977, p. 50; Rohnke, 1989, p. 119), the *Multivine* – identical to the low Multivine but higher (Rohnke, 1989, p. 123), the *Tire Traverse* -- identical to the low tire traverse but higher and without the group focus (Rohnke, 1977, p. 75; Rohnke, 1989, p. 115), the *Vertical Playpen* – a vertical activity where participants climb up to the top of the course using rope ladders, hanging tires, nets, and horizontal beams (Rohnke, 1989, p. 127), and the *Hour Glass* -- similar to the Heebie Jeebie but without the footcable (Rohnke, 1996a, p. 75). *The Elevator*, a 4:1 pulley system with a change of direction that attaches to the climber and allows him/her to pull his/herself up or be pulled up by others, was also used at IOP sites.

APPENDIX J

MEANINGFUL INVOLVEMENT SELF-REPORT FORM

Date: _____ Time: _____

What activity were you just participating in?

What was the MAIN THING you were doing during this activity? _____

Why were you doing that MAIN THING?

 I had to I wanted to I had nothing else to doMark an X on the line to indicate how involved you were in the main part of this activity.

Not Involved

Totally Involved

Describe your mood while completing the activity:

	Very	A little	Neither	A little	Very	
happy						sad
irritable						pleasant
active						inactive
withdrawn						sociable
ashamed						proud
involved						detached
excited						bored
tense						relaxed
competitive						cooperative

During the activity you just finished...

	Not at all	A little	Quite a bit	Very Much
How well were you concentrating?	1	2	3	4
Did you feel good about yourself?	1	2	3	4
Were you in control of the situation?	1	2	3	4
Were you living up to others' expectations?	1	2	3	4
Were you succeeding at what you were doing?	1	2	3	4
Do you wish you had been doing something else?	1	2	3	4
Were you pleased with how you were doing?	1	2	3	4

Describe how you feel about the activity

	Low			Medium				High		
Challenges of the activity	1	2	3	4	5	6	7	8	9	10
Your skills in the activity	1	2	3	4	5	6	7	8	9	10
Alternatives for participation	1	2	3	4	5	6	7	8	9	10
Your involvement in the main goal	1	2	3	4	5	6	7	8	9	10
Freedom to choose what to do	1	2	3	4	5	6	7	8	9	10
Importance of your task	1	2	3	4	5	6	7	8	9	10

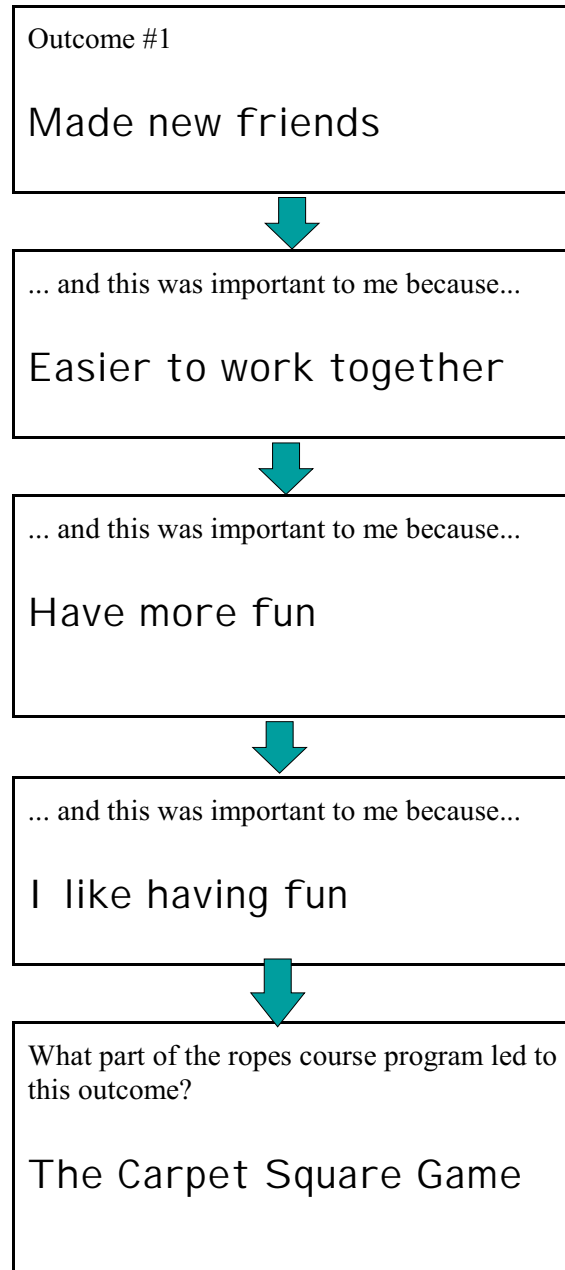
Since you last completed a form, has anything happened or have you done anything that could have affected the way you feel? Please explain.

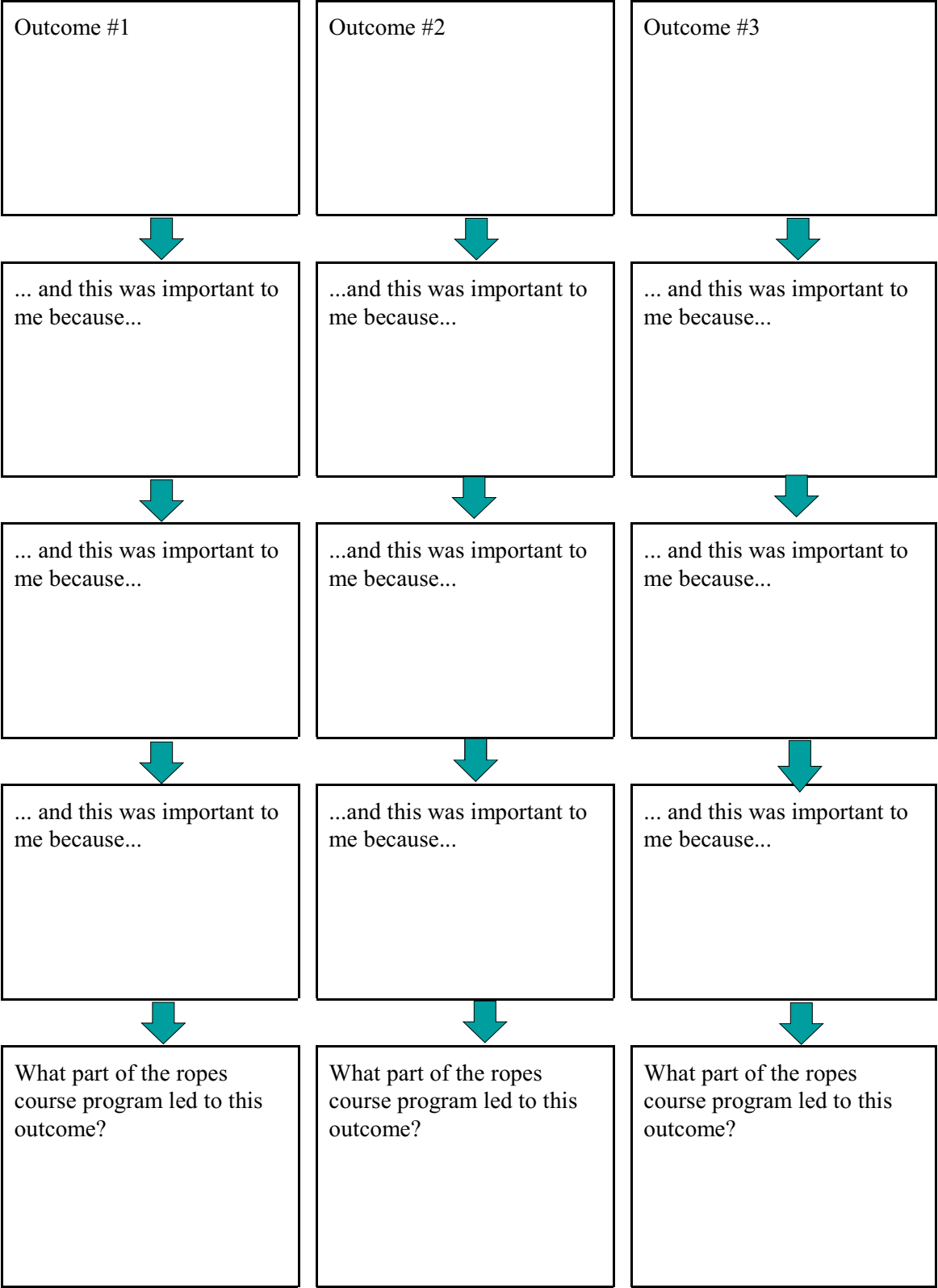
APPENDIX K

LADDERING QUESTIONNAIRE

I am interested in what you feel are the results of participating in this ropes course program, the “outcomes” of your experience. Please think about the outcomes you received and write them down on the lines below. There are no right or wrong answers.

Pick the three outcomes you feel are most important and write one outcome in each of the top boxes. Then, follow the arrows and fill in as many boxes as possible. Here is an example:





APPENDIX L

OPERATIONAL DEFINITIONS

Inviting Optimum Participation

1. Diverse challenge options framed by program context
 - a. activities relevant to group's goals and objectives
 - b. congruent with skill, knowledge, and abilities
2. Activity design that offers simultaneous action opportunities
 - a. multiple types of experiences directly connected to the central task
 - b. range of challenge
 - c. dissimilar actions
3. Participant choice intentionally designed into the scope of an activity's central task
 - a. self-selection action opportunities within a single, inclusive design
 - b. independence of challenge options
 - c. mutually exclusive alternatives for participation
4. Options for participation that ensure equity of experience
 - a. comparable opportunity for adventure
 - b. interaction with equipment and group members
 - c. potential to give value and gain value from participation

Challenge by Choice

1. Sequencing of activities to support participation
2. Giving individuals the choice of how they want to participate
 - a. select level of involvement within activity such as full, partial, and observation
 - b. opportunity to back-off
3. Encouraging participants to try challenging tasks
 - a. willingness to take a risk
 - b. focus on the attempt rather than results
 - c. individualized roles when necessary
4. Positive norms and values around participation
 - a. encouragement within a caring and supportive atmosphere
 - b. respect for individual choices

APPENDIX M

ACTIVITY DESIGN FRAMEWORK

Goal	Structure	Rules	Scenario	Equipment	Environment
Physical <ul style="list-style-type: none"> • Size • Strength • Movement • Endurance • Flexibility • Motor Skills 	Interaction <ul style="list-style-type: none"> • Cooperative • Competitive • Individual Level <ul style="list-style-type: none"> • Single • Multiple 	Boundaries <ul style="list-style-type: none"> • Size • Shape • Markings Consequences <ul style="list-style-type: none"> • Individual / Group • Positive / Negative 	Framing <ul style="list-style-type: none"> • Fun • Metaphor • Isomorph 	Design <ul style="list-style-type: none"> • Size • Weight • Shape • Stability Movement <ul style="list-style-type: none"> • Speed • Predictability 	Accessibility <ul style="list-style-type: none"> • Surface • Barriers • Terrain Size <ul style="list-style-type: none"> • Height • Length • Area
Cognitive <ul style="list-style-type: none"> • Knowledge • Memory 					
Sensory <ul style="list-style-type: none"> • Sight • Sound • Touch 					
Social <ul style="list-style-type: none"> • Group Size • Group Organisation • Group Composition • Behaviour • Clothing 					
		Locomotion <ul style="list-style-type: none"> • Speed • Form 		Safety <ul style="list-style-type: none"> • Substance • Support • Position 	Setting <ul style="list-style-type: none"> • Novel • Familiar
				Use <ul style="list-style-type: none"> • Assembly • # of People • Variety 	
		Communication <ul style="list-style-type: none"> • Language • Style • Frequency • Location 			
		Time <ul style="list-style-type: none"> • Amount • # of Attempts 			

APPENDIX N

IMPLICATION MATRIX FOR ALL PARTICIPANTS IN ALL PROGRAMS

	n	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
	n	77	66	39	9	43	3	4	15	13	11	53	56
A1: novel experience	77		1.4	1.5	1.1	0.1			0.2	0.2		1.2	4.12
A2: challenge	66	3.4		0.3					0.1			0.3	0.7
A3: program atmosphere	39		0.1			0.1				0.1	0.1	2.5	1.3
A4: physical activity	9												0.1
A5: working together	43			0.2					0.1	0.5	0.1	3.10	0.1
A6: tangible rewards	3								0.1				
A7: lunch	4	1.1			0.1								
A8: games	15	1.2										0.1	
A9: communication activities	13												
A10: trust exercises	11												
A11: low ropes	53	1.1							0.1				
A12: high ropes	56		1.1										
A13: the height	25		2.3			0.1							0.3
A14: belaying	4												
A15: climbing	24	2.2	1.1										0.2
A16: specific high elements	95		0.1			1.1							
A17: everything	68												
A18: boredom	5		1.1			1.1						0.1	
C1: anxiety	41	2.2	3.6	1.2								0.1	5.10
C2: peer pressure	3											2.2	
C3: hindrances	15	0.1				0.1						1.2	1.2
C4: positive experience	106	7.7	8.10	1.2		5.7			1.1	1.1		1.6	3.11
C5: learning	57	2.4	1.4	2.2		1.2				0.3	0.1	3.12	3.6
C6: achieving goals	85	4.7	7.9	2.4		0.1			0.2	1.1		3.6	1.9
C7: new skills	21	2.3	0.1						0.1			0.1	1.5
C8: trust	39	0.1	0.2	2.3		1.3				1.2	0.7	1.4	0.3
C9: share ideas	16			0.1		0.1			1.1			0.5	
C10: group efficacy	42	1.1	0.2	2.4		0.2				3.7		7.10	2.4
C11: fulfillment	102	5.7	3.3	6.7		0.2			1.2	3.4	0.1	2.7	7.9
C12: utility of interdependence	14			0.1		1.1				1.1	1.2	0.1	1.2
C13: transference	124	7.8	1.3	3.6		4.4	1.1				1.3	0.6	7.14
C14: temporal shift	3												
V1: belonging	29			1.1	0.1	1.2			1.1	1.1	1.1	4.6	0.1
V2: fun	125	11.18	5.11	3.12	1.1	1.2			2.6	0.4	2.2	5.14	3.16
V3: friendship	91	2.5		3.8	1.2	5.11			2.5	0.4	4.7	1.10	0.6
V4: happiness	25												
V5: positive self-image	96	1.2	2.3	2.3	1.1	1.2	0.1		1.2	2.2	1.5	3.7	5.10
V6: increased social status	12											1.3	3.3
V7: safety	28		1.1	2.2						0.1	1.1	1.1	2.4
V8: excitement	29	2.3	1.5	1.1									0.3
V9: fitness	15											0.1	1.1

	n	A13	A14	A15	A16	A17	A18	C1	C2	C3	C4	C5
	n	25	4	24	95	68	5	41	3	15	106	57
A1: novel experience	77	1.3		0.4	4.13	3.12		1.1		1.1	12.14	8.9
A2: challenge	66				3.22	3.7	1.1	1.3	0.2		12.16	3.4
A3: program atmosphere	39				0.1	2.2					3.5	1.1
A4: physical activity	9			1.1	0.1	0.3			0.1	1.1		
A5: working together	43		0.1	1.1	1.5	0.1					1.3	0.1
A6: tangible rewards	3											
A7: lunch	4				0.1					1.3		
A8: games	15					0.1					1.2	0.1
A9: communication activities	13											
A10: trust exercises	11											
A11: low ropes	53					0.1					0.1	1.1
A12: high ropes	56			0.1	0.2							
A13: the height	25			0.2	1.2	1.1		3.3			3.3	
A14: belaying	4											
A15: climbing	24							0.1			1.2	1.2
A16: specific high elements	95							1.1			1.1	
A17: everything	68											
A18: boredom	5								1.1	1.1		
C1: anxiety	41	5.6		0.1	2.6	1.4			1.1	2.2	2.3	1.1
C2: peer pressure	3				1.1							
C3: hindrances	15		1.1	2.2	0.1		1.1	1.1				1.1
C4: positive experience	106	5.7	1.1	3.5	11.20	11.17						1.2
C5: learning	57				1.7	1.6		1.2		1.1	3.5	
C6: achieving goals	85	0.4		1.4	7.21	3.6	0.1	3.3		1.1	3.8	0.2
C7: new skills	21	0.1		1.1	0.3	0.1		1.1			3.3	1.2
C8: trust	39	0.2	0.2	1.1	0.6	0.3		1.3			0.1	0.1
C9: share ideas	16	1.1				1.1					0.1	3.3
C10: group efficacy	42				1.5	0.2					3.3	2.2
C11: fulfillment	102	2.2	0.1	1.2	8.14	12.20					11.13	
C12: utility of interdependence	14		2.2		1.2	0.1						
C13: transference	124	3.7	0.1	2.5	15.27	3.13		5.7		2.2	1.6	2.2
C14: temporal shift	3										0.1	
V1: belonging	29			0.1	1.3	2.5					3.3	
V2: fun	125	1.6	0.1	0.5	5.30	6.27		1.1			14.29	4.6
V3: friendship	91				4.10	2.11				0.2	6.17	2.2
V4: happiness	25										1.1	
V5: positive self-image	96	0.4		3.4	13.23	5.7		2.2			2.3	3.4
V6: increased social status	12				1.2	1.1						
V7: safety	28	1.2			1.5	0.3	1.1	6.6		1.1	0.1	
V8: excitement	29	1.4		0.1	4.11	1.7		1.1			6.8	0.1
V9: fitness	15			0.2	3.4	1.2			1.1			

	n	C6	C7	C8	C9	C10	C11	C12	C13	C14	V1	V2	V3
	n	85	21	39	16	42	102	14	124	3	29	125	91
A1: novel experience	77	3.5	1.1				8.11		6.10			9.14	2.4
A2: challenge	66	11.14	1.2				2.4		4.8			1.6	
A3: program atmosphere	39	2.2				2.2	2.4		2.3		0.1	1.1	1.1
A4: physical activity	9								0.1			0.2	
A5: working together	43	2.3	0.1	1.1	3.3	12.15	1.4	0.1	1.1	0.1		5.6	1.5
A6: tangible rewards	3								0.1		0.1		
A7: lunch	4												1.2
A8: games	15	0.1					0.3		0.1			4.4	
A9: communication activities	13												
A10: trust exercises	11												
A11: low ropes	53						0.2					0.1	1.1
A12: high ropes	56	1.1	1.1		0.1		0.1		0.1		0.1	1.1	0.1
A13: the height	25	0.1							0.2				
A14: belaying	4												
A15: climbing	24	1.1							0.1			1.2	
A16: specific high elements	95	1.2											
A17: everything	68											1.1	
A18: boredom	5									1.1			
C1: anxiety	41	0.3	0.1						5.7			0.1	
C2: peer pressure	3												
C3: hindrances	15												
C4: positive experience	106	4.5			2.2	1.1	6.12		4.5		1.1	11.11	2.3
C5: learning	57	1.7	1.2			3.3	1.4		12.14		1.3	2.6	3.4
C6: achieving goals	85						0.2		11.19			4.12	
C7: new skills	21	1.1			1.1				1.3		0.1	3.5	0.1
C8: trust	39	0.1				4.6		6.9	6.10		0.3	1.3	5.6
C9: share ideas	16	1.1		0.1		3.3					0.2	0.1	3.3
C10: group efficacy	42	3.5					2.6	1.1	1.2	1.1	0.1	6.7	4.4
C11: fulfillment	102	2.4	1.1	1.1	0.2				2.5		1.2	3.4	1.1
C12: utility of interdependence	14	1.1		1.1		0.2			1.2				1.1
C13: transference	124	7.11	4.4	1.1		1.1	1.4	1.1			1.1	10.14	
C14: temporal shift	3				0.1		1.1						
V1: belonging	29	0.1	1.1	2.2	1.1	1.1	2.3		0.1			2.3	
V2: fun	125	3.8	1.1	0.1	0.3	1.3	56.64		5.17		0.1		6.7
V3: friendship	91	0.2	0.3	0.2	2.6	6.8	9.21	2.2	1.3	1.1	19.23	10.19	
V4: happiness	25				1.1		2.2		3.3				
V5: positive self-image	96	7.11	1.1	0.1		0.1		1.1	20.21		2.2	4.8	2.4
V6: increased social status	12	0.1			2.2						1.1	0.1	
V7: safety	28	1.4		1.1			1.1			0.1		1.2	
V8: excitement	29	0.2				1.1	3.5		0.3			6.8	
V9: fitness	15	1.1		1.1					4.4			1.1	

	n	V4	V5	V6	V7	V8	V9
	n	25	96	12	28	29	15
A1: novel experience	77	1.2	3.8			2.2	0.1
A2: challenge	66	0.2	3.11		2.2	1.4	
A3: program atmosphere	39	0.1	1.3		0.1		
A4: physical activity	9				1.1		5.5
A5: working together	43		1.1		1.1		
A6: tangible rewards	3		2.2				
A7: lunch	4						1.1
A8: games	15						
A9: communication activities	13						
A10: trust exercises	11						
A11: low ropes	53						
A12: high ropes	56				0.1		
A13: the height	25						
A14: belaying	4						
A15: climbing	24		0.1				
A16: specific high elements	95						
A17: everything	68						
A18: boredom	5						
C1: anxiety	41		4.7	1.1	1.2	1.2	
C2: peer pressure	3						
C3: hindrances	15		1.1	0.1	1.1		1.1
C4: positive experience	106	3.6	0.1		1.1	2.4	
C5: learning	57	0.3	4.8	0.1	2.2		0.1
C6: achieving goals	85	3.4	17.25	1.3			2.2
C7: new skills	21		2.3				
C8: trust	39		1.5		5.8		
C9: share ideas	16	0.1		0.1			
C10: group efficacy	42	0.1		0.1	1.1		
C11: fulfillment	102	8.8	2.3				2.2
C12: utility of interdependence	14				1.1		
C13: transference	124	0.2	20.28	2.6	2.4		1.1
C14: temporal shift	3						
V1: belonging	29	0.1	1.1				
V2: fun	125	4.11	2.8	1.1	1.3	0.1	1.4
V3: friendship	91	0.2	1.2	3.3	1.2		
V4: happiness	25						
V5: positive self-image	96	1.1		3.3			
V6: increased social status	12	0.1	1.1				
V7: safety	28		2.3	0.1			
V8: excitement	29	0.1	1.2				
V9: fitness	15		1.1		0.1		

VITA

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EDUCATION

- | | |
|--|---|
| <p>Doctor of Philosophy
 TEXAS A&M UNIVERSITY</p> <ul style="list-style-type: none"> ● Recreation, Park & Tourism Sciences Major | <p>December 2003
 College Station, TX</p> |
| <p>Master of Science in Recreation Administration
 AURORA UNIVERSITY</p> <ul style="list-style-type: none"> ● Outdoor Pursuits Major | <p>August 1997
 Aurora, IL</p> |
| <p>Honours Bachelor of Outdoor Recreation
 LAKEHEAD UNIVERSITY</p> <ul style="list-style-type: none"> ● Outdoor Recreation Major | <p>May 1996
 Thunder Bay, ON</p> |
| <p>Bachelor of Science
 LAKEHEAD UNIVERSITY</p> <ul style="list-style-type: none"> ● Natural Science Major | <p>May 1996
 Thunder Bay, ON</p> |
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PROFESSIONAL EXPERIENCE

- | | |
|---|--|
| <p>Senior Consultant
 ADVENTUREWORKS! ASSOCIATES INC.</p> <ul style="list-style-type: none"> ● Designed, developed, delivered, and debriefed outdoor adventure learning programs for a variety of groups ● Prepared course materials and instructed instructor level technical and facilitation skills courses for ropes courses, climbing walls, and rappell sites ● Set-up anchors, instructed and supervised top rope climbing, belaying and rappelling at outdoor rock climbing site ● Built, repaired and inspected low ropes course elements, high ropes course elements, and climbing walls, indoors and outdoors, in trees and in poles ● Participated as a member of the management team, made decisions relating to human resources, equipment, program development, risk and client management | <p>April 1998 to present
 Ancaster, ON</p> |
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