DIFFERENT STROKES FOR DIFFERENT FOLKS: A CASE STUDY OF ROPES COURSE PROGRAMS USING MEANS-END ANALYSIS

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Introduction

Designing and delivering consistently effective ropes course programs requires a thorough understanding of what to do, how to do it, and why to do it in a particular way. Despite 20 years of repeated calls for research that explains how and why ropes course programs achieve their benefits (Ewert & McAvoy, 2000; Sibthorp, 2003), effective program design and delivery remains somewhat a mystery because research has focused on identifying outcomes (Baldwin, Persing, & Magnuson, 2004). There is little empirical evidence of specific mechanisms which facilitate outcomes and little insight regarding program attributes that account for particular outcomes (Baldwin et al., 2004).

In addition, a well-designed and delivered ropes course program may not guarantee a similar, positive experience for all participants. Dodge (2001) points out the dangers of assuming programs developed for one group will be effective for other groups. Providing the same activity to different people, under different circumstances, is neither necessarily appropriate nor effective (Walsh, 1998).

Means-end analysis offers a method for explaining how and why program outcomes occur, and thus has the potential to provide practitioners with information for more effective program design and delivery (Frauman, Norman, & Klenosky, 1998). Means-end analysis describes more specifically than expectancy-value theory how means reinforce the ends to which they are linked (Frauman & Cunningham, 2001). Unlike factor analysis or multi-dimensional scaling, means-end analysis considers program attributes, proximal outcomes, and distal outcomes fundamentally interrelated and integrates them into a single framework (Reynolds & Gutman, 1988).

Program attributes are physical or observable features of an experience that can be affected by program design and delivery (Gutman, 1982). Proximal outcomes refer to any direct or indirect, positive or negative, functional, social, or psychological consequence resulting from program involvement (Klenosky, Gengler, & Mulvey, 1993). They are not end-states but move participants toward them by intervening between attributes and distal outcomes (Frauman et al., 1998). Distal outcomes are higher level, more abstract effects that sum up desired end-states of being and transcend specific situations (Goldenberg, Klenosky, O'Leary, & Templin, 2000). The goal of this study was to identify and compare the program attributes, proximal outcomes, and distal outcomes and the linkages among them that various participant groups reported as significant in ropes course programs. The intent was to use means-end analysis to provide practitioners with information that enables them to design and deliver more effective ropes course programs for various participant groups.

Methods

The study involved 209 young adolescents (ages 10 -15) who took part in full-day ropes course programs provided by one of four organizations. At the end of their program, participants completed a means-end laddering survey. Laddering refers to a

customized probing technique used to elicit participant-reported connections (Reynolds & Whitlark, 1995). It is called laddering because participants are guided from more concrete concepts (i.e. program attributes) up the ladder of abstraction to more intangible concepts (i.e. distal program outcomes; Frauman & Cunningham, 2001). In this study, participants were asked identify up to three proximal outcomes of their program experience. This response was the basis for the next question which asked why a proximal outcome was important. Finally, participants were asked what part of the program led to the outcome. The premise of means-end analysis is that participants are able to identify features that are instrumental to achieving their desired goals (Gutman, 1982).

The first step in analyzing laddering data is to conduct a content analysis and code the responses based on both content category and level of abstraction (Vallette-Florence & Rapacchi, 1991). Effective coding requires a shared understanding of concepts by participants, researchers, and practitioners (Gunert & Gunert, 1995). In addition, the content categories should focus on associations central to the purpose of the study (Reynolds & Gutman, 1988). Coding reliability is achieved by using multiple coders and employing reliability checks (Reynolds & Gutman, 1988). The 41 content categories for this study emerged from an affinity grouping exercise conducted by the principal researcher and two ropes course instructors who delivered programs for the study. Inter-rater reliability for this first part of the coding procedure was 87% and disagreements were resolved by consensus. During the second part of the analysis, individual responses were coded by the principal researcher and a ropes course program instructor. Inter-coder reliability for this step was about 92% and disagreements were resolved by consensus. Identifying patterns associated with a particular type of experience or population requires aggregating all participant ladders (Gengler, Klenosky, & Mulvey, 1995). Once coded responses are entered into the LadderMap software package, the computer program constructs implication matrices that sum up the number of connections between concepts. Both direct relationships among adjacent ladder elements and indirect relationships that are mediated by one other element are reported (Reynolds & Gutman, 1988).
The researcher then assigns a cut-off value and the software program creates a Hierarchical Value Map (HVM) using the information in the implication matrix. The cut-off value is similar to an eigenvalue in factor analysis since it determines the minimum response value that must exist for a content category or link to appear on an HVM (Frauman et al., 1998; Gunert & Gunert, 1995). The cut-off is usually 5% of participants (Gengler et al., 1995) although Frauman et al. (1998) suggest using 70% of relations in the implication matrix. In practice, these two approaches seem to yield similar results.

Results

An HVM is the graphical output of a means-end study and represents an aggregate cognitive structural mind map of how participants perceive an experience (Gengler et al., 1995). HVMs can thus be considered models for explaining or predicting the situationally dependent significance of various experiences (Grunert & Grunert, 1995; Gutman, 1982). As a result, HVMs should describe relatively homogenous populations (Gunert & Gunert, 1995) since groups may identify different

concepts or may report different linkages among the same concepts (Klenosky, Frauman, Norman, & Gengler, 1998).

An HVM describes both content and structure. Circular nodes represent the content categories mentioned by participants and their size indicates how frequently they were mentioned (Gengler et al., 1995). Shading distinguishes among the levels of abstraction as does position since abstract concepts are located at the top of the HVM while concrete concepts are located at the bottom (Frauman & Cunningham, 2001).

The structure refers to the pattern of relationships among concepts. Line segments represent associations between concepts with line thickness indicating the strength of the association (Gengler et al., 1995). These linkages summarize the relationships among attributes, proximal outcomes, and distal outcomes, and are termed means-end chains since "ladders" refer to individual responses (Reynolds & Gutman, 1988).

The attributes identified by all participants were: novel experience, specific high elements, challenge, high ropes in general, working together, program atmosphere, and low ropes. The proximal outcomes linked to these attributes were: transference, positive experience, funfillment, achieving goals, learning, group efficacy, trust, and anxiety. The reported distal outcomes were fun, friendship, positive self-image, belonging, excitement, and happiness. The strongest links were between specific high elements and positive experience, specific high elements and positive self-image, and transference and positive self-image. Other strong links connected challenge to achieving goals and fun, novel experience to fun, low ropes to learning, and working together to group efficacy.

Comparing the HVMs for female participants, male participants, participants with ropes course program experience, and participants without ropes course program experience revealed both similarities and differences. For example, male participants did not report the proximal outcome "anxiety" while all other groups did. Inexperienced participants did not report the distal outcome "excitement."

Discussion and Practical Applications

While Goldenberg et al., (2000) used means-end analysis to identify ropes course program outcomes, this was the first study to use means-end analysis to also identify the specific ropes course program attributes important to various groups. Since it is not possible to literally design outcomes into programs, understanding the connection between attributes and outcomes is vital to achieving desired benefits (Gutman, 1982). Practitioners seemed to intuitively understand the connections between categories and could apply the results to program design and delivery. Staff at three of the four study sites remarked that as a result of this study their program design and delivery is more deliberate since they now know which attributes lead to particular outcomes. In addition, because determining what participants considers desirable is difficult due to unique levels of knowledge, skills, and abilities, in order to provide differentiated experiences for every participant staff at these sites now aim to create programs where there is a choice of various action opportunities connected to each activity's central task.

In contrast, researchers unfamiliar with means-end analysis, struggled to grasp how categories were related because they were used to more structured output practices. Researchers wondered how responses could be added up and suggested using correlations or regression instead. This pattern of understanding seems to be the reverse of what usually occurs – practitioners struggle to interpret and apply the research findings because the output is not useable and understandable to them.

In their focus on identifying outcomes, studies of adventure programs such as ropes courses have often assumed program attributes to be constant (Sibthorp, 2003). Under this approach, how benefits are achieved is poorly described while key program attributes are rarely identified and linked to specific program outcomes. As a result, researchers encounter problems explaining disparate outcomes in similar programs and practitioners have little direction for designing and delivering effective programs for various groups. Means-end analysis may provide an opportunity for both researchers and practitioners to improve their understanding of how different groups are affected by program design and delivery (Frauman et al., 1998).

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