

A Means-End Investigation of Ropes Course Experiences¹

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Means-end theory and its associated methodology provide an approach for investigating the meanings that individuals associate with the products and services they purchase, consume, and experience. Drawing from this means-end perspective, a study was conducted to develop a better understanding of the range of benefits that result from participating in a ropes course program. A sample of 125 participants from two ropes course programs identified the benefits they derived from their ropes course experience. Using a self-administered laddering procedure, subjects then provided information about the higher-level outcomes and values related to these benefits. An analysis of this means-end data provided insight into the relationship among the range of benefits and values associated with completing a ropes course. The study findings hold important implications for researchers interested in studying ropes courses or conducting means-end research in other leisure and recreation settings.

KEYWORDS: *Ropes courses, experiential education, means-end theory, laddering methodology*

Introduction

Means-end theory seeks to understand the important meanings that individuals associate with the products and services they purchase, consume, and experience. More specifically, means-end theory seeks to characterize the relationships among particular objects or behaviors, "the means", and the outcomes and personal values important to the individual, "the ends".

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Means-end theory and its associated methodology have typically been used to develop a better understanding of the factors influencing consumer choice or decision-making behavior. For example, the technique has been used in previous research to understand the factors involved in buying a tennis racquet (Mulvey, Olson, Celsi & Walker, 1994), purchasing a greeting card (Walker & Olson, 1991), and selecting a ski destination (Klenosky, Gengler & Mulvey, 1993). Recent research has applied the means-end perspective in less traditional product/service settings, for example, to understand the factors driving weight loss (Pieters, Baumgartner & Allen, 1995), recycling behavior (Bagazzi & Dabholkar, 1994), and park visitors' usage of interpretive service offerings (Klenosky, Frauman, Norman & Gengler, 1998).

This study extends means-end research by using the approach to examine the factors associated with the experience of participating in a particular recreation activity—a ropes course program. A ropes course is a series of activities and initiatives that challenge groups of individuals to work together to solve problems and complete tasks. The purpose of this research was to learn more about the role and meaning of the benefits associated with this type of programming. More specifically, the objectives were to identify the different benefits participants derived from completing a ropes course program and examine the means-end relationships that help explain why and how participants view these benefits as important.

We begin by reviewing previous empirical research on the benefits of ropes course and adventure education programming. We then overview means-end theory and its associated methodology and explain how the approach was adapted in the present study of ropes course participants. Next, we present the details of the methodology and report the major findings of the ropes course study. We conclude by discussing the implications of these findings for researchers interested both in studying ropes course experiences and conducting means-end research in other leisure and recreation settings.

Previous Research on Ropes Course Benefits

Experiential education is “learning by doing.” The available evidence generally supports the view that direct experiences with nature, people, objects, things, places, and tasks lead to faster learning, better retention, and a greater appreciation and understanding of learned material (Freeberg & Taylor, 1963, p. 1). Experiential education can take many forms, such as an internship, class field trip, or outdoor adventure program. Ropes courses represent a large and growing form of these later types of experiential education programs.

Ropes course programs, bring together groups of individuals and present them with a series of challenges or problems to solve. These activities are then followed by a debriefing or processing period where group members are encouraged to share the lessons they learned and, ideally, how these lessons could be applied in other settings. Ropes courses are usually held outside, and made out of a variety of elements spread out over a space of

ground. An element or initiative is a task or problem that the members of the group are challenged to complete or solve. Wood, cinder blocks, trees, cables, buckets, cans, ropes, and other materials may be used to create the elements. Ropes courses can be made up of low and/or high elements. Low elements, which are conducted at or near ground level, are generally designed to get individuals to work as a group or team. High elements involve more risky above-ground challenges that also promote group benefits but that primarily help individuals develop confidence and test their limits via "risk" activities or challenges (Meier, Morash & Welton, 1980). Different types of elements can be put together in a program designed to emphasize a broad variety of objectives or benefits. Table 1 summarizes the major group and individual benefits typically associated with ropes course programming.

Research involving several of these benefits have been reported in the ropes course and adventure education literature. Of the benefits examined in the past, those related to teamwork and group development have received the most attention (Bramwell, Forrester, Houle, LaRocque, Villeneuve & Priest, 1997; Bronson, Gibson, Kishar & Priest 1992; Doherty, 1995; Ewert & Heywood, 1991; Klint & Priest, in press; Priest & Lesperance, 1994; Priest, in press-a; Priest, in press-b; Smith and Priest, in press). Other benefits that have been examined include trust (Klint and Priest, in press; Priest 1996a, 1996b, 1998), communication (Bramwell et al., 1997; Klint & Priest, in press), risk-taking (Goldman & Priest, 1990; MacRae, Moore, Savage, Soeh-

TABLE 1
Potential Group and Individual Benefits of Ropes Course Participation

Group-oriented benefits:

- enhance communication skills—active listening, giving feedback, etc.
- improve critical thinking and problem solving skills
- enhance trust—willingness to experience vulnerability, to face the unknown and to take appropriate risks despite the fear
- improve decision making skills—evaluating information and determining course of action in a given situation
- enhance teamwork—giving and receiving support
- improve planning skills—determining the steps to take to achieve a goal
- enhance leadership—responsibility for guiding a group in the accomplishment of a task
- enhance cooperation—working together towards a common goal in a constructive positive manner

Individual-oriented benefits:

- overcome preconceived personal limitations and prejudices
 - increase confidence
 - increase self-esteem
 - enhance coordination and agility
 - enhance an understanding of and respect for individual differences
 - promote expression of thoughts and feelings
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ner & Priest, 1993; Priest, 1992; Priest & Carpenter, 1993), and self-esteem (Finkenberg, Shows & Dinucci, 1994; McDonald & Howe, 1989; Steffan, Cross, Stiehl & Smith, 1994).

In some of these studies, the focus was specifically on identifying or demonstrating the benefits of participating in ropes course and adventure education programs (e.g., Bramwell et al., 1997; Bronson et al., 1992; Ewert & Heywood, 1991; Finkenberg et al., 1994; Klint & Priest, 1996; McDonald & Howe, 1989; Priest, *in press-a*; Priest & Lesperance, 1994; Steffan et al., 1994). In other studies, however, benefits were examined mainly as criteria for assessing the impact of selected program-related factors, such as the type of program (MacRae et al., 1993), type of facilitators (Priest, *in press-b*) and type of facilitation/debriefing approach (Doherty, 1995; Priest, 1996b; Priest & Gass, 1997). Regardless of the specific focus, however, the pattern of evidence from these studies confirms the effectiveness of ropes course and adventure education programs in providing beneficial outcomes to program participants. Unfortunately, however, the evidence also shows that this improvement is often short-lived (Meyer & Wenger, 1998), unless steps are taken to maintain it over time (Bramwell, et al., 1997; Priest & Lesperance 1994). For example, in one study by Priest and Lesperance (1994), gains in teamwork were maintained for groups who were trained to use follow-up procedures (to maintain their teamwork) but returned to pre-study levels in as soon as six months for groups who received no such training.

The approaches used to examine benefits in the past have ranged from well-structured traditional quantitative approaches, in which participants are asked to complete a measurement scale or inventory of benefit items according to a particular longitudinal or pre-post design (Bronson, et al., 1992; Doherty, 1995; Ewert & Heywood, 1991; Finkenberg et al., 1994; Goldman & Priest, 1990; MacRae et al., 1993; McDonald & Howe, 1989; Priest, 1992; 1996a, 1996b, 1998 *in press-a*; Priest, *in press-b*; Priest & Carpenter, 1993; Priest & Lesperance, 1994; Steffan et al., 1994) to more open-ended qualitative approaches, that rely on observation and in-depth interview techniques (Klint & Priest, *in press*; Meyer & Wenger, 1998). In some cases, a combination of quantitative and qualitative techniques were used (Bramwell et al., 1997; Smith & Priest, *in press*). The quantitative approaches that have been used have generally focused on examining the extent to which a given benefit or set of benefits is important or not, while the qualitative approaches have focused on using the respondents' perspective and language to identify and develop a better understanding of the key benefits. The means-end approach used in the present research is similar in emphasis to the qualitative approach in that the goal is to uncover benefits and develop a richer understanding of them. However, it differs in that it seeks to develop this understanding by examining the relationship among benefits and other particular types of meanings—i.e., meanings at different levels of abstraction. The following section provides a more complete discussion of the means-end approach and how it was applied to examine the benefits associated ropes course programming.

Using Means-End Theory to Study Ropes Course Benefits

Means-end theory is a perspective for understanding how consumers feel about particular products or services (Klenosky et al., 1993). Developed by Jonathan Gutman (Gutman 1982; Reynolds & Gutman 1988), means-end theory focuses on the interrelations among product meanings at three levels of abstraction: attributes, consequences, and values. Attributes refer to the relatively concrete characteristics of a product or service. For a ropes course, attributes would include the location of the course, the length of the course, and the type of activities or initiatives used. Consequences refer to the outcomes associated with purchasing and consuming/experiencing a product or service. Positive outcomes typically refer to benefits, whereas negative outcomes commonly represent associated costs or perceived risks. For a ropes course, the consequences experienced might include the benefits of communicating better with others, making more effective decisions, or learning to work as a team; or the costs associated with the use of one's time or money and the risks of getting injured or embarrassed. Values are highly abstract consequences that summarize desired end-states of being. For example, the List of Values (LOV), a typology developed for measuring values in survey research (Kahle, 1983; Verhoff, Douvan & Kulka, 1981), identifies nine core values which include a sense of belonging, excitement, warm relationships with others, self-fulfillment, being well respected, fun and enjoyment of life, security, self-respect, and a sense of accomplishment. Values that might be emphasized by completing a ropes course program could include a sense of belonging, excitement, self-fulfillment, or accomplishment.

Means-end theory relates these relatively concrete and abstract meanings to each other in a simple model called a means-end chain (Gutman, 1982). A means-end chain summarizes the series of relationships among attributes, consequences, and values. As an example, a means-end chain might link the attribute of a particular ropes course initiative such as "requires help from others," to the benefit "encourages us to work together as a team" (teamwork), to the higher level benefit "gets the task done" (task accomplishment), and then to the value "we accomplished something" (accomplishment).

Collecting and Analyzing Means-End Data

Reynolds and Gutman (1982) offer a general methodology for collecting means-end data. The approach, known as laddering, initially uses a procedure (usually a listing, sorting, or categorization task) to identify the basic concepts or distinctions that a respondent uses to describe a particular product, service or experience. A series of open-ended questions are then used to determine why a particular concept is important to that respondent. Specifically, the respondent is asked "why is (that concept) important to you?" The response given is then used as the focus of the next "why is that important. . . ?" question. This questioning process continues until the respondent can no longer provide a meaningful answer (e.g., the response is

“I don’t know,” or “it just is . . .”). The procedure is called ‘laddering’ because it forces the respondent up the “ladder of abstraction,” bridging relatively concrete concepts at the attribute or benefit level to more abstract concepts at the personal-value level (Klenosky et al., 1993). The laddering process typically elicits two or more “ladders” (i.e., means-end chains) from each respondent. The items making up these ladders are then content analyzed and aggregated to identify the major patterns of relationships among the elicited concepts. These relationships are then depicted in a chart called a Hierarchical Value Map (HVM). The HVM summarizes the key linkages that emerged across participants during the laddering procedure.

The present study differs from previous means-end investigations in two ways. The first relates to how the data was collected. In means-end analysis, laddering is typically accomplished using a one-on-one personal interview approach. In the present study, however, time and logistical constraints did not allow for the use of one-on-one interviews. Accordingly, a self-administered questionnaire was used to collect the laddering data from ropes course participants. This approach had been used successfully in several previous laddering studies (Walker, 1988; Walker & Olson, 1991; Pieters et al., 1995).

The second difference in the present study concerns the respondents’ task. The initial task in most means-end studies is designed to elicit information about how respondents make product or brand choice decisions. For example, the most frequently used approach involves asking respondents why they prefer one brand or alternative in a product or service category over another brand. The responses given with this approach usually relate to the characteristics or attributes of the product or service in question. These attribute-level responses are then used as the focus or starting point for the remaining steps of the laddering interview—that is, to identify the linkages to the consequences and higher-level personal values. In the present study, however, there was no choice situation involved. Instead the focus was on understanding the factors associated with participating in the ropes course program that had just been completed. Consequently, the respondents’ initial task involved listing the outcomes they felt they had obtained from that program. In the present study these outcomes generally referred to positive consequences or benefits (e.g., better teamwork, being more trusting of others, better communication), and the subsequent stages of the laddering procedure involved uncovered the linkages between these benefits and higher-level personal values.

Methodology

The respondents in the study consisted of adults who had just completed a ropes course program held at one of two universities, located in the mid-western and western United States, respectively. The program at the mid-western university was a portable low-element ropes course conducted indoors or outdoors, depending on the group and weather. Usually completed

in 3-4 hours, the program involved the following sequence of activities: 1) name games and energizers, 2) trust/spotting activities (e.g., trust leans, trust circle, trust falls), and 3) three low initiatives (blind square, all aboard, spider web). The other program was held at a permanent outdoors course. This program usually lasted all day. The first half of the program usually involved activities similar to above (name games, energizers, trust, and low initiatives), while the second half typically involved three high elements (cat walk, pamper pole, climbing wall). After completing a debriefing session for the ropes course and filling out a course evaluation instrument, individuals were asked to complete a questionnaire concerning their ropes course experience. A total of 142 questionnaires were distributed for this investigation. A total of 17 were returned that failed to report any outcomes or ladders and were dropped from the analysis, resulting in 125 usable questionnaires.

The self-administered questionnaire was adapted from an instrument developed by Walker (1988). The first section of the questionnaire included questions about participants' age, gender, occupation, previous ropes course experience, and satisfaction with the course they had just completed. In the next section, participants were asked to think about the outcomes they felt they obtained from participating in the program. They were then asked to list these outcomes and rank order them in terms of their importance. The third and final section of the questionnaire operationalized the laddering procedure. In this section, participants were instructed to write the most important outcome they identified in the previous section on the top of the next page of the survey booklet, the second most important outcome on the following page, and the third most important outcome on the following page. For each of these top three outcomes, participants were then instructed to indicate why the outcome at the top of the page was important to them. They wrote their response in a box right under the outcome they listed at the top of the page. They were then asked to explain why that response was important ("Why is the response you gave in box #1 important to you?"), and told to enter their response in the next box. Respondents were instructed to continue this process until they could not explain themselves in any more detail. They were told that they could leave a box blank if they could not think of a response, but were encouraged to fill in the boxes as completely as possible. A complete series of boxes formed a ladder for that outcome.

Results

Respondent Profile

Of the 125 respondents in the study sample, half (49.6%) were male and half (50.4%) female. Respondents ranged in age from 18-50 with 65.6% between the ages of 18-24, 9.6% between 25-30, 16.0% between 31-40, and 8.8% over 40. The majority of respondents were students (78.4%), with the others holding staff or supervisory-level positions. Most (67.2%) had never participated in a ropes course before, a smaller group (23.2%) had been on

one previous course, while only a few (9.6%) had participated in two or more previous courses. In terms of satisfaction with the ropes course program they had just completed, almost all the participants (96.0%) were either very satisfied or satisfied, only a few (4.0%) were neutral (neither satisfied nor dissatisfied), and none were dissatisfied or very dissatisfied.

In part two of the questionnaire, participants were asked to list up to eight outcomes they felt they received from participating in the ropes course experience. Although no examples of outcomes were provided, most respondents (76.0%) listed between three and five outcomes, a small group (4.8%) listed only one or two outcomes, and (19.2%) listed six or more. An analysis of these outcomes indicated that teamwork (working as a team) was listed most frequently (by 16.6% of respondents), followed by developing trust (10.2%), communication (9.4%), awareness (becoming more aware of others or oneself) (6.1%), and leadership (5.9%). These outcomes correspond to the relatively direct group-level outcomes that ropes courses programs are typically designed to provide for their participants.

The next section of the questionnaire instructed respondents to complete ladders for their top three outcomes. The majority of respondents (75.2%) completed three ladders, several completed only one (8.0%) or two (15.2%) ladders, while only a few (1.6%) completed four ladders. Across all respondents, a total of 337 ladders were generated, with an average of 2.5 elements per ladder, for a total of 845 elements.

Means-End Data Analysis

The first step in analyzing the laddering data was to edit the ladders to remove redundancies. These occurred when the next response given in a ladder simply repeated or elaborated upon a previous response in that ladder. For example, if the ladder started with the outcome "better communication", and the next response provided (based on the prompt "why is better communication important to you?") was that "communication is always important"; then that second response was considered to be redundant and was subsequently ignored. Following this step, the edited ladders were then entered by one of the researchers in a computer program called Ladder Map (Gengler & Reynolds, 1995). As each element of each ladder was entered, it was classified into content codes such as teamwork, communication, trust, etc. The content categories were developed based on key words or phrases that emerged as the data was entered. This approach, referred to as the "cut-up-and-put-in-folders" method (Bogdan & Bilken, 1982), has been used successfully in previous recreation research (Hultsman, 1996). A second researcher familiar with the topic area then reviewed the codes and coding assignments developed by the first coder. Inter-coder agreement between these coders was approximately 75%. All disagreements between the two coders were resolved jointly. As a final step, a third individual then compared all coded items with the written surveys for each participant. Out of a total of 845 coded items, this coder disagreed with a total of 21, indicating an

intercoder agreement of 97.5%. These disagreements were also resolved jointly. Figure 1 provides examples of several representative ladders generated by respondents and the codes that were assigned.

The next step in the analysis was to create an implication matrix. The implication matrix, shown in Table 2, summarizes the number of times a concept (the rows) was directly or indirectly associated with the other concepts (the columns) in respondents' ladders. For example, the matrix shows that across all respondents' ladders, item one (Developing trust) led to item five (Teamwork) eight times; similarly, item five (Teamwork) then led to item 14 (Task accomplishment) 29 times.

A useful intermediate step in analyzing laddering data is to determine the relative ordering or abstractness of the content categories listed in the implication matrix. In most laddering studies, this ordering is usually based on an a priori classification of attributes, consequences, and values. This approach is consistent with the view that attributes lead to consequences and consequences, in turn, help fulfill values (Bagazzi & Dabholkar, 1994). Since the initial focus of this study was on the outcomes or benefits of a ropes course experience, ordering concepts in terms of attributes, consequences, and values was not appropriate. Thus, an alternative approach suggested by Pieters et al., (1995) was used to determine this ordering. This procedure focuses on comparing the number of times each item in a ladder was mentioned as the end of the relationship versus the origin of the relationship. Borrowing from Network Theory (cf. Scott 1991), these frequencies can be termed "in-degrees" and "out-degrees". In-degrees refer to the number of times that an item is the object or end of other item in respondents' ladders; whereas out-degrees refer to the number of times an item serves as the source or origin for the other categories. These two frequencies can then be

Working together in a team (Teamwork)

We work more efficiently (Be effective/efficient)

The project gets finished (Task accomplishment)

Feel like we did something beneficial/useful (Accomplishment)

I feel like a success (Self-fulfillment)

We learned that we could rely on each other (Trust)

Easier to get everyone involved (Teamwork)

Get more and better ideas on what to do (Brainstorm)

Helps get the job done (Task accomplishment)

Get a sense of accomplishment (Accomplishment)

More happy with myself (Fun & enjoyment)

Better communication among class members (Communication)

To understand each other's point of view (Understand others)

Gets the problem resolved (Task accomplishment)

It's a satisfying feeling (Self-fulfillment)

Figure 1. Representative "Ladders" from the Ropes course Laddering Study

TABLE 2
Implication Matrix of Ropes Course Outcomes

FROM:	TO:																	Out Degrees (Row total)	Abstractness Ratio	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			
1 Developing trust		1			8 ^a						4		2	8	1	2	1	19	0.04	
2 Communication				6	4			3	1		7	5	6	15	9	5	10	71	0.11	
3 Leadership		1			1	1				1	1	2		4	1	3	4	19	0.21	
4 Understanding others		1			1		2	3	1		2		2	6	5	3	8	34	0.23	
5 Teamwork		1	3	2			2	1	4	1	4	6	3	7	29	12	11	15	101	0.25
6 Being organized					2							1	4	4	1		3	15	0.25	
7 Gain knowledge				1	1	1		1			1		1	2	1	2	3	14	0.30	
8 Brainstorming	1	1			1							1	1	5	6	3	4	23	0.34	
9 Positive attitude														3	1	3	1	8	0.38	
10 Encouraging others			1		1						2			4		2	2	12	0.40	
11 Build relationships		2		1	5		1			2	2		4	5	8	6	6	42	0.44	
12 Goal setting					1				1				1	5	2	3	3	16	0.45	
13 Being effective/efficient					2		1	1		2	1			9	2	2	4	24	0.56	
14 Task accomplishment		1	1		2					1	1		2		5	4	16	33	0.77	
15 Accomplishment					2						1			3		4	8	18	0.77	
16 Fun and enjoyment of life		1			2	1	2				2			3	2		3	16	0.79	
17 Self-fulfillment											2			5	4	6		17	0.84	
In Degrees (Column total)	1	9	5	10	25	5	6	12	5	8	33	13	30	110	60	59	91			

^aTo be read, “developing trust” lead to “teamwork” 8 times across all respondents’ ladders.

used to develop an index of the level of abstractness for each item or content category. Following Pieters et al. (1995), the abstractness ratio was calculated as the ratio of in-degrees over the sum of in-degrees plus out-degrees. The abstractness ratio can thus range from 0 to 1; the higher the ratio, the more abstract the item, meaning the greater the proportion of times the item served as an end or destination of a linkage, rather than the source. The assumption underlying this ratio is that the more concrete items represent the "means", i.e., the features or functions provided by the product or service in question, whereas the abstract items represent the "ends", i.e., personal values important to the individual (Bagozzi & Dabholkar, 1994; Gutman, 1982; Peter & Olson, 1987).

The items in the implication matrix in Table 2 are ordered in terms of this ratio. The items with a low ratio, such as communication, trust, and teamwork, are less abstract indicating that they tended to occur at an earlier point or at the start of participants' ladders. In contrast, items with higher ratio values, such as self-fulfillment (feeling personally satisfied), fun and enjoyment (having fun/being happy in life), and accomplishment (experiencing personal success) are more abstract reflecting their tendency to be mentioned as the final destinations or ends of the ladders. Interestingly, the less abstract items in the matrix (trust, communication, and teamwork) appear to correspond to the relatively direct functional outcomes or benefits that ropes course programs are often designed to emphasize. In contrast, the more abstract items (self-fulfillment, fun and enjoyment, and accomplishment) appear to refer to higher-level personal values, i.e., beliefs about desired end-states of existence that transcend specific situations (Kahle, 1983; Rokeach, 1973; Verhoff et al., 1981).

The information in the implication matrix was then used as the basis for constructing a summary Hierarchical Value Map or HVM. The process of creating an HVM entails two steps: (1) deciding which items (and relations between items) in the implication matrix should be represented on the HVM, and (2) determining where items should be placed. The first step is accomplished by selecting a cutoff level to indicate which relations or associations between items in the implication matrix should be included or omitted in the HVM. A cutoff of 1 means that all associations mentioned by at least one respondent would be represented in the HVM, a cutoff of 2 means only those associations mentioned by two or more respondents would be represented. Preliminary analysis indicated that a cutoff of 4, representing 51.0% of all associations in the original matrix, resulted in an HVM that was the most informative and useful. That is, the content and structure of the HVM adequately reflected the majority of the relations that emerged with a minimum of clutter and crossing lines, which is consistent with the recommendations advanced by Gengler, Klenosky and Mulvey (1995).

The second step in constructing the HVM involved deciding where the items should be placed in the diagram. This decision was based primarily on the abstractness ratio (i.e., with items with low abstractness values placed below those with higher values) but also on the cell entries for adjacent

concepts. For example, even though self-fulfillment had the highest abstractness value, and fun and enjoyment the next highest value, an analysis of the entries in the implication matrix showed that self-fulfillment led into fun and enjoyment more often (6 times) than fun and enjoyment led into self-fulfillment (3 times). Thus, fun and enjoyment was positioned above self-fulfillment in the final HVM.

In the HVM depicted in Figure 2, the size of the circle representing an outcome refers to the number of respondents who mentioned the concept in their ladders. The larger the circle, the more respondents who mentioned that outcome. Thus, teamwork was mentioned by the largest number of respondents (76), followed by task accomplishment (60), and communication (51). Similarly, the thickness of the lines connecting the circles reflects the number of times outcomes were linked in respondents' ladders. The thicker the line, the more respondents linking those outcomes. It should be noted, however, that in the interest of constructing a meaningful, uncluttered graph, not all associations between concepts above the cutoff value in the implication matrix are joined by connecting lines on the HVM. Some of the connections among concepts are considered to be redundant and therefore are not illustrated on the map. If, for instance, the matrix indicates $X \rightarrow Y$, $X \rightarrow Z$, and $Y \rightarrow Z$; then the connection $X \rightarrow Z$ is redundant since it is captured in the $X \rightarrow Y$ and $Y \rightarrow Z$ relationships (cf. Klenosky et al., 1993, pp. 370-371).

The relationships among the concepts depicted in the HVM provides important insight into the benefits and higher-level values associated with a ropes course experience. In particular, the relatively concrete benefits of trust and teamwork shown at the bottom of the HVM are perceived as key and are fundamentally related to each other. This relationship suggests that developing trust is important in helping people work together as a team. Communication is also a basic benefit shown at the bottom of the HVM. Communication appears to be important for several reasons, including developing an understanding of others, setting goals, and working as a team. Teamwork was subsequently linked to a number of other benefits including building relationships (indicating that if people work together they become more familiar and learn about each other)², encouraging others (working together encourages teammates to get involved), brainstorming (working together is important for generating ideas and solutions), and being more effective and efficient. All of these outcomes—building relationships, providing encouragement, brainstorming, being effective and efficient, goal set-

²It should be noted that in the implication matrix both developing trust and communication were related to building relationships. These links (not represented in the HVM because they were considered redundant) suggest that while activities designed to develop trust and communication promote teamwork, they also simply help people learn about and be more comfortable with each other. One ladder exemplifying this set of meanings stated "I feel that I can rely on these people now" (develop trust) which led to "I feel I can talk to them now" (build relationships).

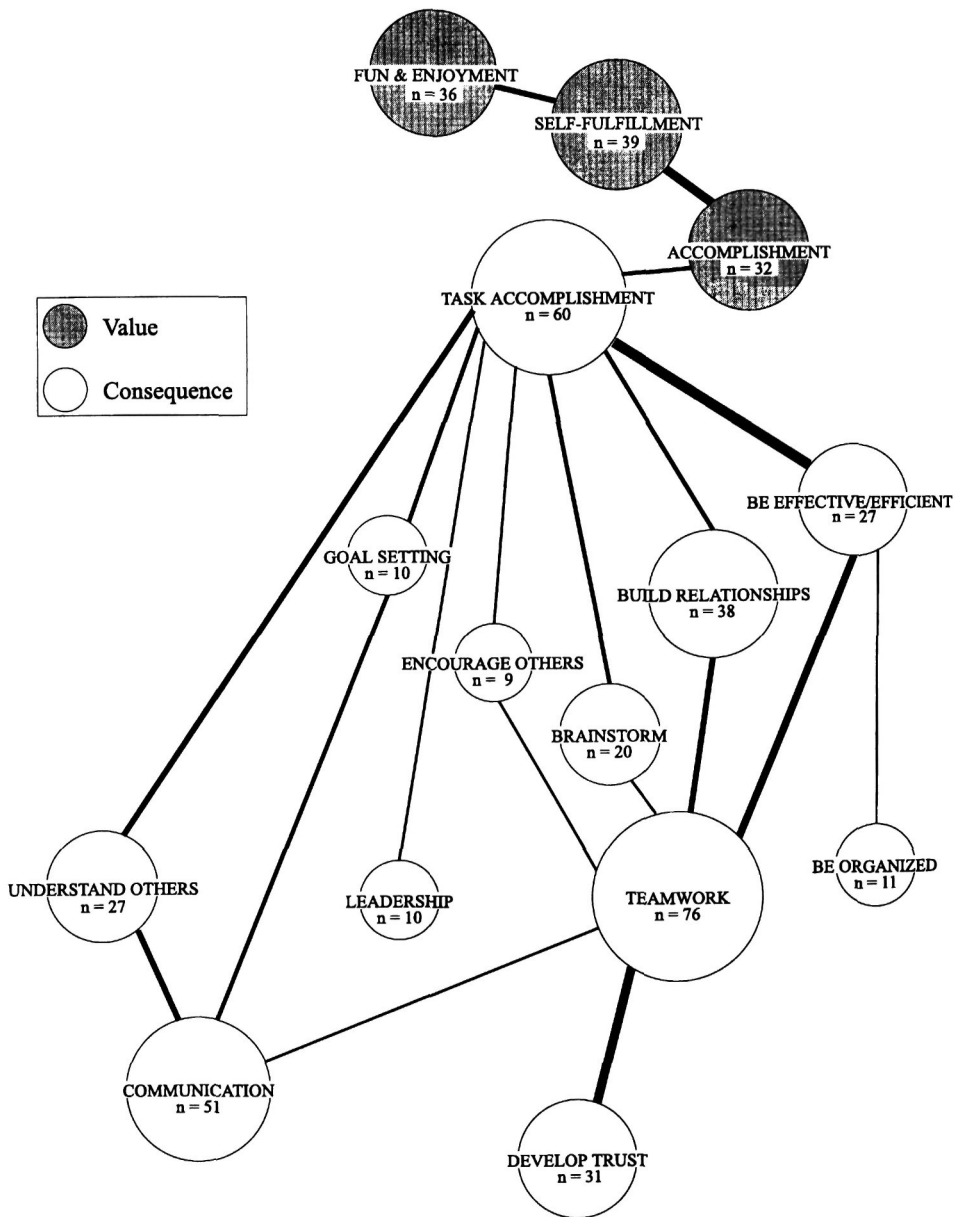


Figure 2. Hierarchical Value Map of Ropes Course Outcomes (n = 125)

ting, leadership, and understanding others—were then linked to task accomplishment. Getting tasks accomplished appears to be a central outcome of participants' experiences. Task accomplishment and accomplishment are also linked together, suggesting that accomplishing tasks leads to a generalized sense of personal accomplishment. Accomplishment, in turn, leads to a feeling of personal satisfaction or self-fulfillment; and self-fulfillment to being happy or having fun and enjoying life. As noted earlier, these are relatively abstract outcomes that appear to represent the higher-level "ends" or personal values associated with a ropes course experience. Taken together, the pattern of relationships among these higher level concepts suggests that the ropes course programs examined in this research ultimately helped people learn how to work together to get things done which, in turn, helped them feel fulfilled and happy about themselves.

Discussion

The overall goal of this research was to contribute to our understanding of the benefits and higher-level values associated with ropes course experiences. Study participants identified the outcomes they derived from the ropes course program they had just completed. These outcomes generally referred to positive consequences or benefits. Several of these benefits have been examined in previous ropes course research. Of these benefits, those involving trust, teamwork, and communication have received the most prior research attention. Using a self-administered laddering procedure, subjects then provided information about the higher-level meanings related to these benefits. An analysis of these means-end data revealed a number of other intermediate-level benefits (such as being more effective and efficient, building relationships, developing understanding, setting goals, brainstorming ideas, and task accomplishment). It also highlighted several key personal values (in particular, accomplishment, self-fulfillment, and fun and enjoyment of life) that appear to serve as the higher level "ends" that participants take away from their ropes course experience. Although personal values have received some attention in the leisure and recreation literature (e.g., Driver, Dustin, Baltic, Elsner & Peterson 1996), they have yet to receive much attention by researchers in the adventure education and ropes course area.

In addition to describing which benefits and values were important, this research contributes to our understanding of the interrelationships among these concepts. In the present study, trust and communication were relatively concrete benefits (as reflected in their low abstractness ratios) that both led to the benefit teamwork. Teamwork was subsequently linked to a number of other higher level benefits including building relationships, encouraging others, brainstorming ideas, and being effective/efficient; all of which were then linked to task accomplishment. The number of times task accomplishment was mentioned (it was the second most frequently mentioned benefit) and its central relationship to other benefits and values suggest that it was a key benefit for most study participants. Additional research should be con-

ducted to better understand this benefit and determine its role and generalizability in other ropes course and adventure education settings.

In addition to helping to develop our understanding of ropes courses, this research contributes to the growing literature on means-end analysis. Whereas most means-end research has been conducted to understand the factors influencing product or service choice decisions, this research is among the first to use the means-end approach to specifically investigate the benefits and outcomes of engaging in or experiencing a recreation activity. Future research should be conducted either to explore the benefits of other specific recreation activities or experiences (much as was done in the present study) or to help enrich our understanding of the benefits of recreation at a more macro or societal level (cf. Driver & Peterson, 1991). The latter emphasis would be particularly timely given the recent emphasis in the profession of documenting and promoting the benefits of public recreation facilities and programming (Sefton & Mummery, 1995).

As with any empirical study, certain limitations should be considered. The first concerns the data collection approach used in this research. In contrast to the personal interview approach used in most laddering research, this study used a self-administered questionnaire approach. Although this approach was successful in producing useful laddering data in a timely manner and at a reasonable cost, it did not afford the degree of control that would have been possible with personal interviews. For example, the self-administered questionnaire resulted in 17 questionnaires that were unusable. A trained interviewer would have been able to minimize this problem and also probe further and clarify responses, thus cutting down on the redundancies that had to be edited out of the written questionnaire responses. A second concern relates to the coding of the laddering data. Steps were taken to review the coding scheme and coding assignments that were made. Nevertheless, it is possible that different coding procedures, in particular the use of independent coders, would yield different results. A third limitation centers on the sample used in this study. The majority of the study respondents were college students. Future means-end research should examine the benefits of ropes course programs for other groups in addition to students, such as corporate groups, at-risk youth, etc. It is also recommended that a larger sample size be used which would have allowed for reliable comparisons to be made between subgroups—for example, between males and females and between participants who completed a ropes course program involving only “low” elements versus a combination of both “low and high” elements.

Finally, the study focused exclusively on ropes course experiences. It would be interesting to use the means-end approach to examine the experience of engaging in other outdoor activities, such as mountain biking, backpacking, white-water kayaking, and rafting. Developing a better understanding of the benefits and values resulting from these activities would make a useful contribution to the leisure and experiential education literature.

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