Journal of Outdoor Recreation, Education, and Leadership

2014, Vol. 6, No. 1, pp. 44-54
doi:10.7768/1948-5123.1177

Outcomes of Hiking the Pacific Crest Trail

Marni A. Goldenberg
California Polytechnic State University

Katherine E. Soule
University of California

The Pacific Crest Trail spans 2,650 miles bridging Mexico to Canada via California, Oregon, and Washington. Conservation and preservation of trail areas are under continual debate and funding strain. This research provides insight on the outcomes and benefits obtained from trail users. Fifty-six interviews, conducted in Northern California during summer 2010, examined outcomes of participants' long-distance hiking experiences. Outcomes included: developing *new perspectives*, *fun and excitement*, and enhanced *personal growth*. These outcomes led participants to experience a desire to *transfer* outcomes to other areas of their life, increase their sense of *fun and enjoyment of life*, and develop *warm relationships with others*. Results may be used to validate funding, justify fund allocation, and maintain trail spaces in a manner reflecting users' desires. Benefits-Based management approaches may utilize this study to improve experiences and perceptions for stakeholders, including current users, potential users, and potential supporters of trail maintenance and conservation.

KEYWORDS: long-distance hiking, means-end theory, outcomes

ACKNOWLEDGMENTS: The researchers would like to thank the Agricultural Research Initiative Grant and USDA McIntire-Stennis Grant for their financial support, as well as the Pacific Crest Trail Association for assistance in reaching participants and providing background information. Finally, Briget Eastep for her work in assisting with data collection.

The Pacific Crest Trail (PCT) was designated as a National Scenic Trail in 1968 by the United States Congress. The National Trails System Act was established to "promote the preservation of, public access to, travel within, and enjoyment and appreciation of the open-air, outdoor areas and historic resources of the Nation" (National Park Service, 2009, p. 1). The PCT and the Appalachian Trail (AT) where the first two trails established. On the West Coast, the PCT spans 2,650 miles from Mexico to Canada, traveling through California, Oregon, and Washington. Additionally, the PCT passes through three national monuments, seven national parks, 24 national forests, and 33 federally mandated wildernesses. Thousands of people hike the trail annually, and approximately 300 people attempt to thru-hike the entire length of the trail continuously, typically starting in early Spring and traveling from south to north due to weather.

The term *long-distance hiking* holds a multitude of meanings for different people; however, there is general acceptance that it refers to being "on the trail from several weeks to six months" in order to cover a substantial number of miles (Muesser, 1998, p. 5). No matter the number of miles covered, a long-distance hike requires extensive pre-trip logistical planning, entails being away from society for weeks (if not months) at a time, and provides opportunities to see places that would otherwise be inaccessible.

According to Daniel M. Ogden, Jr., a former Assistant Director for Planning and Research, Bureau of Outdoor Recreation, Department of the Interior, "the Pacific Crest Trail is one of this nation's most important recreation assets" (2008, para. 11). For long-distance hikers, this trail is a vital part of their recreation. Conservation and preservation of such areas are under continual debate and consideration regarding issues related to trail access, maintenance, and resource allocation. This research aims to provide insight and understanding on the outcomes and benefits obtained from users of this footpath, as well as the wildernesses and open spaces it entails. Such information may assist area management in continued trail conservation and obtaining funding support. The purpose of this study was to examine how the PCT is used for recreational purposes. Specifically, this study used means-end theory (Gutman, 1982) to determine which attributes of the trail (i.e. physical aspects, services, or experiences) were correlated with outcomes. Means-end theory links attributes, consequences, and values together to create means-end chains.

Literature Review

While numerous studies have investigated the outcomes of outdoor recreation, very limited research exists examining the outcomes of long-distance hiking. Cole (2001) examined day and overnight users of wilderness areas and found that "all wilderness trips provide a contrast to what is found outside wilderness and in everyday life – greater opportunities for solitude, contemplation, and communion with nature" (p. 26). Turley and Goldenberg (2013) examined readjusting to life after completing an AT thru-hike. The study specifically examined "challenges of readjustment after the trail, lifestyle changes, aspects missed of the trail, if depression was experienced post trail, and how the hike influenced motivation of other long term goals" (p. 97). Hikers did have a strong connection to the trail, which was also revealed by Kyle, Graefe, Manning, and Bacon (2003) when they examined hikers' place attachment with the AT. In the limited research that exists on long-distance hiking, participants have reported similar outcomes from their trail adventure (Freidt, Hill, Gómez, & Goldenberg, 2010). Using the benefits of hiking scale, differences regarding AT and PCT users did exist (Hill, Gómez, Goldenberg, Freidt, Fellows, & Hill, 2013). The values and benefits differed between the two trail groups, which could be based the different cultures of the two trails, as well as their positions on opposite coasts.

Muesser (1998) studied the motivations of 136 long-distance hikers and found that a life-changing experience, such as loosing a job, the ending of a relationship, or reaching a break in education/military training, motivated them to embark on their journey. In a study of 327 hikers, Mills and Butler (2006) reported that thru-hikers enjoyed the hiking experience in itself and the opportunity to use skills. A means-end study of AT hikers found that researchers could better predict participants' desired outcomes through an understanding of meaningful attributes and consequences (Hill, Goldenberg, & Freidt, 2009). Participants most commonly reported the outcome fun and enjoyment of life and believed that their AT hiking experiences were beneficial (Freidt et al., 2010; Goldenberg, Hill, & Freidt, 2008). Gómez, Freidt, Hill, Goldenberg, and Hill (2010) used an internet survey to research means-end outcomes of hiking on the AT. They discovered that outcomes were similar among all hiker types (day hikers, overnight hikers, thru-hikers, etc.). Hill et al. (2013) continued to examine long-distance hikers in a study comparing benefits and motivations of PCT hikers with AT hikers. This study used a total of 766 questionnaires and showed that "significant differences were found between AT and PCT users who: hike to prevent a worse health condition; seek motivational attributes (e.g. scenic beauty); pursue motivational consequences (e.g. physical activity); and perceive motivational values (e.g. increasing self-esteem)" (p. 9).

Method

Theoretical Framework

Means-end analysis seeks to determine how consumers or participants feel about a particular product or service (Gutman, 1982). This theory was originally used in the marketing context; starting in 1993 means-end theory was used to examine recreational outcomes. This first application of means-end theory examined ski destination choices (Klenosky, Gengler, & Mulvey, 1993). Recreation researchers have continued to use means-end analysis in a variety of outdoor settings (e.g.; Frauman & Cunningham, 2001; Goldenberg, Cummings, & Pronsolino, 2008; Goldenberg, Wassenberg, Cummings, & Pronsolino, 2010; Klenosky, Frauman, Norman, & Gengler, 1998; Mulvey, Olson, Celsi, & Walker, 1994; Wassenberg, Goldenberg, & Soule, 2012), as well as recently examining "what is meant when someone describes a backcountry adventure as being a spiritual experience" (Marsh & Bobilya, 2013, p. 74).

This theory considers the relationships between three elements: attributes, consequences, and values. Attributes are specific characteristics of the PCT hiking experience. Participants physically come into contact with these attributes. Examples of attributes from a PCT hiking experience include physically being in the wilderness, interacting with other people, or the actual act of hiking/walking on a trail. Consequences refer to the outcomes associated with a particular attribute. Consequences may refer to desired outcomes, also called benefits, or undesirable outcomes, also known as risks or costs. Examples of consequences in the PCT hiking experience include being physically challenged, experiencing camaraderie among fellow hikers, having solitude, and an increased environmental awareness. Values refer to participants' desired end-states of being, which are considered desirable or positive. Examples of values from the PCT hiking experience include an increased sense of self-fulfilment, experiencing fun and enjoyment in life, becoming more self-aware, and developing warm relationships with others.

Within the means-end theoretical framework, these three elements (attributes, consequences, and values) are viewed as fundamentally interrelated rather than separate or independent of one another (Gutman, 1982). The theory states that the product/service attributes represent the "means" by which consumers obtain desired consequences/benefits and achieve important personal values or "ends" (Gutman, 1982). The sequence of relationships that links attributes to

consequences, and consequences to values, is summarized by a means-end chain. An example of a means-end chain in a wilderness experience would link the attribute "being in wilderness," to the consequence "learning important survival skills," to the value of "self-fulfilment."

Means-end theory was selected as the methodology for this study because the research results in these means-end chains. By understanding how an attribute links to a consequence and value, management can cater the trail experience to facilitate participants' obtaining desired outcomes. Additionally, identifying the various attributes that are meaningful to individuals on a hike are important for trail management and preservation as managers can use this information to create trails, gain access to land, or provide services (such as campsites or trail access).

Means-end data is usually collected using a qualitative research technique known as *laddering* (Reynolds & Gutman, 1988). Laddering involves asking a series of open-ended questions to have the participant identify attributes of the product or, in this case, the experience of hiking the PCT that were important to them. After identifying an attribute, the participant is asked why that particular attribute was important. The participant's response will typically refer to a more abstract consequence, which will then be the focus of the next "Why is that important?" questions. The process of asking, "Why is that important?", continues for each response until the participant can no longer answer or provide a meaningful answer, such as "I don't know" or "It just is." The procedure is called laddering because it forces the respondent up the "ladder of abstraction," to bridge relatively concrete attributes with more abstract values (Klenosky et al., 1993, p. 365).

Once ladders have been collected, the interviews are transcribed and data is entered into the LadderMap computer software program (Gengler & Reynolds, 1995). During the data entry process, content codes are identified. These content codes are validated through inter-coder reliability. Using LadderMap, implication matrixes are created, which provide tables that enumerate the number of times attributes, consequences, and values are linked together. Hierarchical Value Maps (HVMs) are then created using the implication matrixes to provide a visual representation of the data. Researchers determine which percentage of the data to include in the HVM by selecting the most appropriate cut-off value, generally no less than 80% of the coded data. The graphical illustration of an HVM depicts means-end chains using lines and circles. The line thickness represents the strength of the connection between two elements. The size of the circle represents the number of times the element was mentioned by participants. Attributes are coded with white circles near the bottom of the HVM. Consequences are coded with grey circles near the middle of the HVM. Values are coded with black circles near the top of the HVM.

Data Collection and Analysis

This study was conducted using a convenience sample of backpackers hiking from south to north on the PCT. Data were collected during the summer of 2010 through semi-structured, in-person interviews. Interviews occurred over four days on the PCT in Northern California wilderness just north of Castle Crags State Park, more than 1,500 miles from the trail head. This trail location was determined after the Pacific Crest Trail Association provided information on the location of the "herd" at the time of data collection. The "herd" refers to the majority of the PCT thru-hikers that are walking north. Many start during the same dates in April every year at a celebration in southern California. While the hikers are not intentionally hiking as one large group, most are hiking at a similar pace so the majority are usually spread within a few hundred miles of each other on the trail. As they move north up the trail, hikers often "leap frog" within this large group, so they pass and re-pass one another; ultimately, the herd develops a trail community.

While the herd was moving north, the researchers hiked south to meet the greatest number of hikers. As the researchers hiked south, they asked every northbound hiker if they wanted to participate in the study. During the four days of scheduled research, the researchers passed and asked 57 hikers to participate. Only one male hiker chose not to participate and explained that he wanted to meet his mileage goal for the day. In an effort to speak with every hiker on the trail in those four days, the researchers camped alongside the trail and always had at least one researcher on the trail at all times. The limits of these findings are that PCT hikers could have already passed this data collection point prior to the researchers being on the trail, or hikers may have not been at this point in Northern California when the researchers were hiking. Another possibility is that some hikers take days off of hiking to recover. This could have also limited the population.

Laddering techniques were utilized during the interviews, as participants were asked to identify attributes of their PCT experience that was important to them. Once an attribute was identified, participants were asked, "Why is that important?" using the laddering technique. After a participant responded, the researcher would again ask, "And why is that important to you?" This line of questioning continued until participants were unable to provide meaningful responses. For example, if a participant said, "I don't know" or, "I can't really say." The researcher followed the laddering technique for each of the important attributes that the participant identified at the beginning of the interview. The length of each interview varied based on the participants' responses. These interviews were recorded and transcribed. After transcribing and reviewing all interview data, 33 content codes were identified, which include seven attributes, 17 consequences, and nine values (see Table 1).

Table 1

Content Codes

Attributes	**Consequences**	**Values**
Away from Society	Being Challenged	Appreciation
Hiking	Environmental Appreciation	Fun & Enjoyment of Life
Illness/Injury	Escape	Self-Awareness
Partner/Others	Fear/Anxiety	Self-Fulfilment
Trail Angels/Trail Magic	Fitness	Self-Respect/Esteem/Confidence
Trail Experience	Fun/Excitement	Sense of Accomplishment
Wilderness/Outdoors	Skill Development	Sense of Belonging
	Independence	Transference
	Interactions	Warm Relationships w/ Others
	Motivation/Inspiration	
	New Experience/Opportunity	
	New Perspective	
	Perseverance	
	Personal Growth	
	Reflection	
	Resourcefulness	
	Stress Relief/Relaxation	

Attribute content codes were developed based on participant quotations to capture common themes associated with the tangible elements of the hiking experiences. *Wilder-*

ness/outdoors incorporates all references to nature, wilderness, and open space. For example, if a participant referred to river crossings, sunsets, wildlife, topography, or open space, these comments were coded as *wilderness/outdoors.* A frequently mentioned attribute was coded as *trail angels/trail magic*, which refers to the generosity and kindness of others who assisted a hiker. For example, a stranger who fed a hiker or offered a hiker a ride into town is considered a *trail Angel*, whereas *trail magic* could include hikers finding an ice chest of cold water at a trail junction. A similar process of data coding was used for consequences and values.

Researchers coded participants' interviews as ladders. An example of a coded ladder from this data comes from participant #6, a white male who had hiked 1,543 miles of the PCT at the time of his interview.

- "*…the high snow…there's some high river crossings…*"
  Attribute: *wilderness/outdoors*
- "*…that was like as big of a challenge as it was…*"
  Consequence: *being challenged*
- "*we just got so much out of that section…so much just awareness of, of just how different one simple thing, like snow can just completely change the trail.*"
  Consequence: *new perspective*
- "*…just so much confidence…*"
  Value: *self-respect/esteem/confidence*

Once all interviews had been coded, intercoder reliability was conducted to ensure validity of the codes developed by the researchers. An independent coder reached 81.2% agreement. Coded data were entered into the LadderMap software where the researchers developed an implication matrix and corresponding HVM.

Results

Data was collected from 56 subjects, 37 were male (66.07%) and 19 were female (33.93%). All participants reported White/Caucasian ethnicity, with the exception of one who reported Hispanic/Latino ethnicity. Ages ranged from 20 to 66, with the majority of participants between the ages of 22 to 25 (mean age= 35).

Among all participants, the three most frequently mentioned attributes included *trail experience*, *hiking*, and *wilderness/outdoors*. These attributes led to numerous consequences; most frequently, participants developed a *new perspective*, enjoyed *fun and excitement* on the trail, and experienced *personal growth*. Participants cited these top three values: *transference,* or the desire to transfer PCT lessons and outcomes to other areas of their lives, an increased sense of *fun and enjoyment of life*, and *warm relationships with others*.

Throughout the HVM several strong links existed between elements as illustrated by line thickness. The strongest connection between attributes linked *trail experience* to *partner/others.* Of the seven possible attributes, six appeared on the HVM for all participants (Figure 1), which led to the following five consequences: *new perspective*, *new experience/opportunity*, *fitness*, *escape*, and *fear/anxiety*. A strong connection linked *wilderness/outdoors* to *new experience/opportunity.* Another strong link occurred between *being challenged* and *new perspective.* The consequence of *new perspective* directly linked to four other consequences: *environmental appreciation*, *escape*, *motivation/inspiration*, and *interactions*. *Personal growth* was a predominant element connecting all elements on the HVM. *Transference* was the dominant value and directly correlated with three other values, including: *self-awareness*, *appreciation*, and *self-respect/esteem/confidence*.

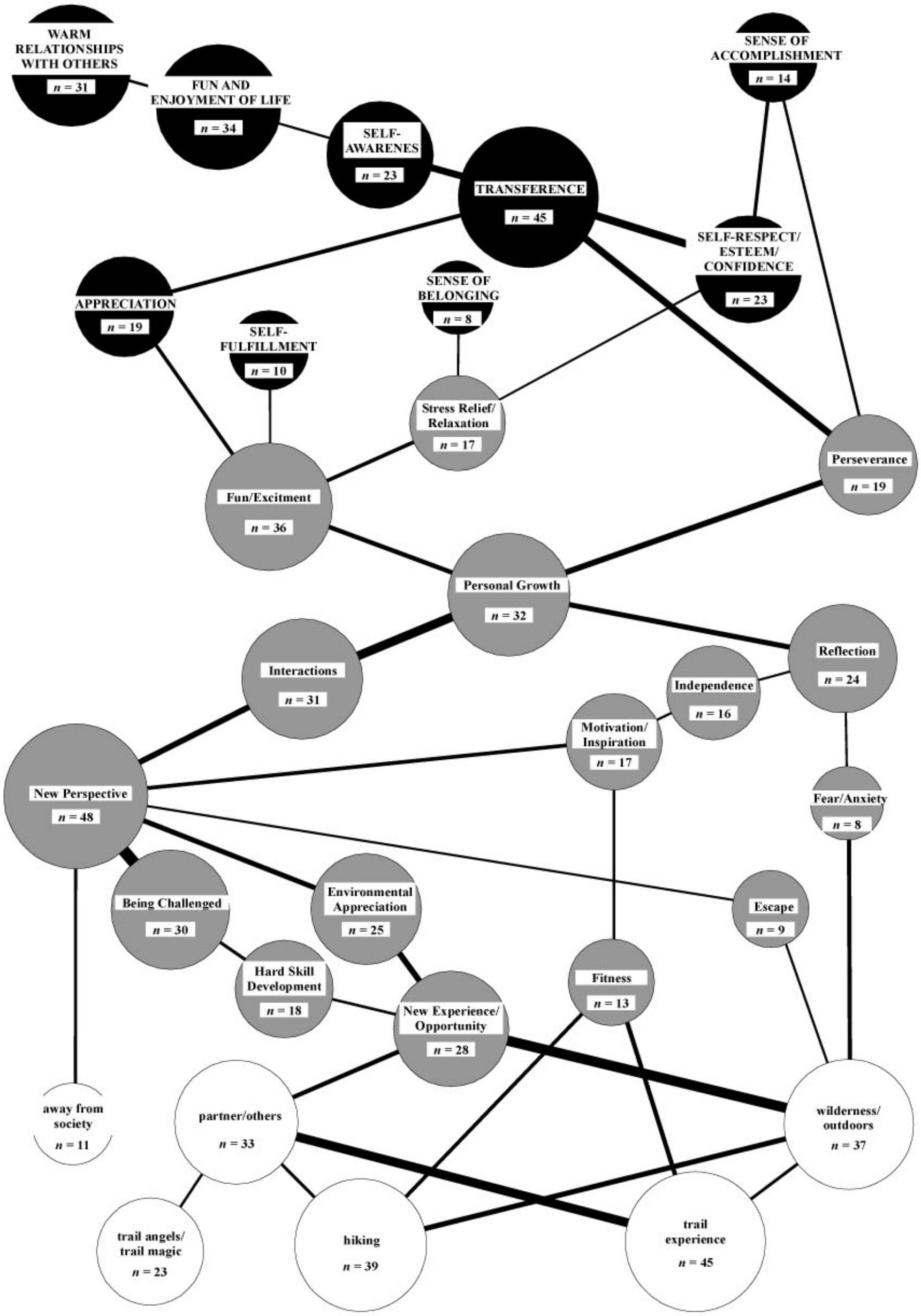

Figure 1. Hierarchical value map for all subjects ($N = 56$), cut-off value of 3 (87% of data).

Discussion

While the results are limited to these particular hikers, this research reveals a number of outcomes and benefits of long-distance hiking on the PCT, as well as connections to specific experience attributes. Participants identified some particularly salient aspects of their experiences as most important: *trail experience*, *hiking*, and *wilderness/outdoors*. This result emphasizes the need to maintain long-distance hiking accessibility through preserved natural areas. It is clear the participants in this study value their opportunities to hike in wilderness areas. In fact, it is notable that the value *appreciation* was mentioned more times than the value of *sense of accomplishment*, even though most participants had hiked more than 1,500 miles at the time of their interview.

Personal growth was a pivotal consequence that bridged all ladders on the HVM. In the researchers' experience, it is unusual for the placement of one outcome to connect all other concepts. Ewert and McAvoy (2000) found that wilderness use "results in a variety of positive outcomes. These outcomes transcend simple recreational values, but they also include personal growth and development and therapeutic aspects" (p. 24). The results of this study highlight the importance that long-distance hikers place on their personal growth, and the role that *personal growth* serves in connecting experience attributes with participants' value attainment.

Transference of the benefits or lessons learned from their PCT experience was the most frequently mentioned value by participants. As the data was collected during the participants' long-distance hiking experience, actual *transference* often could not be determined at the time of the interview. However, most participants indicated a desire to transfer their PCT experience to other areas of their lives. *Transference* is a pivotal value in ascertaining that a long-distance hiking experience has wide-spreading implications in participants' lives. Often, participants cited taking their learnings and outcomes back into their professional lives. Trail experiences enabled participants to see and experience new ways of working, dealing with challenge/opposition, interacting with others, and perceiving themselves.

While *partner/others* was not one of the top three attributes, it was mentioned by 33 participants. The experience of hiking on the PCT provides participants with *new perspectives* and the opportunity to experience *fun and excitement*, while *interacting with others*. This result is different than prior wilderness research findings, which indicated that users "prefer few encounters in wilderness" (Cole, 2001, p. 25). While some hikers planned to thru-hike with another person (generally couples), most hikers found they preferred hiking at their own pace. These hikers might spend a few hours, a couple days, or a section with another hiker. Hiking within the herd enabled subjects to easily meet new people or catch up with someone ahead. As *fun and enjoyment of life* and *warm relationships with others* were two of the most frequently mentioned values, developing relationships with other people on the trail appears to be as important to these study participants as the actual act of hiking.

Recommendations for Practice

Although these findings are limited to a convenience sample of the group of long-distance hikers who passed through the data collection point while the researchers were on the trail, the number of study participants represents approximately 19% of the hikers who set-out to thru-hike the PCT in 2010. Consequentially, these findings may provide important practical implications for hikers, open space and trail managers, and adventure/outdoor programmers. It is also important to note that the winter of 2010 was extremely wet with a significant amount of heavy snow. The snow may have impacted several hikers' ability to continuously hike the trail

from south to north, which may have also impacted the sample size. The following discussion considers some of these potential applications.

The most meaningful attributes, consequences, values, and means-end chains from this research can help stakeholders understand how hikers have used the PCT and the values that they take away from their long-distance hiking experiences. These insights can allow trail area managers to meet the needs and wants of users by supporting and developing the attributes that lead to desired outcomes, namely preserving long-distances hiking trails and the surrounding areas. This research can offer support for trail maintenance, conservation, and preservation Benefits-Based management, as well as funding requests.

Since *personal growth* is related to every means-end chain on the HVM, it holds a central position in the movement from attribute to value attainment. Understanding the positioning of *personal growth* in the long-distance hiking experience can improve efforts to meet users' desires and personal goals, and provide successful programming. For example, individuals and groups participating in long-distance hiking experience may be able to incorporate increased opportunities for *reflection* during their experience, or participate in guided reflection activities. As another example, *interactions* with others (including hikers and non-hikers) also lead directly to *personal growth*. To maximize opportunities for personal growth, trail managers and user groups, such as the Pacific Crest Trail association, could provide additional resources that would allow hikers to connect with members of the communities they pass through (such as an electronic telephone directory of people willing to provide a ride or place to spend the night), as well as opportunities for group connectivity among the hiking herd.

Although the hikers were mid-hike when they participated in this research, transference of learnings, experiences, and outcomes from the hiking experience to other areas of their lives was the most frequently mentioned value. At this mid-point, the participants understand themselves as changed and are imagining the new ways they will interact and behave in their lives. Since many participants spoke about giving back to the trail and trail community, stakeholders could capture these intentions and provide participants with selected opportunities to volunteer and serve. Meeting up with hikers at the end of their trail experience, communicating with hikers through social media, or reconnecting with them in person at another year's kick-off party could provide outlets for connecting hikers with service opportunities.

Recommendations for Future Research

While this research provided an interesting snapshot of the outcomes mid-hike, it would be useful to follow-up with these hikers sometime after they have left the trail. Since *transference* was the most frequently mentioned value, a follow-up study would enable researchers to conclude if participants actually transferred the learning and experiences that resulted from the hike to other areas of their lives. A follow-up study with the hikers could be conducted immediately after they complete the PCT hiking experience, as well as 6 months to one year following completion. A comparison of these various data points would also add to the body of longitudinal outcomes knowledge and readjustment to completing a long-distance hiking trail (Turley & Goldenberg, 2013). Other suggestions for future research include an analysis of reflective journal writing, scheduled, in-depth interviews occurring throughout a participant's long-distance hiking experience, and longitudinal follow-up interviews after experience completion. Larger sample sizes would enable greater comparison between subgroups, such as age, ethnicity, gender, and location of residency. Research of hikers on other long-distance trails, major wilderness areas, and greenways could provide data sets for comparison of hiker outcomes.

Several recommendations can be made for future data collection in an outdoor setting and specifically while hiking on a trail. Researchers for this study did plan ahead with enough batter-

ies for recording interviews, but it is recommended that additional recording devices be available since technical difficulties did arise for the last few interviews with the recorder. It is especially important to have additional devices if the data collection is occurring either days or even hours from developed civilization and researchers have "one shot" to capture the moment with the participants. Paper and pencil/pen works for gathering data and notes where taken from each interview, but it is recommended to use a hard surface for writing, as well as having plenty of supplies. It is also recommended to weather proof any research material that is essential for data collection. During this four-day data collection, the researchers had amazing weather, but being prepared to handle data collection in all-weather situations is critical for the success of the study being conducted in the outdoors. Technology can be utilized in the backcountry, but bring a way to charge batteries, such as portable solar panel.

References

Cole, D. N. (2001). *Day users in wilderness: How different are they?* (Research Paper RMRS-RP-31). Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Ewert, A., & McAvoy, L. (2000). The effects of wilderness settings on organized groups: A state of knowledge paper. In S. F. McCool, D. N. Cole, W. T. Borrie, & J. O'Loughlin (Eds.), *Wilderness science in a time of change conference: Wilderness as a place for scientific inquiry* (Vol. 3, pp. 13-25). *Ogden, UT: U.S. Department of Agriculture*.

Frauman, E., & Cunningham, P. (2001). Using means-end approach to understand the factors that influence greenway use. *Journal of Park and Recreation Administration, 19*(3), 93-113.

Freidt, B., Hill, E., Gómez, E., & Goldenberg, M. (2010). A benefits-based study of Appalachian Trail users: Validation and application of the benefits of hiking scale. *Physical Health Education Journal, 2*(1), 1-22.

Gengler, C. E., & Reynolds, T. J. (1995). *LadderMap* [Computer Software]. Camden, NJ: Means-End Software.

Goldenberg, M., Cummings, J., & Pronsolino, D. (2008). A means-end study of outcome differences of females and males associated with Outward Bound and National Outdoor Leadership School. *Research in Outdoor Education, 9,* 9-25.

Goldenberg, M., Hill, E., & Freidt, B. (2008). Why individuals hike the Appalachian Trail: A qualitative approach to benefits. *Journal of Experiential Education, 30*(3), 277-281.

Goldenberg, M., Wassenberg, K., Cummings, J., & Pronsolino, D. (2010, January). *4-Year longitudinal participant outcomes associated with Outward Bound and National Outdoor Leadership School: A means-end investigation.* Paper presented at the Coalition for Education in the Outdoors Research Symposium, Bradford Woods, IN.

Gómez, E., Freidt, B., Hill, E., Goldenberg, M., & Hill, L. (2010). Appalachian Trail hiking motivations and means-end theory: Theory, management, and practice. *Journal of Outdoor Recreation, Education, and Leadership, 2*(3), 260-284. doi:10.7768/1948-5123.1043

Gutman, J. (1982). A means-end chain model based on consumer categorization processes. *Journal of Marketing, 46*, 60-72. doi:10.2307/3203341

Hill, E., Goldenberg, M., & Freidt, B. (2009). Benefits of hiking: A means-end approach on the Appalachian Trail. *Journal of Unconventional Parks, Tourism & Recreation Research, 2*(1), 19-27.

Hill, E., Gómez, E., Goldenberg, M., Freidt, B., Fellows, S., & Hill, L. (2013). Appalachian and Pacific Crest Trail hikers: A comparison of benefits and motivations. *Journal of Unconventional Parks, Tourism & Recreation Research, 5*(1), 9-16.

Klenosky, D., Frauman, E., Norman, W., & Gengler, C. (1998). Nature-based tourists' use interpretive services: A means-end investigation. *The Journal of Tourism Studies, 9*(2), 26-36.

Klenosky, D., Gengler, C., & Mulvey, M. (1993). Understanding the factors influencing ski destination choice: A means-end analytic approach. *Journal of Leisure Research, 25*(4), 362-379.

Kyle, G., Graefe, A., Manning, R., & Bacon, J. (2003). An examination of the relationship between leisure activity involvement and place attachment among hikers along the Appalachian Trail. *Journal of Leisure Research, 35*(3), 249-273.

Marsh, P. E., & Bobilya, A. J. (2013). Examining backcountry adventure as a spiritual experience. *Journal of Outdoor Recreation, Education, and Leadership, 5*(1), 74-95. doi: 10.7768/1948-5123.1188

Mills, A. S., & Butler, T. S. (2006). Flow experience among Appalachian Trail thru-hikers. In J. G. Peden & R. M. Schuster (Eds.), *Proceedings for the 2005 Northeastern Recreation Research Symposium* (pp. 366-370). Newtown Square, PA: USDA Forest Service.

Muesser, R. (1998). *Long-distance hiking: Lessons from the Appalachian Trail*. Camden, MN: Ragged Mountain Press.

Mulvey, M., Olson, J., Celsi, R., & Walker, B. (1994). Exploring the relationships between means-end knowledge and involvement. *Advances in Consumer Research, 21*, 1-7.

National Park Service. (2009). *The national trails system act* (P.L. 90-543). Retrieved from http://www.nps.gov/nts/legislation.html

Ogden, D. M. (2008). *Development of the national trails system act.* Retrieved from: http://www.pcta.org/general/news/dev_ntsa.asp

Reynolds, T. J., & Gutman, J. (1988). Laddering theory, method, analysis, and interpretation. *Journal of Advertising Research, 28*, 11-34.

Turley, B., & Goldenberg, M. (2013). Assessment of readjusting to life after completing a thru-hike of the Appalachian Trail. *Journal of Outdoor Recreation, Education, and Leadership, 5*(1), 96-107. doi:10.7768/1948-5123.1150

Wassenberg, C., Goldenberg, M., & Soule, K. (2012, October). *Improving quality of life: A visit to a botanical garden.* Paper presented at the National Recreation and Park Association Congress 2012, Anaheim, CA.