Meaningful Involvement Opportunities in Ropes Course Programs

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Ropes course research rarely investigates how program design and delivery contributes to program outcomes. This study used experience sampling and meansend analysis to 1) compare the meaningful involvement opportunities provided by two alternate ropes course design and delivery approaches, Challenge by Choice (CbC) and Inviting Optimum Participation (I-OPt), and 2) describe program design and delivery attributes effecting participant outcomes. The experience sampling data showed a significant main effect for the degree of meaningful involvement during high (belayed) ropes course activities. Follow-up ANOVAs indicated I-OPt programs participants experienced significantly more choice. Means-end analysis revealed I-OPt participants were more likely to mention low activities and group efficacy and less likely to mention anxiety while the reverse was true for CbC participants.

KEYWORDS: Ropes course, meaningful involvement, means-end analysis, Challenge by Choice, Inviting Optimum Participation.

Introduction and Literature Review

Recreation programs are considered an effective strategy for promoting positive personal and societal outcomes and alleviating negative outcomes especially for youth. Benefits-based programming in the 1990s led researchers and practitioners to deliberately design programs where participants realized specific benefits (Driver, 1999). Initial research suggests structured recreation programs create positive change when they provide challenging activities which demand effort and concentration (Eccles & Barber, 1999; Hultsman, 1996; Larson, 2000).

Ropes Course Programs and Research

Ropes course programs are highly congruent with the benefits-based approach. A ropes course, also known as a challenge course, is a giant playground built from rope, steel cable, wood, and other specialized hardware that is suspended from trees, utility poles, and other structures (Rohnke, Wall, Tait, & Rogers, 2003). Individuals, pairs, or groups climb and traverse

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elements located at ground-level to 30 or more feet in the air. This novel environment where the outcome, although uncertain, can be influenced by participants' own knowledge, skills, and abilities may lead to interpersonal and intrapersonal learning and growth (Neill & Dias, 2001; Priest & Gass, 1997a). The goal is for participants to transfer learnings from the ropes course experience to their everyday lives (Holyfield & Fine, 1997; Schoel & Maizell, 2002). Approximately ten thousand ropes courses exist in schools, camps, therapeutic institutions, and park districts in the United States with about 250 more being built each year (Rogers, 2000).

Most ropes course program research identifies outcomes associated with participation (Baldwin, Persing, & Magnuson, 2004; Hans, 2000; Kahne, Nagaoka, Brown, O'Brien, Quinn, & Thiede, 2001; Larson, 2000). Numerous studies indicate self-efficacy (Constantine, 1993; Nyhus, 1993; Rastall, 1998) and group cohesion (Bisson, 1997; Bronson, Gibson, Kishar, & Priest, 1992; Kopf, 1996) tend to increase following a ropes course program experience. Despite the ubiquity of ropes course programs, however, these benefits are not consistently achieved (Moote & Wodarski, 1997; Neill & Richards, 1998). While studies have highlighted the role of facilitation (Doherty, 1995; Priest, 1996; Priest & Gass, 1997b), sequencing (Kopf, 1996; Bisson, 1997), and program duration (Bunting & Donley, 2002; Cason & Gillis, 1994; Hattie, Marsh, Neill, & Richards, 1997), the key design and delivery features of effective ropes course programs have yet to be clearly identified (McKenzie, 2000; Sibthorp, 2003).

Lindemeier, Long, and Robertson (2004) pointed out that most studies consider "the course" as the treatment and evaluate the program in its entirety rather than attempting to isolate the effect of specific attributes. Goldenberg, Klenosky, O'Leary, and Templin (2000) used means-end analysis to examine the benefits associated with ropes course participation by adults, mostly university students. The 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 design and delivery features that led to these outcomes were not identified.

Lindemeier et al. (2004) found that low ropes and high ropes experiences often led to different benefits. While this study ascribes benefits to particular types of ropes course programs, it did not reveal the design and delivery features responsible for the benefits—despite the researchers' use of uniquely designed ropes courses (Alpine Tower and Team Development Course) for the study.

Freeman's (1993) study of flow during a low ropes program revealed that flow was more common during later phases of the program which were assumed to be more challenging. An increase in flow for some participants was related to an increase in anxiety for other participants. High ropes experiences were not examined.

Challenge by Choice. In North America, ropes courses were first used at Outward Bound to enhance individuals' self-efficacy for upcoming program challenges and to build group cohesion and support (Rohnke et al., 2003). Project Adventure began as an effort to bring the Outward Bound Process into the high school curriculum (Rohnke, 1999).

The Outward Bound Process exposes a motivated and able participant to a novel and stimulating physical environment in the company of a supportive peer group and presents them with unique, sequential, problemsolving tasks congruent with participant goals, needs and capabilities. According to Walsh and Golins (1976), the process is effective because participants experience a state of dissonance. When confronted with difficult and demanding tasks, individuals experience anxiety. They are motivated to resolve this anxiety by undertaking the challenges before them. Success leads participants to re-evaluate their initial perceptions and also highlights strategies and responses that may be employed in subsequent, stressful situations (Brody, Hatfield, & Spalding, 1988).

In the mid-1980s, Project Adventure began using the phrase Challenge by Choice to frame ropes course experiences. The goal of Challenge by Choice (CbC) is to increase the potential for growth and development by promoting individual challenge, risk taking, and learning (Schoel, Prouty, & Radcliffe, 1988). Because participants may choose their level of participation, the external pressure to perform activities is removed (Priest & Gass, 1997a; Rohnke, 1999).

Challenge by Choice altered the framing of ropes course programs but their design and delivery is still based on the OB Process Model. A CbC program begins with cooperative games designed to create a cooperative and supportive atmosphere where participants encourage and trust one another (Rohnke, 1989). After cooperative games, instructors sequence problemsolving initiatives, physical stunts, and trust activities to bond the group prior to their high ropes experience. The underlying assumption is that the group will offer greater support and encouragement during the later high ropes portion of the program (Bisson, 1999), and that high ropes without the preceding activities is simply a cheap thrill (Rohnke, 1999).

One low ropes course element that often concludes the low portion of the program is the Wall (Rohnke, 1989). The task is for the group to lift all group members over a 10 to 12 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. The group is reminded that CbC allows them to do as much of an activity as they want and choose how much, if at all, they will participate. They are told that it is important to feel comfortable and they may 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 completing the Wall, the group will move to the high ropes course where individuals may challenge themselves while the group offers support and encouragement. Participants may have a choice of climbing one of two vertical playpens or one of three climbing routes but there will likely be only one type of access to the traversing elements. Inviting Optimum Participation. Inviting Optimum Participation is a new, comprehensive ropes course program design and delivery model that has been co-developed by the first author. The model was created as an alternative to Challenge by Choice and provides a design template for ropes course programs (Haras, 2003). The goal of Inviting Optimum Participation is to deliberately design a challenge environment that balances with participants' individual characteristics and therefore invites active engagement in the ropes course program. The key feature of I-OPt programs is a single, inclusive activity design that provides all participants with multiple options and levels of challenge with the scope of an activity's central task. The resulting active engagement supports the underlying purpose for a ropes course experience—positive interpersonal and intrapersonal growth and development.

At the start of an I-OPt program the ropes course program instructors inform participants that various levels of difficulty and types of challenges exist and that their responsibility as participants is to select their own challenging roles. After this introduction, the group often goes to the high ropes course where they may have a selection of three traversing elements such as the Three-Line, which has one central foot cable and two hand 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 Lazy Loop Bridge which is a series of rope loops hanging from two side ropes and is moderately difficult. There are numerous options for getting to the top of the course: 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 types of access and participants may use the access methods to reach vertical goals.

I-OPt action opportunities differ both in quantity (number) and quality (variety) of choice (Parker, 1981). While CbC participants may choose how much of an element they complete and thus have a large quantity of choice, the dissimilar action opportunities provided in I-OPt programs make it more likely everyone will find a suitable challenge at the high ropes course.

After the high ropes experience, the group may switch to a low ropes element like the Wall. Once again, the goal is for group members to transport everyone up and over the barrier. This Wall, however, has been redesigned. One side is an inclined cargo net. The second side is a 10-foot wall with small removable climbing holds and a narrow recessed ladder. The 12foot wall on the third side also has small removable climbing holds and a narrow recessed ladder. 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, only spot. The choice of height combined with choice of access style including sheer wall, recessed rungs, climbing holds, and cargo net make it more likely that every group member's skills and abilities will match the challenge environment.

Meaningful Involvement

Involvement, as used in leisure, typically implies an attachment of a high degree of personal relevance to a specific activity (Wiley, Shaw, & Havitz, 2000). McIntyre (1989) presented an alternate psychological perspective. He defined involvement as an individual's personal connection to an activity, separate from participation or specialization. His study demonstrated that involvement consisted of three aspects: attraction, including the enjoyment and importance of the activity; self-expression; and centrality of the activity to self and others.

Research on effective youth programs indicates participants who voluntarily engage in a complex environment that is challenging and personally satisfying receive the most benefit (Checkoway, 1998; Kleiber, Larson, & Csikszentmihalyi, 1986; Larson, 2000). In other words, programs are successful when participants experience involvement they find meaningful. In ropes course literature, meaningful involvement occurs when participants play a role in the activity that contributes to achieving the group's task (Rohnke et al., 2003).

Meaningful involvement is strongly related to flow, the sensation individuals experience when they act with total involvement (Csikszentmihalyi, 1975). In the most current model, three flow-inducing environmental conditions: 1) clear goals that let participants know what needs to be done; 2) immediate feedback so participants know how well they are doing; and 3) balance of challenge and skill so participants feel they are capable of doing what needs to be done, create the characteristics of flow experiences that lead to flow outcomes (Csikszentmihalyi, 2000; Voelkl & Ellis, 2002; Voelkl, Ellis, & Walker, 2003). According to Voelkl and Ellis (2002), the outcomes of a flow experience are enhanced self-affirmation and positive affect.

Based on these findings of involvement and flow, Haras (2003) proposed that meaningful involvement involves engagement in a personally significant action opportunity that has real consequences for succeeding in the activity; choice which allows individuals to express their identity and mediate the balance of skill and challenge; and a view of self that conveys a holistic sense of achievement, enjoyment, and purpose. These items parallel the three definitions of meaning found in Csikszentmihalyi's (1990) *Flow:* focused attention on an achievable and enjoyable activity; intentional behaviour chosen to give purpose to action; and harmonious inner thoughts and feelings.

Purpose

This study used Haras' (2003) definition of meaningful involvement to assess two different approaches to ropes course program design and delivery: Challenge by Choice (CbC) and Inviting Optimum Participation (I-OPt). Specifically, the purpose was to: 1) determine if a measurable difference in meaningful involvement exists between CbC and I-OPt programs and 2) identify I-OPt and CbC program attributes, outcomes, and values as well as their linkages.

Methods

The ultimate goal was to describe program features that increase meaningful involvement and enable practitioners to design and deliver effective ropes course programs. As a result, researchers needed to create a situation where all study participants would have a comparable experience in terms of quality regardless of differences in program design and delivery. Researchers selected four ropes course program providers located within one hour's driving distance of Toronto because of similarities in cost, population base, and facilities. Two organizations used CbC and two organizations used I-OPt as their usual programming style. Program delivery staff completed a survey to verify the four organizations had similar levels of staff training and expertise. All staff also took part in training sessions to orient them to the study and clarify their organization's approach to program design and delivery (I-OPt or CbC). At this time staff discussed specific activities, how to modify activities without affecting study fidelity, and how to eliminate data if activities deviated from the required approach.

Study participants were members of school classes or youth groups that booked a full-day ropes course program with one of the four ropes course program providers so participants could not be randomly assigned. Of the 360 adolescents (172 boys and 188 girls) between the ages of 10 to15 (average age 12.7) who participated in the study, almost half (47%) had previous ropes course program experience.

Each day-long ropes course program lasted five to eight hours and consisted of a variety of low (spotted) activities, and high (belayed) activities such as a high ropes course and/or climbing wall. To ensure data collection did not interfere with the ropes course program experience, individuals completed either: 1) four experience sampling forms on meaningful involvement or 2) one means-end survey related to program attributes, outcomes, and values.

Experience Sampling

The experience sampling method (ESM) enables researchers to study participants' subjective experiences in an ecologically valid way. When prompted, study participants immediately complete a brief experience sampling form which captures participants' immediate conscious experiences in a real-time and on-site context (Csikszentmihalyi & Larson, 1987). Researchers can identify significant patterns within an experience, determine what produces various outcomes, and then use this information to deliberately design particular experiences (Hull, Stewart, & Yi, 1992; Stewart & Hull, 1992).

Because its items corresponded reasonably well with the definition of meaningful involvement, the Experience Sampling Form (ESF) for this study was modified from Csikszentmihalyi and Larson's (1987) study of adolescents. In addition to responding to open-ended questions about their current situation, participants used Likert-type scales to indicate their affect, potency, motivation, and thought processes. Participants also described their involvement in the main part of the activity by marking an X on a ten centimeter line and rating their freedom to choose and options for participation within the activity. Engagement included items related to challenge, skill, task importance, and potency. Choice included items related to control, motivation, and ability to choose. View of self included semantic differentials and other items related to affect and perception of success.

Participants completed one ESF after the high (belayed) activity and three ESFs after low (spotted) activities. To give the 151 participants time to become comfortable in their new surroundings, they did not complete their first ESF until at least 30 to 45 minutes into the ropes course experience. Because time is limited in a one-day program, almost every activity (except the initial games which occurred within the first 30 to 45 minutes) was surveyed.

ESM does not assume consistent responses so it does not rely on single assessments but uses repeated measurements over numerous occasions (Csikszentmihalyi & Larson, 1987; Larson & Csikszentmihalyi, 1983). Due to repetitive sampling, a single construct need not incorporate multiple items and researchers have considerable flexibility about what items to include. According to Csikszentmihalyi and Larson (1987), the technique differentiates between groups expected to differ and responses covary with type of activity, location, and social context.

Since the intent of this study was to describe the experience of participants in different situations, each of the 604 reported instances of participation in ropes course activities were counted as independent measurements. To control for differences between participants relating to individual response patterns (Larson & Delespaul, 1992), individual experience scores were transformed into z-scores to adjust for each person's mean and standard deviation as is standard in ESM studies (Chalip, Csikszentmihalyi, Kleiber, & Larson, 1984). This step eliminates individual response differences and makes additional adjustments required for unbalanced, nested designs unnecessary (Samdahl, 1989).

Multivariate analysis of variance (MANOVA) was performed to determine if meaningful involvement differed between CbC participants and I-OPt participants during high (belayed) and low (spotted) ropes course activities. The independent variables were program type, sex, and program experience. MANOVA was selected because differences between CbC and I-OPt are qualitative rather than quantitative (Jackson, 1995). MANOVA also differentiates between groups on more than one dependent variable and provides information on interaction effects without inflating Type I error (Jackson, 1995). Analysis of variance (ANOVA) was subsequently performed to determine whether engagement, choice, and view of self variables was responsible for a statistically significant difference between the mean scores of the two groups study groups (Jackson, 1995).

Means-end Analysis

At the end of their ropes course program 209 participants completed a means-end survey identifying program attributes, outcomes, values, and their linkages. Since ESM results are most similar to immediate post-hoc assessments (Stewart & Hull, 1992), this timing was most compatible with the investigation on meaningful involvement. Similar to the approach used by Goldenberg et al. (2000), participants identified three outcomes resulting from their participation. After identifying three program outcomes, participants indicated why each outcome was important to them. Unlike the study by Goldenberg and others, participants indicated what aspect of the program contributed to that outcome. One complete ladder consisted of an *outcome* the participant considered important, explanations why that outcome was *valued*, and a description of the ropes course program *attribute* that led to that outcome.

The first step in analyzing means-end data is to establish the content categories that summarize participant responses (Reynolds & Gutman, 1988). The first author and two ropes course instructors who delivered programs for the study used an affinity grouping exercise to identify the content categories. Coders wrote the verbatim responses of all participant ladders on cue cards and then grouped cue cards containing similar responses together. As recommended by Reynolds and Gutman, the groupings focused on relationships among responses central to the purpose of the study.

In the second step of the coding process, the coders named the content categories and labeled them as an attribute, outcome, or value.

- An attribute was a physical or observable characteristic of the program (Gengler, Klenosky, & Mulvey, 1995) that could be affected by ropes course program instructors.
- An outcome was any direct or indirect, positive or negative, functional, social or psychological effect linked to program attributes (Klenosky, Gengler, & Mulvey, 1993).
- A value was an abstract end state that resulted from participation (Goldenberg et al., 2000; Frauman, Norman, & Klenosky, 1998).

The coders established 41 content categories. The inter-rater reliability for the first two parts of the coding procedure was 87% and disagreements were resolved by consensus.

The third step was to code to each participant response and remove any redundancies from individual ladders (Frauman et al., 1998). A ropes course instructor involved in the previous process simultaneously coded the individual responses with the first author. Inter-coder reliability for this step was about 92% and disagreements were resolved by consensus.

The first author entered the coded responses into the LadderMap software package which creates an implication matrix summarizing how often participants link content categories (Gengler & Reynolds, 1993). The implication matrix creates Hierarchical Value Maps (HVMs)—tree-like network diagrams that graphically display the aggregate of means-end ladders identified by participants (Gengler et al., 1995). HVMs identify patterns in participant responses and illustrate differences among various groups (Klenosky et al., 1993).

A cutoff point removes less frequently mentioned responses and helps create an understandable and visually appealing HVM (Reynolds & Gutman, 1988). Using the same cutoff point makes the comparison of different groups (i.e. CbC vs. I-OPt) easier. The means-end literature (e.g. Gengler & Reynolds, 1993; 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 visually layout the HVM in a logical way. In general, attributes appear at the bottom of the HVM, outcomes in the middle, and values at the top. This order conveys the increased level of abstraction as one moves up the map (Goldenberg et al., 2000). The overall shape of an HVM is unimportant. Instead, creating an understandable graphic requires that circles be placed to minimize lines crossing over each other (Gengler et al., 1995).

Results

Experience Sampling

High activities. Multivariate analysis of the experience sampling data for meaningful involvement showed a significant main effect (λ (3,159) = 0.93, p < 0.01) for program type during high activities (Table 1). There was no significant main effect for sex or ropes course program experience. In addition, there were no significant interaction effects. Follow-up ANOVAs in-

Multivariate ANOVA ^a		Univariate ANOVA ^b		
Source	F	Engagement	Choice	View of Self
Program	3.79**	0.01	7.14**	2.68*
Sex	1.64		_	_
Experience	1.39	—	_	_
$Program \times Sex$	1.68	_		
$Program \times Experience$	0.05			_
Sex × Experience	1.68			_
Program \times Sex \times Experience	1.83	—	_	

 TABLE 1

 Analysis for Meaningful Involvement during High Activities

$${}^{b}df = 1, 161$$

$$**p < 0.01$$

*p < 0.10

 $^{^{}a}df = 3, 159$

dicated that choice (F(1, 161) = 7.14, p < 0.01) was significantly higher in I-OPt programs. 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 at p < 0.05.

Low activities. 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 2).

Means-end Analysis

Each element of an HVM has meaning. Circles represent content categories. The larger the circle, the more frequently the category was mentioned. Labels and colors distinguish among attributes, outcomes, and values. Attributes use white circles and all lower case letters. Outcomes are grey and labeled using upper and lower case letters. Black circles labeled with all upper case letters represent values.

A chain is a sequence of content categories linked together in an HVM (Reynolds & Gutman, 1988). The lines indicate that respondents equal to or greater than the cut-off value linked two particular content categories (Gengler & Reynolds, 1993). The thickness of the line indicates the strength of the connection between content categories connect. The wider the line, the more frequently respondents linked the two categories and hence the stronger their association (Gengler et al., 1995).

Figure 1 presents the HVM for the entire group of participants, undifferentiated by program or the other independent variables of interest. Many of the program attributes are key ropes course program design elements 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 gen-

Multivariate ANOVA ^a	Univariate ANOVA			
Source	F	Engagement	Choice	View of Self
Program	1.00			_
Sex	0.57	_	_	
Experience	0.53	_		_
$Program \times Sex$	0.56	_	_	
$Program \times Experience$	0.06	_		
Sex × Experience	0.51	_	_	
Program \times Sex \times Experience	0.63			

TABLE 2 Analysis for Meaningful Involvement during Low Activities

df = 3, 437



Figure 1. HVM for participants in all programs (n = 208).

eral," describe particular components of a ropes course program. Many of the benefits such as "transference," "learning," "group efficacy," "trust," "achieving goals," also represent outcomes commonly associated with ropes course programs. The outcome "anxiety" was linked to "high ropes in general."

"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). 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."

Comparing HVMs for CbC programs (Figure 2) and I-OPt 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 "high ropes in general" and "specific high elements" were important attributes of their ropes course program experience. However, CbC participants included program attributes "height" and "climbing," which relate to high activities, whereas I-OPt participants included 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 "funfillment." 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 challenge was associated with achieving goals and 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.

There was one major difference between the two maps. In CbC programs the outcome "anxiety" was present while "group efficacy" was absent. In I-OPt programs, the reverse was true. "Anxiety" was absent while "group efficacy" was present. The outcome "group efficacy" had a strong link with the attribute "working together" and a weak link with the value "fun."

Finally, both groups connected the value of "friendship" with "belonging," and "happiness" with "fun." I-OPt 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."

Overall, the HVMs provide important insights into what participants value, the outcomes achieved through participation in ropes course pro-



Figure 2. HVM for CbC program participants (n = 91).



Figure 3. HVM for I-OPt program participants.

grams, and the program attributes that led to these outcomes. Although there was similarity between the content categories and linkages reported by CbC and I-OPt participants, there were also important differences. When HVMs were constructed for each of the four study sites, these patterns remained. This suggests differences in program design and delivery influenced participant experiences.

Discussion

Ignoring differences in program design and delivery has made it difficult for researchers to answer two basic questions: first, what kind of experiences ultimately contribute to desired program outcomes (Baldwin et al., 2004; Hovelynck, 2003; Larson, 2000)? Second, what program features create those key experiences (Sibthorp, 2003)?

Meaningful involvement describes experiences where voluntary participation in a purposeful and challenging endeavour leads to a feeling of personal satisfaction. Meaningful involvement exists when the roles of ropes course program participants enable them to contribute achieving the activity. Describing the program features that increase meaningful involvement will enable practitioners to consistently design and deliver more effective ropes course programs.

Key Findings

Both the experience-sampling and means-end analysis results indicate program design and delivery had a significant impact on participant experiences of meaningful involvement.

Choice. Choice was clearly important to study participants during high activities. MANOVA results comparing CbC and I-OPt programs showed a significant main effect for the degree of meaningful involvement experienced during high activities. Follow-up ANOVAs indicated choice was significantly higher in I-OPt programs. In addition, all HVMs included the content category "specific high elements," indicating participants could identify their preferred elements. 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," indicating participants selected elements where they could be successful.

Given their different approaches to high activities, it is not surprising that CbC and I-OPt participants had different experiences during high activities. Tight design specifications for I-OPt programs made it easy for ropes course instructors to create a multilevel challenge environment with: 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, high ropes during CbC programs lacked at least one and often more of these features. At one CbC program site, for example, participants used an aluminum ladder in conjunction with a stapled pole to access the high ropes elements. Choice was plentiful (there were more than 10 elements) but also limited since this was the only option for leaving the ground. Thus, participants who did not feel comfortable climbing the ladder had no other choice to access the high ropes elements.

Anxiety. Meaningful involvement requires a level of skill adequate for the task. When skill level is inadequate for the challenge, anxiety results (Csikszentmihalyi, 1975). 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 (Bunting, Tolson, Suarez, & Williams, 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 (Cohen, 1993; Ewert, 1989; Kemp, 1997).

The branch chain "high ropes" leads to "anxiety" was present on the HVM for all participants. A similar chain consisting of the program attribute "climbing" leading to the outcome "anxiety" was present in the HVM for CbC program participants via the outcome of "transference." This connection indicates that CbC participants felt the anxiety of climbing was similar to other activities that made them anxious. The outcome "anxiety" was not present on the HVM for I-OPt program participants indicating that less than five percent of these individuals felt anxiety was a key outcome of their program experience.

The finding of "anxiety" in CbC programs is notable because of the large number (63 %) of individuals in CbC programs who had previously participated in a ropes course program. Because of their prior experience, these individuals should be more familiar with the activities and therefore less anxious. In addition, all CbC participants experienced high ropes as the last activity in their program sequence after facing progressively more complex and risky challenges and after the group had bonded to some extent. In contrast, I-OPt participants often experienced high ropes much earlier in their program. If CbC program design philosophy (Bisson, 1999; Rohnke, 1999) were accurate, this difference in sequencing should cause I-OPt participants to experience anxiety because the I-OPt participants were not prepared the challenge of high ropes nor sufficiently bonded to offer support and encouragement. The finding of "anxiety" in CbC programs, however, suggests that CbC program sequencing may not reduce anxiety but may instead build apprehension. In fact, researchers have speculated that even when participation is voluntary, simply being in an environment where active participation is expected may increase stress levels (Bunting et al., 2000).

Another explanation for the difference in anxiety reported by CbC and I-OPt program participants is that adventure programs not only pose physical

challenges but also psycho-social ones (Bunting et al., 2000). For example, Ewert (1988) found 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 (spotted) activities which often have a group focus and provide simultaneous opportunities for participation, the high ropes experience is much more individually focused and allows the entire group to see how well a climber is doing. Thus, the issues associated with anxiety go beyond personally experiencing an undesirable outcome to having other group members witness this (perceived) shortcoming. Some participants may feel that it is therefore preferable to do nothing rather than fail in front of their peers. In a study of university students with low self-esteem, Kemp (1997) reported this pattern of behaviour. Participants with low self-esteem seemed unwilling to become meaningfully involved during low activities including games, low ropes, and initiatives. The study found no difference in the behaviour of participants in the experimental and control groups who had higher levels of self-esteem.

Numerous articles (i.e. Davis-Berman & Davis, 2002; Kemp, 1997) indicate that a safe and supportive environment is key to involving participants and environments which reduce anxiety may improve both performance and participants' view of themselves. Cohen (1993) points out, however, that changing the emotional aspects of the environment does little to change actual behaviour if the structural aspects of the environment are not altered to provide additional opportunities for meaningful involvement. Wigfield and Eccles (1994) found, for example, 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 nonparticipation. The reduced anxiety I-OPt programs may, therefore, be the result of the greater number of simultaneous action opportunities. With so many different possibilities for climbing and traversing, it was easier for all participants to find an activity at which they might be successful, and also more difficult for group members to compare each other's accomplishments so "performance anxiety" is minimized.

Fun. Regardless of the program approach, the value "fun" was connected to attribute "challenge" and the outcome "achieving goals." This finding suggests participants considered challenges fun if they were achievable and that both CbC and I-OPt programs did a good job of creating positive experiences. The connection among challenge, achieving goals, and fun has significant implications for ropes course program design and delivery. Davis, Ray, and Sayles (1995) 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 similar to McKenzie's (2000) study of Outward Bound participants who connected challenge with a positive program experience and a lack of challenge with a negative program experience. Likewise, 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 consistent with Goldenberg and others (2000) who found task accomplishment was the key ropes course program outcome.

Lisson (2000) writes that Challenge by Choice places much emphasis on participant choice but offers little direction for creating of varied challenge opportunities within the adventure experience. With the popularity of shorter adventure programs like ropes course that allow less time for the development of skill and fitness (Hovelynck, 2003), providing only limited challenge options is problematic since challenges that are too difficult to accomplish discourage meaningful involvement. Csikszentmihalyi (1975) suggests that providing meaningful experiences requires participants have a choice of challenging activities that fit their skills.

Group efficacy. Only I-OPt program participants identified low activities and linked them to group efficacy. While this difference in the ropes course program outcomes may reflect differences in activity sequence (i.e. CbC participants experienced high ropes immediately prior to the survey while I-OPt participants often experienced low activities), it is likely that I-OPt programs were more effective at creating group efficacy through low activities. Since action opportunities in I-OPt programs were deliberately designed to allow participants to contribute to the achievement of the central task, participants may have recognized that working effectively together helped them achieve their goals. This explanation is supported by the linkage I-OPt participants made between "achieving goals" and "fun."

It is somewhat surprising that CbC participants did not identify low activities or group efficacy. Numerous studies have explored on the relationship between ropes course program participation and group cohesion (Bisson, 1997; Bronson et al., 1992; Kopf, 1996), and some studies (Ibbetson & Newell, 1996; Wagner & Roland, 1992) have also looked at group efficacy. Findings generally indicated that participation in a ropes course program is beneficial to the development of group efficacy (O'Bannon, 2000; Priest & Lesperance, 1994). Although the ropes course programs in these studies used the CbC approach, the researchers did not indicate what aspects of low activities may have led to group efficacy. Consequently, there is little indication of why CbC participants in this study failed to identify low activities or group efficacy as significant.

Research Recommendations

This was the first study to attempt to compare two different approaches to ropes course program design and delivery. While the results reflect the experiences of young adolescents in one-day programs, and thus cannot be generalized to other populations and programs, a useful protocol has been established. Although both ESM and means-end analysis rely on self-reports and are therefore subject to accuracy and truthfulness of participant response, this multi-method approach can be used to compare other types of programs thereby adding to the knowledge of how particular aspects of program design and delivery contribute to the achievement of desired goals. Areas that may benefit from this strategy include youth development experiences such as after-school programs, and recreation programs in the public, private, and non-profit sectors.

Despite the knowledge gained from this study, many questions remain unanswered. For example, what other constructs describe important variations between programs and which program attributes contribute to realizing these differences. One question that should be answered is whether perceptions of self and group efficacy differ between CbC and I-OPt programs. Previous research has indicated CbC programs generally have a positive impact on both of these outcomes. What are the results of I-OPt programs?

A second area to explore is the long-term effect of different types of program participation. While some adventure program research has found constructs related to view of self diminish over time (for example Propst & Koesler, 1998), other research has indicated constructs related to view of self actually increase (Davis et al.,1995; Hattie et al., 1997; Newberry & Lindsay, 2000). Thus, longitudinal research may reveal additional differences between program types. Since previous research on CbC ropes course programs indicates view of self is positively affected by participation in ropes course programs (Constantine, 1993; Nyhus, 1993; Rastall, 1998), future research should, therefore, specifically investigate the relationship between view of self and participation in I-OPt programs.

Third, multi-method studies of specific program processes and the aspects that support these processes should be repeated with various participant groups. As a result of maturity, group history, and knowledge, skill, and ability, dissimilar participant groups may have significantly different experiences with the same type of program. While meaningful involvement may remain important, will the same program attributes be significant? Researching adult corporate groups would be especially interesting since they consist of participants in intact groups who have limited choice about participation. In addition, the programs often focus on group efficacy. The suggestion is to also study non-intact groups since sequencing may have a different impact when group members do not know each other.

Conclusions

Determining quality is a major issue in benefits-based programming (Kahne et al., 2001). There is often little data to guide practitioners since research has not examined the role of program design and delivery in producing outcomes. Researchers need to provide information not only on program outcomes but also on the program itself—its features, implementation process, and underlying philosophy. Describing logistical aspects such as program length and activities is inadequate.

Studies of adventure programs have focused primarily on outcomes and have often assumed program design and delivery to be constant (Sibthorp, 2003). Consequently, many adventure experiences, including Challenge by Choice ropes course programs, have relied on the Outward Bound Process Model despite little indication how its approach to sequencing and use of characteristic problem-solving tasks contributes to the achievement of program outcomes. Ewert and McAvoy (2000) suggested that researchers question the effectiveness of this adventure program design and delivery model via a multi-method research approach.

Despite the belief that program design and delivery seem to be among the most critical factors influencing program effectiveness (Neill & Richards, 1998), the influence of different ropes course program design and delivery approaches on participant experience has not been studied. This study evaluated two comparable yet systematically different types of ropes course programs. It found that participants in I-OPt programs type experienced a higher degree of meaningful involvement during high activities than participants in CbC programs and this difference could be attributed to the amount of choice. Participants in I-OPt programs also identified different program attributes, outcomes, and values and unique links among program attributes, outcomes, and values when compared with participants in CbC programs. I-OPt participants were more likely to mention low activities and group efficacy as significant and less likely to mention anxiety. CbC participants were less likely to mention low activities and group efficacy and more likely to mention anxiety. These findings suggest that differences in program design and delivery influence participant experiences and indicate that, rather than being a relatively fixed experience, practitioners can deliberately structure the design and delivery of ropes course programs to provide specific benefits and facilitate participant experiences of meaningful involvement.

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