

A MEANS-END STUDY OF OUTCOME DIFFERENCES OF FEMALES AND MALES ASSOCIATED WITH OUTWARD BOUND AND NATIONAL OUTDOOR LEADERSHIP SCHOOL

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Introduction

This study compares outcomes of male and female participants from Outward Bound (OB) and National Outdoor Leadership Schools (NOLS) courses during the summer of 2006. Means-end theory was used to analyze the differences in males versus females from the 510 subjects' responses. Understanding the differences between the outcomes males and females obtain can lead to specific programming objectives. This can impact how organizations such as OB and NOLS program for both gender-specific and co-educational groups. So therefore, by gaining knowledge of differences between males and females we can then gain an understanding of gender roles and frameworks.

Gutman's (1982) means-end theory has application to outdoor recreation through such studies as understanding the outcomes associated with ropes course programming (Goldenberg, Klenosky, O'Leary, & Templin, 2000; Haras, Bunting, & Witt, 2006) and examining the components of an outdoor experience (Goldenberg, McAvoy, & Klenosky, 2005; McAvoy, Holman, Goldenberg, & Klenosky, 2006). Means-end theory was originally used to understand decision-making of consumers, but has recently demonstrated the ability to serve as a useful tool in the recreation and outdoor fields.

OB and NOLS are two of the largest providers of outdoor education programming and have been in existence since the 1940's and 1960's respectively. OB and NOLS offer various length programs both internationally and throughout the United States to participants of all ages. This study focused on courses 14 days or longer with students that were 14 years of age and older in Colorado and Wyoming.

Review of Literature

The Meaning of Sex and Gender

The outdoor education literature acknowledges the difference between gender and sex (Estes & Ewert, 1988; Henderson, Bialeschki, Shaw, & Freysinger, 1996; Neill, 1997; Culp, 1998; Pinch, 2002). Sex is defined as the biological distinction between males and females, whereas gender is a more complex distinction between feminine and masculine frameworks. This current study examines the differences between males and females regarding their sex, but to understand the differences between males and females, it is important to understand the literature regarding gender as well.

Scott (1986) states that gender has come to mean the designated social relations between the sexes. This use rejects biological explanations and instead focuses on the social creation of ideas concerning appropriate roles for men and women. "Gender is arguably the most ubiquitous individual difference, thus it attracts considerable attention," states Neill (2005, 1).

Gender and Outcomes in Outdoor Adventure Education Experiences

Several studies indicate that outcomes from outdoor adventure experiences vary between females and males. Neill (1997) examined outdoor education research studies which reported separate results for males and females and found that outdoor education achieves similar outcomes for males and females or larger changes in outcomes for females, but rarely achieves larger changes for males. The extensive review of literature conducted in this meta-analysis found a noticeable gender bias in the volume of material available. A sizeable body of literature on female-only programs was found, some literature comparing males and females on outdoor education programs was found, and comparatively few contemporary studies were identified for male only programs. The study results clearly point to a strong and increasing trend to feature females in educational and research literature. Early outdoor education literature focused on males which paralleled the early programming. "When first established, adventure programs were largely for males," concluded Hattie, Marsh, Neill, and Richards (1997, p. 60). In their meta-analysis of the effects of adventure education programs, they found that within 97 studies published between 1968 and 1994, there were approximately 12,057 participants, of whom 72% were male and 28% female (Hattie et al., 1997). Neill (1997) asserts that this trend has dramatically reversed in the outdoor educational literature published since 1982.

Hattie et al. (1997) found similarly positive effects in the overall size of outcomes for males and females. There was, however, evidence of slightly stronger outcomes for single-sex groups compared to co-educational groups. Propst and Koesler (1998), in investigating the role of self-efficacy in the outdoor leadership development process, found the only significant difference between male and female self-efficacy occurred during the pretest (i.e., immediately before departing on the wilderness course).

At onset of the course, male self-efficacy scores were significantly higher than female scores in the aggregate and in 15 out of 20 wilderness tasks. However, these differences were not evident immediately after the course or in the one year follow-up assessment. (Propst & Koesler, 1998, p. 339)

Sheard and Golby (2006), in investigating the efficacy of an outdoor adventure education curriculum on selected aspects of positive psychological development (i.e., self-esteem, self-efficacy, mental toughness), found no significant gender differences across the measured positive psychological variables.

However, in their state-of-knowledge paper, Ewert and McAvoy (2000) found that females reported greater changes in development of self-systems than males in adventure programs. "Within this context, self-systems generally refer to a body of knowledge and beliefs that an

individual holds about themselves and it is developed through experience and comparison with others” (Ewert & McAvoy, 2000, p. 16).

This conclusion is supported by McKenzie (2003), who in investigating how gender influenced Outward Bound Western Canada course outcomes and how gender influenced the impact that various course components have on course outcomes, found a statistically significant difference between the mean impact on females and males for 20 out of the 28 course components. Findings suggested that the course components of rock climbing, taking care of others, and challenge had more of an impact on female participants than they did on male participants. Findings from this study also suggested greater benefits for females than males from Outward Bound Western Canada courses with the means for overall impact on self-concept, motivation, and interpersonal skills. A recent study on wilderness therapy (Russell, 2003) has also concluded that females have generally shown greater developmental gains than males in adventure programs. Similarly, Rodriguez and Roberts (2005) found that females were more optimistic in their evaluation of the overall impact of Student Conservation Association (SCA) outdoor leadership programs.

Estes and Ewert (1988) found that in adventure activities like climbing, or Outward Bound programs, females were seeking spiritual development and indicated a higher level of expectation of group development. In comparison, males were less group-oriented, placed higher value on autonomy and were looking for excitement and challenge out of the same activities. Witman (1995), in a study to determine what characteristics of adventure programs were valued by adolescents in treatment, found that females valued “trust activities” but were less supportive of several items related to power or dominance. “These differences may simply reflect that higher percentages of women in treatment are working on issues related to trust/disclosure while males are more often focused on power/control concerns,” cautions Witman (1995, p. 134).

It is clear that some research has shown that male and female participants respond differently to outdoor adventure education program participation and therefore achieve different outcomes. But other research has consequently found no differences in outcomes between the sexes. Why is this? Is it possible that males and females have different motivations for participation, and consequently derive different benefits/outcomes from their outdoor education experiences? Could male and female expectations and behavior be challenged and developed in different ways by outdoor education programs? To answer these questions the researchers looked at the motivations behind the behavior of males and females in outdoor education and at the masculine and feminine frameworks of outdoor education programs.

Different Objectives, Different Outcomes for Males and Females

Koepke (1973) reported that female participants of an Outward Bound course set higher ideal self-concepts than males, even though females’ actual self-concepts were similar to males. In general male and female participants were found to be more similar than dissimilar in regards to anxiety and self-concept. Neill (1997) claims that this may, in part, be due to a self-selection bias. “In other words, it may be that only females with particularly high ideal self-concepts are motivated to participate in outdoor education programs,” states Neill (1997, p. 189). Henderson (1992) explores this motivation explanation:

Females seem to choose outdoor activities because of the “journey” and empowerment, reasons that may not always be as important to males. Some of Simpson’s (1991) initial work suggests that the difference between the “quest” traditionally associated with the male experience in the outdoors and the “journey” associated with female involvement may relate to the process and product of the outdoors. In other words, women may take part in outdoor activities because of the inner journey of learning about themselves and overcoming self-doubt... (p. 51)

If Koepke (1973) and Henderson (1992) are correct, then maybe females who choose to participate in outdoor adventure education programs are a self-selected group who have high ideal self-concepts and are more motivated to achieve positive outcomes from outdoor education experiences than male counterparts and even women who choose not to participate in these experiences (Neill, 1997).

Estes and Ewert (1988) point to the need for outdoor educators to recognize that females and males are different more in their motivations and perceptions of outdoor education experiences and less in their abilities and competencies to perform in these settings. A good example from this study is cited of motivational and perceptual differences by gender:

If women are “expected” to have lesser abilities in physical skills, they may also be expected to do less or be given less attention in skill learning situations. If men are “expected” to be less communicative of feelings, they may not be expected to develop these aspects as much as female group members. (Estes & Ewert, 1988, p. 16)

Estes and Ewert (1988) in studying motivations for mountain climbing showed that the reasons chosen by women reflected their concern with spiritual, social, and personal value, while men placed a greater emphasis on challenge and view. An interesting feature of this analysis is that the two most important factors chosen by women, introspection/creativity and physical exercise, don’t appear at all in the list of reasons chosen by men. Conversely, the top reasons chosen by men, excitement/challenge and control over self, received little attention from women.

A second, and related, explanation for gender differences in outcomes is that males’ and females’ sex-role characteristics may be challenged and developed in different ways by outdoor education programs (Neill, 1997). This explanation is not new. “Van Wilt and Klocke (1971) suggested that females show greater change than males because the physically and psychologically stressful environment forces them into a different and unfamiliar role,” states McIntyre (1987, p. 88). A possible explanation for this “unfamiliar” role for females in the outdoors may be due to socialization that steers them away from the outdoors as they grow up:

Males receive an experiential base of knowledge and understanding out of the outdoors, which allows them to develop outdoor competencies earlier in life than females. As they grow older, female teenage girls have had limited outdoor experience, so they are often restricted from participating in the outdoors...Much of the socialization that females

receive result in traits that remain apparent through their adult lifetimes. (Nolan & Priest, 1993, p. 15)

Neill (1997) notes that outdoor education has gone through a “feminization” period where less emphasis has been placed on aspects such as physical endurance and greater emphasis has been placed on interpersonal activities such as debriefing. Despite this it is still generally accepted by the public and practitioners that outdoor education is a “masculine” thing to do. This view is supported by anecdotal literature (Nolan & Priest, 1993) and research findings (Culp, 1998; Jackson & Henderson, 1995; Marsh & Richards, 1989). Neill (1997) offered an intriguing hypothesis related to masculine and feminine frameworks in outdoor education. This view stands on the idea that outdoor education involves development of more masculine characteristics than feminine characteristics, combined with the evidence that females tend to achieve greater changes in outcomes than males from outdoor education programs.

Could it be that females stand to learn a lot through the challenge of a masculine type outdoor education experience? On the other hand, could it be that exposing males to masculine-style outdoor education may not challenge their ideas, behaviors, feelings to the same extent, and hence result in males reporting less growth? (Neill, 1997, p. 189)

Neill (1997) suggests that this may come as a surprise to those looking for a transition away from masculine outdoor education in favor of a more feminine approach. The research is actually showing that outdoor education is working relatively well for females (Culp, 1998; Ewert & McAvoy, 2000; Neill, 1997; Pohl, Borrie, & Patterson, 2000).

If males are reporting less growth in these same experiences, could they do better in a feminine dominated outdoor experience? If Neill’s (1997) hypothesis has some truth to it, then males may benefit from outdoor education experiences which challenge their sex-role stereotypes and help them develop positive feminine characteristics. A study by Marsh and Richards (1989), which studied the issue of androgyny in Outward Bound participants, showed that males could achieve growth in developing positive feminine characteristics through an outdoor education experience. It is safe to say that a feminine model of outdoor education for males could look very different from the typically masculine outdoor education models that we are currently seeing.

Perhaps a closer look at the female-only programs that have been developed would give us a better understanding of the application of a feminine type framework in outdoor education. Ewert and McAvoy (2000) found evidence that all-women’s groups can be effective in creating beneficial outcomes. “Wilderness can be a unique environment for empowerment for women because it provides a neutral environment that is not cluttered with socially imposed role expectations,” states Ewert and McAvoy (2000, p.19). They found that in integrated wilderness groups, men seem to dominate the skill areas, but in all-women’s groups there were increased opportunities to learn and practice outdoor skills. Pohl, Borrie, and Patterson (2000) found that wilderness recreation can influence women’s everyday lives in the form of self-sufficiency, a shift in perspective, connection to others, and mental clarity.

Means-End Theory

Means-end theory was developed by Gutman (1982) as a method of analyzing the factors driving consumer purchasing behavior. "Means-end theory's main assumption is that people do not buy products for the products' sake, but for the benefits that their consumption can provide," state Costa, Dekker, & Jongen (2004, p. 403). This is not unlike Expectancy-value theory, which states that consumer actions produce consequences and that consumers learn to associate specific consequences with particular aspects of a product (Gutman & Miaoulis, 2003). Both theories examine the process of how consumers develop an opinion about a product or service and how that process leads to the intended outcome, but means-end goes beyond the direct consequences and continues to the more abstract values associated with those consequences. Means-end theory links the physical objects or services, the means, with the outcomes and the personal values of the individual, the ends (Klenosky, Frauman, Norman & Gengler, 1998). The theory focuses on the relationship between attributes, consequences, and values.

The attributes are the physical objects, services, or experiences of the individual and are viewed as being relatively concrete (Goldenberg, 2002). Attributes of an outdoor education experience could include the overall course experience, instructors, fellow participants (the group), or course activities such as rappelling, climbing, or expeditioning.

Consequences are the direct result of attributes. Negative consequences are referred to as costs or risks, positive consequences are frequently referred to as benefits. Some examples of benefits of an outdoor education experience could include physical challenges, skill development, managing conflict, and teamwork. Some possible negative consequences could include frustration, discomfort, and fear.

Values summarize the desired end state in the participants' minds. These are the participants' end destinations as they travel up the means-end ladder of abstraction from the concrete attributes to the highly abstract value-states (Klenosky, Gengler, & Mulvey, 1993). Values for an outdoor education experience could include increase in self-confidence, sense of achievement, and warm relationships with others.

Means-end chains are the links between the attributes, consequences, and values. The links represent the thought process of an individual. For example, a means-end chain for an outdoor education experience could include the attribute "climbing." This attribute could then be linked to the consequence "personal challenge," which could be linked to the value "sense of achievement." In other words, this participant indicates that rock climbing physically challenged her, which led to a sense of achievement at having successfully completed the activity.

For several years, means-end was used primarily in the field of advertising and marketing (Grunert & Grunert, 1995). Means-end analysis was first applied to the field of adventure education with an examination of the benefits and outcomes associated with ropes course programming (Goldenberg et al., 2000). This study was the first application of means-end theory to examine factors associated with a recreation activity, as opposed to those involved in product or service decision-making. It was also the first means-end study to involve an experiential education activity and an outdoor adventure education setting (Goldenberg, McAvoy, &

Klenosky, 2005). The foundation of this study led to a broader study of an adventure education experience using means-end theory to better understand the outcomes associated with completing an Outward Bound course (Goldenberg et al., 2005) and a comparison between outcomes from various outdoor adventure programs (Goldenberg & Pronsolino, 2008).

Other studies using means-end theory in the field of recreation research include the factors influencing ski destination choices (Klenosky et al., 1993), nature-based tourists' selection of interpretive programs (Klenosky et al., 1998), greenway/trail benefits and personal values (Frauman & Cunningham, 2001), student athletes' college selection decisions (Klenosky, Templin, & Troutman, 2001), push and pull factors in travel decision making (Klenosky, 2002), wilderness programs for those with disabilities (McAvoy & Lais, 2003), and an examination of perceptions of the service component of Outward Bound programs (Goldenberg, Pronsolino, & Klenosky, 2006). Recently, means-end theory has also been used to examine spirituality among backcountry users (Marsh, 2008) and outcomes from individuals hiking the Appalachian Trail (Goldenberg, Hill, & Friedt, 2008).

Summary

Past outdoor education/adventure literature has examined the differences between males and females in relation to outcomes. Many studies indicate that some differences do exist but there are many similarities in outcomes between males and females. While examining differences between males and females it is important to also understand the previous studies based on gender differences. Means-end theory uncovers the outcomes associated with a specific experience, such as participation in an outdoor adventure activity. This purpose of this study was to understand the outcomes associated with females and males who had participated in an Outward Bound or NOLS course.

Methodology

Data Collection Procedures

The data were collected using a convenience sampling method during the summer of 2006. This study focused on courses 14 days or longer with students that were 14 years of age and older. Participants were selected based on availability after completing either their Outward Bound or NOLS course. The data was collected from Outward Bound participants in Colorado and NOLS participants in Wyoming due to convenience of location, course areas being similar in nature, and a similar focus on outdoor activities such as backpacking and rock climbing. Data were collected on the second to last or last day of the course. Sample sizes between OB and NOLS did vary based on convenience of course completion and availability of researchers for data collection.

Both Outward Bound and NOLS staff granted permission and access to talk to participants. Due to the far reaching locations of base camps with Outward Bound, participant numbers were challenging to obtain. All NOLS participants completed their courses in Lander, Wyoming, which made data collection easier to achieve. The researchers approached participants after the course when instructors and course directors introduced them to the group. Individuals were asked to spend a few minutes with the researchers individually conversing about the outcomes

they obtained from their course experience. Demographic questions were also asked for each participant.

Data Analysis

Means-end chains are constructed by a data collection technique known as laddering. Laddering was first conceived by Olson and Reynolds (1983) and further developed in theory and application by Reynolds and Gutman (1988). Laddering builds means-end chains by asking a participant to identify meaningful components of their course and to ladder them from various responses from a series of questions. For example, a participant would explain a certain attribute they obtained from the course. They would then be asked why they thought that was important. Once they responded, they were asked again "...and why is that important," until they eventually stated a value or could no longer answer the question. With this method, all responses are similar to a rung on a ladder, which eventually leads the researcher to the highest level of the participants' thinking, the value states. A benefit of laddering is that it enables a respondent to define personal values in their own terms and context, rather than forcing them into predetermined value categories as in a macro-survey approach (McIntosh & Thyne, 2005).

Collection of means-end data has been done by personal interview (Gutman, 1982; Klenosky, 2002; Olson & Reynolds, 1983; Reynolds & Gutman, 1988), by telephone interview (Bagozzi & Dobholkar, 1994; Goldenberg et al., 2008), and by self-administered questionnaire (Goldenberg et al., 2000; Goldenberg & Pronsolino, 2008; Frauman & Cunningham, 2001). The use of interviews conducted in person and by telephone has remained the preferred and most popular approaches to collecting means-end data (Goldenberg et al., 2005). The use of questionnaires has proven effective with a large sample size or when financial or geographical barriers prevent the researcher from being in direct contact with the subjects (Goldenberg, 2002; McAvoy et al., 2006).

Once the data have been collected, it is entered into a software program called LadderMap (Gengler & Reynolds, 1995). While being entered, each participant response is categorized, often called coding, and are assigned into attributes, consequences, and values. This approach is based on the "cut-up-and-put-in-folders" approach (Bogdan & Bilken, 1982), which has been used successfully in prior recreation (Hultsman, 1996) and means-end research (Goldenberg et al., 2000). When data have been entered and coded, a second or third researcher conducts a blind review to test intercoder reliability. For this study, two researchers worked together to enter the original codes and then a third researcher examined the data and tested for intercoder reliability. There was an 80.8% intercoder agreement. All disagreements were resolved by the original researchers.

After the data have been tested for reliability, Ladder Map software is used to compile an implication matrix to examine the frequency of links between concepts. "The coded elements of each ladder are aggregated across subjects and used to develop an implication matrix – an asymmetric matrix that summarizes the number of times each category concept implies or leads to the other concepts in respondents' ladders" (Klenosky et al., 1998, p. 27). Once the implication matrix is complete, the data can be used to construct hierarchical value maps (HVMs). HVMs provide a graphical summary of the relationships that emerged from participant

ladders. HVMs can be constructed to represent the entire data set, or any data subsets of interest to the researcher. In an HVM, each attribute, consequence, and value appears in a circle, color coded accordingly. The lines connecting the circles depict the frequency of that link by the thickness of the line. In other words, the more frequently two concepts are linked by subjects, the thicker the line between the concepts in the HVM. To create an HVM, cutoff values are often used. Cutoff levels are chosen so enough data can be included in the HVM to indicate trends, but if all data were included, it would include so much information that it would be almost impossible to interpret. For this data, cutoff levels were determined to include over 50% of the data (for the female HVM, a cutoff level of 8 was chosen which represents over 50% of the data and for the male HVM, a cutoff level of 10 was selected which represented 55% of the data).

Results

Data were collected from 162 OB students and 348 NOLS students consisting of 337 (66%) males and 173 (34%) females. Some of the most common attributes for this study included: *group*, *expeditioning*, *peak* (making it to the top of a peak), *climbing* (rock climbing), *wilderness*, and *solo* (being on a solo experience). Consequences included: *interactions*, *personal challenge*, *new experiences*, *skill development*, *awareness* (learning about something new), and *new perspective* (gaining a new perspective). And some of the values that individuals cited were: *sense of accomplishment*, *self-confidence*, *life improvement*, and *warm relationships with others*. See Table 1 for a list of the attributes, consequences, and values mentioned by females and males.

TABLE 1
Most Mentioned Attribute, Consequence, and Value According to Females and Males

	Females	Males
Attributes	Group Expeditioning Peak Climbing	Group Climbing Expeditioning Peak
Consequences	Interactions Personal challenge Awareness Skill development	Skill development Interactions New experiences Awareness
Values	Sense of accomplishment Life improvement Self-confidence Warm relationships w/ others	Sense of accomplishment Life improvement Self-confidence Warm relationships w/ others

Despite differences in program structures, participants (females and males) from both organizations cited many of the same program outcomes as their most meaningful experiences. Subtle differences did emerge from the results between males and females (note: analysis was not conducted between males and females within programs). The attributes mentioned the most frequently included *group*, *expeditioning*, *climbing*, *peak ascent*, and *wilderness*. Females

mentioned some attributes more frequently. The most significant difference was the attribute of *group* which was mentioned by 51% of females compared to 36% of males.

Consequences that were mentioned the most often included *interactions*, *skills development*, *personal challenge*, *awareness*, and *new experience*. Consequences mentioned were similar between genders, but females identified *interactions* more than males. Females mentioned *interactions* 58% whereas males included *interactions* 44% of the time. *Personal challenge* for females was 46% and for males it was 27%. *Skill development* was identified more frequently by males (52%) than females (41%).

Sense of accomplishment, *life improvement*, *self-confidence*, and *warm relationships with others* were the most frequently mentioned values on both HVMs for males and females. Values mentioned were similar between genders.

For females (see Figure 1) there were strong connections between the most mentioned attribute *group* and the most mentioned consequence *interactions*. *Interactions* had strong connections to other consequences *personal challenge* and *fun*. The attributes *climbing* and *expeditioning* had strong connections to the consequences *personal challenge* and *perseverance*. These ultimately lead to the values *life improvement* and *sense of accomplishment*. Other strong links included on the female HVM were from the consequence *awareness* to *life improvement* and *awareness* to the value *warm relationships with others*.

For males, all five most mentioned attributes had links to the consequence *new experience*. These links eventually lead to the most mentioned consequence *skill development*. *Skill development* then linked to the consequence *new opportunities* which lead to the value *fun and enjoyment of life*. Strong links were also found between the consequence *awareness* and the value *fun and enjoyment of life* and between the attribute *climbing* to the consequence *trust*. The consequence *personal challenge* is strongly linked to the consequence *perseverance* which leads to the value *self-confidence*. Lastly, a strong link exists between the consequence *overcoming fear/troubles* leading to the value *sense of accomplishment*. (See Figure 2)

FIGURE 1

*Hierarchical Value Map for Outward Bound and NOLS Participants:
All Females (n = 173)*

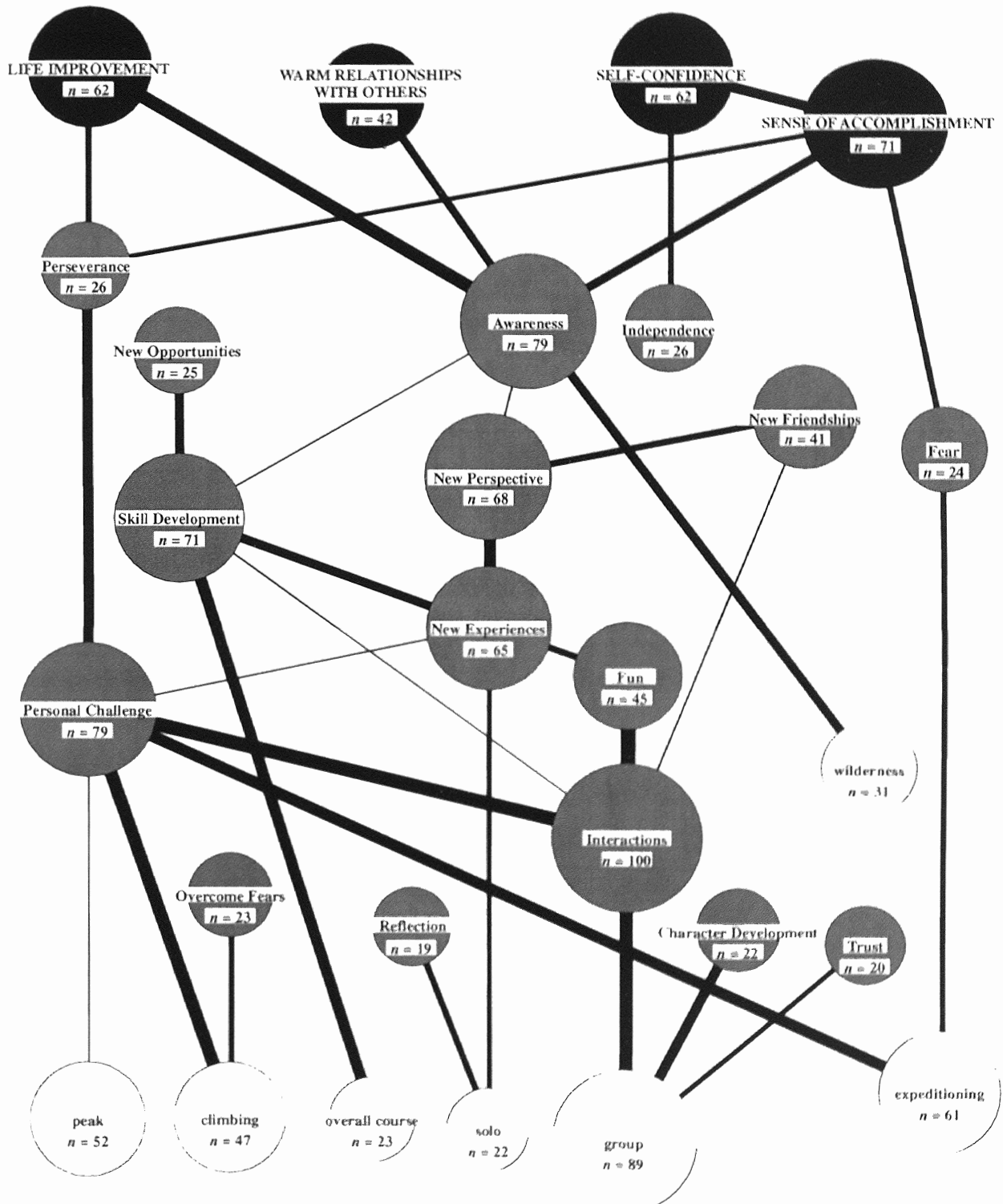
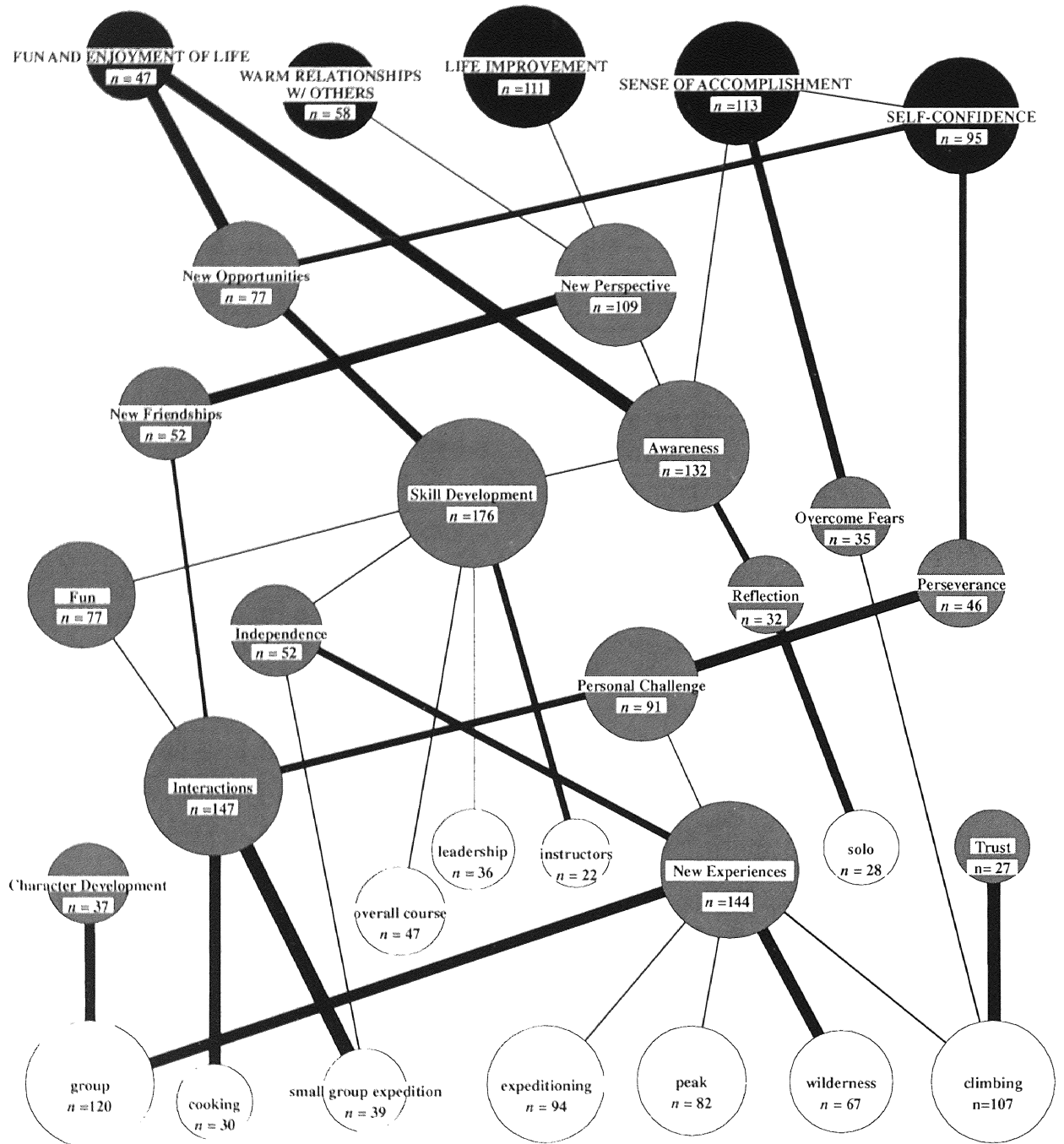


FIGURE 2
 Hierarchical Value Map for Outward Bound and NOLS Participants:
 All Males (n = 337)



Discussion

Results between the female and male HVMs of participants from Outward Bound and NOLS courses were very similar. A few notable differences did exist and should be noted. For example, females mentioned *group*, *interaction*, and *personal challenge* more than males, but the males mentioned *skill development* more than their female counterpart.

Though outcomes did vary slightly between females and males, more significant is that the outcomes obtained from all participants (females and males) had many similarities. Previous research has found that similarities did exist between outcomes associated with males and females. Neill's (1997) meta-analysis found that typically there was no difference in outcomes between females and males from a wilderness based course, but if a difference in outcomes did exist, it was predominately with greater change for female participants. Hattie et al. (1997) found minimal differences in the overall size of the outcomes for males and females.

One of the notable differences found was that females had a strong connection between the attribute *group* and the consequence *interactions*. Estes and Ewert (1988) found that females placed higher expectations on group development than males. Females also placed a greater emphasis on socialization than males in motivations for participating in climbing (Estes & Ewert, 1988). Culp (1998) examined female-only groups and found that the importance of friendship was often mentioned in focus groups and interviews, especially among adolescent girls. This would seem to suggest that with regard to OB and NOLS programming, females place greater importance on the interactions with others and group development.

The consequence most frequently mentioned by males was *skill development*. This would seem to suggest that males place great importance on individual skill development. Estes and Ewert (1988) found that the most important factor behind the motivation to climb for men was what they termed "personal testing and success", which included the outcome of skill development. This same factor for women participants was found to be only the fourth most important motivation for climbing.

For females, the attributes *climbing* and *expeditioning* had strong connections to the consequences *personal challenge* and *perseverance* which ultimately lead to the values *life improvement* and *sense of accomplishment*. This is different for males in which *climbing* leads to the consequences *new experiences* and *trust* and through a weaker connection to the consequence *personal challenge*. McKenzie (2003) found that "course components of rock climbing, taking care of others, and challenge had more of an impact on females than on males" (p. 16). McKenzie's findings support the connection between *rock climbing* and *personal challenge* found in this study.

More significant than the differences found between the two sexes may be the simple fact that outcomes were obtained for both sexes from their participation in either an Outward Bound or a NOLS course. The outcomes obtained were predominately positive and even though they were immediate, they potentially have lasting impact for the participants.

Limitations of this study did exist. The data was collected based on convenience of course completion for both NOLS and Outward Bound. This limited the types of courses and number of courses where data collection occurred. Another limitation of this study involves the lack of analysis of all the various factors that could contribute to the differences for females and males, such as various program components, length of course, age of group, ratio of female to male participants, or sex of instructors for the course. The program itself (either OB or NOLS) could also have differences which influence the outcomes associated with participation.

Implications and Future Research

Implications for this research include support for the use of means-end theory to examine outcomes associated with specific groups that are participating in outdoor adventure programs. Using knowledge of the outcomes associated with specific groups (such as sex) can have an impact on future program design and objectives. This can impact how organizations such as OB and NOLS program for both gender-specific and co-educational groups. So therefore, by gaining knowledge of differences between males and females we can then gain an understanding of gender roles and frameworks. This research examined coeducational programs and found mostly similarities among sex. Hattie et al. (1997) suggested that it would be of particular interest to contrast the effects from male and female outcomes between single-gender and coeducational programs. Ewert and McAvoy (2000) found evidence that all-women's groups can be effective in creating beneficial outcomes. They conclude that though there seems to be general agreement in the literature that participants in all-women wilderness programs do experience benefits, there is little information on how wilderness actually contributes to the benefits and outcomes of these programs for these groups.

A possible explanation for differences found in gender outcomes involve differences in the motivations of males and females who participate in outdoor adventure education programs. Another explanation is that the gender differences in outcomes may be caused by the underlying sex-role framework of most outdoor education programs (Neill, 1997). Understanding the motivations of male and female participants can aid practitioners in improving the quality of their programs, so therefore it is an important research area to be studied. If particular outcomes are the goals of the group, then it is important that practitioners program for that group accordingly.

In conclusion, this research revealed that outdoor adventure education programs can make an immediate impact on the lives of participants and that some differences do exist between males and females outcomes. This research supports other studies which have also examined differences between males and females and found that outcomes tended to have more similarities than differences between the sexes. Through this study, practitioners may be better able to understand the outcomes associated with females and males who participated in an outdoor adventure experience with NOLS and OB. Additional studies are needed to advance this research such as examining other variables that can relate to differences in outcomes between sexes, such as type of course, ratio of males to females, instructor sex, and age. Additionally, research could be conducted to examine specific differences between outcomes obtained from single sex versus co-educational courses.

References

- Costa, A., Dekker, M., & Jongen W. (2004). An overview of means-end theory: Potential Application in consumer-oriented food product design. *Trends in Food and Science Technology*, 15(2004), 403-415.
- Culp, R. (1998). Adolescent girls and outdoor recreation: A case study examining constraints and effective programming. *Journal of Leisure Research*, 30(3), 356-379.
- Bagozzi, R., & Dabholkar, P. (1994). Consumer recycling goals and their effect on decision making to recycle: A means-end chain analysis. *Psychology & Marketing*, 11(4), 313-340.
- Bogdan, R., & Bilken, S. (1982). *Qualitative research for education: An introduction to theory and methods*. Boston: Allyn & Bacon.
- Estes, C., & Ewert, A. (1988). Enhancing mixed-gender programming: Considerations for experiential educators. *The Bradford Papers Annual*, 3, 34-43.
- Ewert, A. (1985). Why people climb: The relationship of participant motives and experience level to mountaineering. *Journal of Leisure Research*, 17(3), 241-250.
- Ewert, A., & McAvoy, L. (2000). The effects of wilderness settings on organized groups: A state-of- knowledge paper. *USDA Forest Service Proceedings RMRS-P*, 15(3), 13-26.
- Frauman, E., & Cunningham, P. H. (2001). Using means-end approach to understand the factors that influence greenway use. *Journal of Park and Recreation Administration*, 19(3), 93-113.
- Gengler, C., & Reynolds, T. (1995). *LadderMap* [Computer Software]. Camden, NJ: Means-End Software.
- Goldenberg, M. (2002). Understanding the outcomes of outdoor adventure experiences using means-end analysis. *Unpublished doctoral dissertation*. University of Minnesota.
- Goldenberg, M., Hill, E., & Friedt, B. (2008). Why individuals hike the Appalachian Trail: A qualitative approach to benefits. *Journal of Experiential Education*, 30(3), 277-281.
- Goldenberg, M., Klenosky, D., O'Leary, J., & Templin, T. (2000). A means-end investigation of ropes course experiences. *Journal of Leisure Research*, 32(2), 208-224
- Goldenberg, M., McAvoy, L., & Klenosky, D. (2005). Outcomes from the components of an Outward Bound experience. *Journal of Experiential Education*, 28(2), 123-146.
- Goldenberg, M., & Pronsolino, D. (2008). A means-end investigation of outcomes associations with Outward Bound and NOLS programs. *Journal of Experiential Education*, 30(3), 271-276.
- Goldenberg, M., Pronsolino, D., & Klenosky, D. (2006). An employee perspective of service in an outdoor education organization: A means-end study. *Research in Outdoor Education*, 8, 94-99
- Grunert, K., & Grunert, S. (1995). Measuring subjective meaning structures by the laddering method: Theoretical considerations and methodological problems. *International Journal of Research in Marketing*, 12(1), 209-225
- Gutman, J. (1982). A means-end chain model based on consumer categorization processes. *Journal of Marketing*, 46, 60-72.
- Gutman, J., & Miaoulis, G. (2003). Communicating a quality position in service delivery: An application in higher education. *Managing Service Quality*, 13(2), 105-111.
- Haras, K., Bunting, C., & Witt, P. (2006). Meaningful involvement opportunities in ropes course programs. *Journal of Leisure Research*, 38(3), 339-362.

- Hattie, J., Marsh H., Neill, J., & Richards, G. (1997). Adventure Education and Outward Bound: Out-of-class experiences that make a lasting difference. *Review of Educational Research*, 67(1), 43-87.
- Henderson, K. (1992). Breaking with tradition: Women and outdoor pursuits. *Journal of Physical Education, Recreation and Dance*, 63(2), 49-51.
- Henderson, K., Bialeschki, M., Shaw, S., & Freysinger, V. (1996). *Both gains and gaps: Feminist perspectives on women's leisure*. State College, PA: Venture Publishing.
- Hultsman, W. (1996). Benefits of and deterrents to recreation participation: Perspectives of early adolescents. *Journal of Applied Recreation Research*, 21(3), 213-241.
- Jackson, E., & Henderson, K. (1995). Gender-based analysis of leisure constraints. *Leisure Sciences*, 17, 31-51.
- Klenosky, D. (2002). The "pull" of tourism destinations: A means-end investigation. *Journal of Travel Research*, 40, 385-395.
- Klenosky, D., Gengler, C., & Mulvey, M. (1993). Understanding the factors influencing ski destination choice: A means-end analytic approach. *The Journal of Leisure Research*, 25(4), 362-379.
- Klenosky, D., Frauman, E., Norman, W., & Gengler, c. (1998). Nature-based tourists' use of interpretive services: A means-end investigation. *The Journal of Tourism Studies*, 9(2), 26-36.
- Klenosky, D., Templin, T., & Troutman, J. (2001). Athletic recruiting: A means-end investigation of student athletes' school choice decisions. *Journal of Sport Management*, 15(2), 95-106.
- Koepke, S. (1973). The effects of Outward Bound participation upon anxiety and self-concept. *Unpublished master's thesis*, Pennsylvania State University, PA. Abstract from: SilverPlatter File: ERIC Item: ED 129516.
- Marsh, P. (2008). Backcountry adventure as spiritual development: A means-end study. *Journal of Experiential Education*, 30(3), 290-293.
- Marsh, H., & Richards, G. (1989). A test of bipolar and androgyny perspectives of masculinity and femininity: The effect of participation in an outward bound program. *Journal of Personality*, 57(1), 116-136.
- McAvoy, L., & Lais, G. (2003). Wilderness, hope, and renewal: Programs that include Persons with disabilities. *Journal of Physical Education, Recreation, and Dance*, 74.
- McAvoy, L., Holman, T., Goldenberg, M., & Klenosky, D. (2006, August). Wilderness and persons with disabilities: Transferring the benefits to everyday life. *International Journal of Wilderness*, 12(2), 23-31.
- McKenzie, M. (2003). Beyond "The Outward Bound Process:" Rethinking student learning. *Journal of Experiential Education*, 26(1), 8-23.
- McIntosh, A., & Thyne, M. (2005). Understanding tourist behavior using means-end theory. *Annals of Tourism Research*, 32(1), 259-262.
- McIntyre, N. (1987). Self-concept change as a result of an extended outdoor education residential experience. *Proceedings of the 5th National Outdoor Education Conference*, 84-99.
- Neill, J. (last updated April 2005). Outdoor education and gender. *Wilderdom outdoor*

education research and evaluation center home page. Retrieved January 28, 2008, from <http://wilderdom.com/Gender.htm>

- Neill, J. (1997). Gender: How does it affect the outdoor education experience? In *Catalysts for Change: Proceedings of the 10th National Outdoor Education Conference*. Sydney, Australia: The Outdoor Professionals, 183-192.
- Nolan, T., & Priest, S. (1993). Outdoor programmes for women only? *Journal of Adventure Education and Outdoor Leadership*, 10(1), 14-17.
- Olson, J., & Reynolds, T. (1983). Understanding consumers' cognitive structures: Implications for advertising strategy. In L. Percy & A. Woodside (Eds.), *Advertising and Consumer Psychology*, 1, 77-90. Lexington, MA: Lexington Books.
- Pinch, K. (2002). If the dress fits, wear it: Uncovering meaning in gender stereotyping in an Australian outdoor education program. *Research in Outdoor Education*, 6, 94-106.
- Pohl, S., Borrie, W., & Patterson, M. (2000). Women, wilderness, and everyday life: A documentation of the connection between wilderness recreation and women's everyday lives. *Journal of Leisure Research*, 32(4), 415-434.
- Propst, D., & Koesler, R. (1998). Bandura goes outdoors: Role of self-efficacy in the outdoor leadership development process. *Leisure Sciences*, 20, 319-344.
- Reynolds, T., & Gutman, J. (1988). Laddering theory, method, analysis, and interpretation. *Journal of Advertising Research*, 28(1), 11-31.
- Rodriguez, D., & Roberts, N. (2005). Understanding the influence of gender and ethnicity on evaluations of outdoor leader effectiveness. *World Leisure*, 1, 32-43.
- Russell, K. (2003). An assessment of treatment outcomes in outdoor behavioral healthcare treatment. *Child and Youth Forum*, 32(6), 355-381.
- Scott, J. (1986). Gender: A useful category of historical analysis. *American Historical Review*, 91, 1053-1075.
- Sheard, M., & Golby, J. (2006). The efficacy of an outdoor adventure education curriculum on selected aspects of positive psychological development. *Journal of Experiential Education*, 29(2), 187-209.
- Witman, J. (1995). Characteristics of adventure programs valued by adolescents in treatment. *Monograph on Youth in the 1990s*, 4, 127-135.

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