

ABSTRACT

DORWART, CATHERINE ELISABETH. Exploring Visitors' Perceptions of the Trail Environment and their Effects on Experiences in the Great Smoky Mountains National Park. (Under the direction of Dr. Roger L. Moore and Dr. Yu-Fai Leung).

Park and natural resource managers are charged with a dual mission, to protect natural resources for future generations and to provide for the appropriate public enjoyment of these resources. A significant component of this responsibility involves understanding visitors' experiences. Various techniques for collecting data have been used to explore and understand park and trail visitors' perceptions and experiences.

One of the more applied techniques developed to explore visitor preference and perception, which has been used successfully in the outdoor recreation field, is visitor-employed photography (VEP). VEP is a visual technique that takes a camera out of the researcher's hands and places it into the control of the visitor (participant). Due to VEP's potential for assessing what people find important, it was employed in this qualitative study to examine visitors' perceptions and to determine how their perceptions affected overall recreation experiences along a 2.9-mile segment of the Appalachian Trail (AT) in the Great Smoky Mountains National Park (GRSM).

A purposive sample of $n=33$ visitors was selected for this study. The study consisted of two parts: a visitor employed photography (VEP) exercise and a post-hike interview. Data analyses involved constant comparison (photo logs and interviews) and content analysis (photos). In addition, enumerative strategies were used to supplement the descriptive data.

Analysis of the photographs ($n=274$) and photograph logs ($n=33$) found that participants noticed both negative and positive aspects of the trail environment. In addition, 83% of the pictures taken contained attributes that visitors liked and 17% of the pictures

contained attributes that were disliked. Five perceptual themes emerged – nature-oriented details, scenic values, management influences, presence of other people, and depreciative behavior. However, from analysis of the transcribed interviews I found that noticing these elements did not detract significantly from the participants' overall outdoor experiences. In conclusion, this method has great potential in understanding visitors' perceptions and experiences in outdoor recreation settings and guiding future visitor behavior research.

**EXPLORING VISITORS' PERCEPTIONS OF THE TRAIL ENVIRONMENT AND
THEIR EFFECTS ON EXPERIENCES IN THE GREAT SMOKY MOUNTAINS
NATIONAL PARK**

by

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A dissertation submitted to the Graduate Faculty of
North Carolina State University
in partial fulfillment of the
requirements for the Degree of
Doctor of Philosophy

PARKS, RECREATION AND TOURISM MANAGEMENT

Raleigh, North Carolina

2007

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BIOGRAPHY

Catherine Elisabeth Dorwart was born in Elmer, New Jersey and is the oldest of three children. She attended Rutgers University and received her Bachelor of Science in International Environmental Studies. She then earned her Masters of Science in Recreation Administration from the Department of Leisure Studies and Recreation Administration at the University of North Carolina – Chapel Hill.

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In 2003, she enrolled in the doctoral program at North Carolina State University. Her research interests focused on outdoor recreation behavior, specifically visitor perception, environmental policy, and recreation experiences. During her coursework, she continued to follow her passion for recreation, leisure, and higher learning by teaching in the department and serving as the Director of Research for the Chapel Hill Parks and Recreation Department.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to the members of my doctoral committee for their time, energy, and unwavering support of my research ideas and goals. I would especially like to thank my co-chairs, Dr. Roger Moore and Dr. Yu-Fai Leung who have both been dedicated and highly talented assets to my doctoral committee. Both members' search for excellence in their own teaching and research extended to me as a student and advisee. Their guidance and feedback through many drafts was priceless. In addition, I would like to thank Dr. Karla Henderson who has been an invaluable mentor over the last ten years providing me important insight into scholarship and research. Thanks to Dr. Lee-Anne Milburn for allowing me a glimpse into the world of landscape architecture and design, and helping me best emphasize its integral link with our field. Also, thanks to the participants, George Minnigh, and the National Park Service for allowing me to conduct my study at Great Smoky Mountains National Park.

Henry David Thoreau once said, "Go confidently in the direction of your dreams. Live the life you have imagined." Thanks to the wonderful support and vision of my family and friends I have been able to live the life I imagined and achieve my dreams of earning a doctorate. My husband (and best friend), Tony's unconditional love, support, and most importantly patience as I sought this dream will never be forgotten. I would also like to thank my dear friend Corey for his availability in times of research and teaching stress and ambiguity. My sister, Candace's friendship and long walks with the puppies on days when I needed to escape into the woods was vital. Finally, I would like to thank my parents, Dr. Jeffery and Nelly Dorwart for their unwavering support, motivation, and advice throughout this process, and my grandparents for instilling this dream in me.

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“In a sense photographs are profoundly important because they reveal something about us – how we see and interpret the world and the people and places in it, and all the meanings and associations we conjure up” (Haywood, 1990, p. 25).

CHAPTER 1

INTRODUCTION AND PROBLEM STATEMENT

As the nature, character, and design of our landscape changes over time, we will see a concurrent depletion of our natural resources. As stewards of the land, parks and recreation managers will need to take an aggressive and proactive approach to protecting these natural resources. Two components will often guide this process – protecting natural resource areas and exploring, understanding, and guiding visitor behavior. Manning (1999) emphasizes, managers are often focused on reducing impacts on the resource while at the same time providing quality outdoor recreation opportunities, so that visitors can have quality outdoor recreation experiences. However, this sometimes conflicting mission can create difficult challenges for managers as they struggle to evaluate and define standards of quality that meet both of these edicts.

This conflict is clearly seen in the National Park Service where intensive recreation resource impacts on numerous trail systems have reached a critical level and jeopardized the first part of the National Park Service’s (NPS) mission, which is to preserve “unimpaired the natural and cultural resources and values of the national park system” (NPS, 2007), making it difficult to address the second part of their responsibility – creating positive visitor experiences. One indication of this critical level has been the increasing maintenance backlog cited by the Park Service and others. The Park Service in their annual reports to the Subcommittee on Interior and Related Agencies reported that the maintenance backlogs have

more than tripled over the past ten years. In 1998 the U.S. General Accounting Office estimated that there was a \$6.1 billion maintenance backlog, most of it (about 92%) involved construction projects, such as constructing or rehabilitating trails and erosion protection activities (U.S. General Accounting Office, 1998). Since then,

The maintenance backlog has swollen to an estimated \$7.1 billion, the system's annual operating budget falls some \$600 million short of what's needed for even adequate management of the parks. (Hightower & Frazer, 2006, p.1)

The degradation of trail resources is therefore a growing management problem in national parks and often a major concern of natural area managers and visitors. Trail impacts, "impair and degrade the functions that trails serve, including (1) protecting resources by concentrating traffic on a hardened tread, (2) providing recreational opportunities along aesthetically pleasing trail routes, and (3) facilitating recreational use by providing a transportation network" (Leung & Marion, 1996, 1999). Furthermore, the extensive distribution of trails and their degrading conditions in many natural areas can have pervasive environmental effects through alteration of natural drainage patterns, erosion and deposition of soil, increasing human-wildlife conflicts, and introduction of exotic vegetation.

Specific to this study, degraded trails can also threaten the quality of visitor experiences (the second part of the NPS's mission), by making travel difficult or unsafe and by diminishing visitors' perceptions of naturalness (Alessa, Bennett, & Kliskey, 2003; Farrell, Hall, & White, 2001; Floyd, Jang, & Noe, 1997; Hillery, Nancarrow, Griffin, & Syme, 2001; Noe, Hammitt, & Bixler, 1997; Priskin, 2003; White, Hall, & Farrell, 2001). Due to the fact that what visitors notice during their visits to parks, tourist destinations, or wilderness areas affects their overall experiences – objective information on factors

influencing visitors' experiences such as visitor attitudes, preferences, and perceptions will be an important prerequisite to informed management and the provision of quality recreation opportunities.

Background

Viable approaches to gathering objective information on visitors and exploring visitor behavior (such as perception and preference) can be traced back to the 1960's -1970's with the onset of an environmental movement that led many to question traditional methods of natural resource management and the categorization systems used to name the public visual resources. With this shift, there was a concurrent realization that new methods of exploring visitors to our natural places were going to be needed. As a result, landscape architects began to focus more on the visual quality of landscapes to address this issue - concentrating on a progressive participatory approach rather than the traditional methods of expert based assessment of outdoor settings. This new approach was progressive, because it focused on assessing and understanding ordinary citizens' preferences for diverse settings and exploring the categorical distinctions underlying their perceptions. Work conducted by Rachel and Stephen Kaplan (1979, 1989, & 1998) and Shafer (1964, 1974, & 1977) was foundational in furthering our understanding of visitor preference and perception.

One of the more applied techniques developed to explore visitor preference and perception during this era was visitor-employed photography (VEP). VEP is a visual technique that takes a camera out of the researcher's hands and places it into the control of the visitor (participant). Outdoor recreation researchers have used VEP successfully to assess visitors' perceptions of parks and other recreation places, to understand the scenic value of trails, and to explore the processes inherent in participants' outdoor experiences (Cherem &

Driver, 1983; Cherem & Traweek, 1977; Loeffler, 2004; Taylor, Czarnowski, Sexton, & Flick, 1995). This method shows great promise in further outdoor recreation research, because it actually captures the dynamic perceptual interaction as it happens, without redefining the visitor's recreation experience (Haywood, 1990). VEP may provide better focus on specific impacts and more clearly represent the conditions under examination, because researchers have found that responses stem directly as possible from the perceptions of on-site visitors (Cherem & Driver, 1976 & 1983). In addition, VEP has shown high potential as a resource tool in terms of reducing experience intrusion (Haywood, 1990; Taylor et al., 1995). VEP is also a valuable tool for exploring and gaining rich introspection of park visitors and in investigating their experiences.

Few other approaches have the same potential to reinvigorate our search for understanding and development of the practice. The potential contribution of visual images is not centered on more data or incremental advancement. Visual leisure research provides a different kind of data that repositions research questions in ways that verbal information is not able to do. (Stewart & Floyd, 2004, p. 445)

Finally, as outdoor recreation researchers, we want to capture both the precision and what lies beneath, when trying to understand visitors to our parks and protected areas. Conducting research that addresses the limitations in previous research, by creating new ways of looking at and addressing the questions left unanswered can be accomplished by using VEP as a data collection technique.

Problem Definition

Despite the possibilities this technique has for exploring visitor behavior in relation to understanding perceptions and preferences for natural landscapes, the use of visual

assessment has not been widely used in our field since the 1980's. However, in light of varying resources and an overwhelming need by managers and researchers to have an effective assessment of perceptions of resource quality and function, as well as visitors' perceptions and experiences, I feel that this method should be revisited.

Therefore, due to VEP's potential for assessing what people find important, it was employed in this qualitative study to examine visitors' perceptions and experiences along a high use segment of the Appalachian Trail (AT) in Great Smoky Mountains National Park (GRSM). This study is thus an attempt to add to the body of knowledge on visitor perception and to examine the potential of using VEP to effectively explore visitor behavior in our park settings.

Purpose Statement

The purpose of this grounded theory study was to understand park visitors' perceptions of elements of the trail environment within one of our national parks and to explore how these perceptions affected the visitors' outdoor recreation experiences. Elements of the trail environment included sights and sounds on and along the trail, smells, trail surfaces, views, and characteristics or patterns of the trail that may have had negative and positive effects on the visitor's experience.

The study's objectives were to discover the following:

1. What elements and resource conditions did visitors perceive along the trail? What was the nature of their perceptions?
2. In what ways did these perceptions affect their experiences?

Conclusion

Bodies of literature found in environmental psychology, landscape perception, and visitor-employed photography (VEP) provided a theoretical perspective for this grounded theory study. Previous research along with current studies focused on visitor perception, resource impacts, and experiences are discussed in the next chapter. Finally, my own philosophy regarding this study will be presented to lend support for using VEP and for employing a qualitative rather than a quantitative approach to explore park visitors' perceptions.

CHAPTER 2

LITERATURE REVIEW

The purpose of chapter two is to provide an in-depth review of the literature related to visitor perception, outdoor experiences, and the different methods that have been employed to assess, evaluate, and observe visitors' perceptions of the natural environment. The first part of this chapter defines preference and perception, balances the historical foundations with current issues related to visitor perception research, and then presents a review of research related to preferences and perceptions of the trail environment. The second part of the chapter explores qualitative research and my own philosophical reasons for using qualitative methods for conducting this study. The chapter then includes some of the methodical choices that have been used to gather visitor behavior data, and then discusses how these choices resulted in different data collection methods.

Visitor Preference and Perception Defined

What is visitor preference and perception, and what role does it play in managing protected resources? Preference is closely tied to our basic concerns and has been defined as the following:

An expression of underlying human needs...Preferences can be expected to be greater for settings in which an organism is likely to thrive and diminished for those in which it may be harmed or rendered ineffective. Thus humans, like other animals are far more likely to prefer a setting in which they can function effectively...Such a position does not require that people are necessarily aware of their needs or that preferences be universal. (Kaplan & Kaplan, 1989, p. 10)

As a result, visitors' preferences for experiences, activities, and management decisions (which may be impacted by visitor encounters on the trail, the aesthetic values of a landscape, surfaces of the trail, etc.) will differ greatly and create quite a challenge to managers who are trying to provide settings and opportunities for positive experiences.

Perception is closely related to preference and often interchanged in conversations or reporting of research. "Perception is a key element in preference, and the measurement of preference permits an examination of the perceptual process" (Kaplan & Kaplan, 1989, p. 11). Perception is "the act of apprehending an object through the senses" (Ndubisi, 2002, p. 197). The cultural geographer Yi-Fu Tuan (1974) described perception as the following:

Both the response of the senses to external stimuli and purposeful activity in which certain phenomena are clearly registered while others recede into the shade or are blocked out. Much of what we perceive has value for us, for biological survival, and for providing certain satisfactions that are rooted in culture. (p. 4)

Pigram (2003) argued that, "Perception is basic to an understanding of leisure BEHAVIOUR and recreation decision-making, and why people select particular settings and activities" (p.359). Further, to understand perception, a person needs to take into consideration his/her surroundings because these spaces will provide context for the things he or she sees in the environment (Kaplan & Kaplan, 1982). Therefore, whether different elements of the trail environment affect outdoor recreation experiences depends on both the visitor's perceptual and interpretative processes.

Background

Early studies focused on people's evaluations, conceptualizations, and relationships with the natural environment (in particular perception and preference in relation to

experiences of nature, landscape, and the environment) have been guided by the landscape perception paradigm (Alessa, L., Bennett, S. M., & Kliskey, A.D., 2003; Farrell, T., Hall, T., & White, D., 2001; Floyd, M., Jang, H., & Noe, F., 1997; Hillery, M., Nancarrow, B., Griffin, G., & Syme, G., 2001; Noe, F., Hammitt, W., & Bixler, R., 1997; Priskin, 2003; Scott & Canter, 1997; White, D., Hall, T., & Farrell, T., 2001). This paradigm provides a framework for explaining how different people form perceptual categories to identify characteristics that are most important in terms of the ways the environment is experienced. The paradigm further helps identify why something (e.g., encounters with others, trail impacts, scenic views, design of the path, social or environmental conditions) could be perceived as negative or positive to the experience.

Ndubisi (2002) clarified that studies of “landscape perception seek to understand human values and aesthetic experiences in order to take them into account in creating and maintaining landscapes that are socially responsible and ecologically sound” (p.197). Central to this ideology is a belief that visitors interpret the environment that they are in, in terms of their needs, and prefer settings in which they are likely to function more effectively (Kaplan & Kaplan, 1989). Further, essential to environmental perception research is the recognition that perception is an interaction between humans and environment that is dynamic, inextricably linked to the whole psychology of the observer, and immersed in the environment that is experienced (Taylor et al., 1995). The use of VEP as a medium to explore visitor behavior is rooted in this broad concept.

Theoretical Perspective - Landscape Perception Paradigm

History. Landscape perception’s history in the United States has origins in public policy and was formulated around landscape aesthetics and functionality. Early policies such

as the Antiquities Act of 1906, the National Parks Act of 1916, and the Land and Water Conservation Act of 1965, which set aside or provided funding for public lands, cultural areas, and landscapes, were an integral step towards recognizing the value of ecologically sensitive, unique, and beautiful lands for enjoyment. As more visitors flocked to Yosemite, Yellowstone, and other national, state, and local parks, an increased recognition emerged of not only the aesthetic quality but also the recreational value of natural settings. Yet, it was not until the 1970's that research on perception proliferated, spurred by environmental legislation such as the National Environmental Policy Act (NEPA) in 1970 (Ndubisi, 2002). Federal agencies charged with managing the public lands were guided by new methods of perceiving and assessing the landscape. These methods, commonly referred to as visual resource management systems (VRMs), "were designed to identify, evaluate, and integrate visual values along with other considerations, in land-use management decision making" (Ndubisi, 2002, p. 202). These systems adopted (by the USDA Forest Service and Bureau of Land Management) were based on "implicit notions of the categories of environmental perceptions and of attributes that are preferred" (Kaplan, 1985, p. 162).

Consequently, Ulrich (1983) postulated that research concerning aesthetic (visual) responses and affective (emotional) may have a central role in advancing our understanding of human interactions with the natural environment and could prove pivotal in the development of comprehensive theories" (p. 85). He also argued "aesthetic and emotional experiences are the most important benefits realized by many recreationists in the natural environment" (p. 85). Further, Tuan (1974) claimed that attractive visual landscapes might elicit positive affects; sudden revelations of natural beauty could lead to experiences, which occur "even to people who do not pretend to have any love of nature" (p. 95). This "affective

reaction is closely linked to the preceding affective state, to thought, neuropsychological activity, and action” and influenced by visual properties such as complexity, structural properties, depth, and focality, ground surface texture, deflected vistas, and water (Ulrich, 1983, p. 95). These elements have formed the basic tenets of the formal aesthetic model – guided by the idea that value is inherent in the abstract features of the landscape and the formal properties of the landscape (forms, lines, colors and textures and their interrelationships) (Daniel & Vining, 1983). This method of landscape-quality assessment has guided many experts in their assessment of visual and scenic quality of a landscape or natural resource area.

So how does this apply to a trail experience? Take for example a hiker’s feelings, emotions, and aesthetic preferences when hiking along the Appalachian Trail. Depending on the complexity of the environment or landscape along each segment, the hiker will likely have different reactions such as avoidance, comprehension, likes, interests, and outcomes based on initial levels of responses upon emerging in different areas along the trail. A setting that is more complex may affect more emotion, whereas a less complex area may lead to less interest and less emotion. It will therefore be challenging for designers to create trails that appeal to different users’ needs and preferences. Because park managers may not prioritize these experiences, focusing instead on the protection of the resource, and designing trails that resist a high amount of recreation impact.

Theorists. So where did these theories, ideas, and concepts of perception and preference come from, which have guided the way planners, designers, and managers approach the landscape and therefore their design of trails and pathways? The theories I will present in the next section will aid in understanding the feelings and behaviors we share

when in trail environments and which according to many researchers stem from something in our distant past.

The influential perception theorist J. J. Gibson brought about an essential change in the way the world approached the idea of perception with his theories of ecological optics, affordance, and direct perception. Gibson's research pointed to the idea that we perceive the world around us in order to successfully operate in that environment. His research centered on the "notion that we perceive objects against backgrounds in the real world not by perceiving forms per se but by perceiving invariant relationships among features of the figure and ground"(Gibson, 1987, p. 646). Gibson felt that perception was designed for action. Gibson called the perceivable possibilities for action "affordances". "An affordance is what an environment offers the perceiver, or in other words, what the perceiver would be able to do in the setting" (Gibson, 1979, in Kaplan & Kaplan, 1989, p. 32). Therefore in regard to trail environments, the assessment of potential actions could be applied to a trail setting. Gibson claimed that we perceive possibilities for action (e.g., surfaces for walking) and that our whole evolution has been geared towards perceiving useful possibilities for action. Also, the "various motions of objects in a stable environment and various movements of ourselves in that environment can both be visually perceived....and...may prove to be psychophysically correlated with modes of kinetic experience" (Gibson, 1994, p. 323).

Two other theories helped to explain our fascination with different environments, our aesthetic appreciation and preference for certain landscapes, and therefore why we find various trail environments attractive. British geographer Jay Appleton developed the habitat and prospect-refuge theories to explain why some environments are pleasurable for people. He postulated that aesthetic satisfaction and experience in the contemplation of landscapes,

stem from the “spontaneous perception of landscape features, which in their shapes, colours, spatial arrangements and other visible attributes, act as sign-stimuli, indicative of environmental conditions favorable to survival, whether they are really favorable or not” (1975, p. 69). Consequently, people will seek out environments that allow them, in this case the trail visitors for example, to see (prospect) without being seen (refuge). Prospect-refuge theory was first introduced as an explanation of human environmental preferences. It was believed that environments that afforded prospect (view) and refuge (protection) offered an evolutionary advantage to humans (Appleton, 1975). Hence, some visitors may like to hike in pristine landscapes that are forested, but afford long views across the valleys to waterfalls and meadows below, while other visitors seek trails that allow them to stand on the shores of a mountain lake in an Alpine area and look across to peaks in the distance. Also, a visitor chooses activities, which afford him/her the most satisfaction based on his/her surroundings, abilities, and the “successful strategic participation in his [her] entire environment” (p. 178). In addition, visitors may seek refuge from the real world on a trail. Thus, trails designed with features that increase fear and which do not fit a person’s ability directly affect visitor behavior and may restrict the types of activities that he/she chooses and the types and settings of the trail they visit (urban trail or greenway as opposed to a backcountry trail). The pioneering works of Appleton and environmental psychologists Rachel and Stephen Kaplan (which will be presented later) gave a theoretical rigor to the field of landscape perception at a time when there was virtually no conceptual base that would allow generalizations of the results to other landscape settings and problem types (Ndubisi, 2002).

Current roots. Many of the current ideas related to landscape perception have emerged from the forestry and planning fields. Kevin Lynch, a planner from MIT, was one of

the first people in the planning field, to “understand such subjective concerns as people’s feelings about the quality of their environment and how their perceptions could be used in environmental design” (Bell et al., 1996, p.81). His seminal work *The Image of the City* presented a methodological approach to describing features of cognitive mapping. Cognitive mapping is an individual’s special image of the setting or environment that is experienced. According to this approach, the visitor creates a mental map of the recreation area based on his/her perception, and a “consistent use and organization of definite sensory cue from the external environments. This organization is fundamental to the efficiency and the very survival of free-moving life” (Lynch, 1960, p. 3).

Using landscape perception and assessment models as guides, researchers and managers then began to integrate the idea of visitor perception into their ecological planning studies in the 1970’s as well. They approached these studies through visual quality and preferences, cognitive and behavioral understandings, and interpretations of the meanings people attributed to landscapes and the experiences resulting from their interactions with natural landscapes. Zube (1982) then later Ndubisi (2002) characterized the resulting categories of these themes as professional, behavioral, and humanistic. The professional theme focused on skilled professionals’ conceptualization of visual concerns in the landscape. The behavioral theme examined the meanings that visitors ascribed to the landscape. Finally, the humanistic theme was based on understanding transactions among individuals, social groups, and landscapes. Research which focused on a “sense of place” and “images of place” fall into this latter category.

Information-Processing Model. One of the approaches most relevant for visitor perception research and the examination of the outdoor recreation experience is the

behavioral or cognitive approach. Stephen Kaplan and Rachel Kaplan, the most noted researchers utilizing the behavioral paradigm, viewed perception as an information flow process. They hypothesized that without realizing it, people interpret their environment in terms of their needs and prefer settings in which they are likely to function more effectively (Kaplan & Kaplan, 1989). This interpretation was due to an evolutionary theory based belief that perceptions were a matter of survival. Perceptions offered categorical themes and allowed people to interact with their environment and to distinguish places where they felt safe and secure. Subsequent researchers have found that visitors' responses to these perceptual categories provide insight into patterns that are liked or disliked (Bell et al., 1996; Farrell et al., 2001; Kaplan & Kaplan, 1989). Preference judgments, in turn, lead to perceptual categories.

From this frame of thought, a preference matrix emerged. The preference matrix delineated categories that were important to explaining outdoor recreation experiences by individuals with little or no training (i.e., non-experts). It also provided the means for discovering an individual's category of perception (Bell et al., 1996; Bell, 1999; Kaplan, 1985, Kaplan & Kaplan, 1989 & 1998). Categorization takes place when the visitor combines elements in the outdoor setting that they previously may not have associated with each other. Such categorizations take on an air of reality by people who have similar sets of categories. "Categories appear to be reasonable, widely accepted bases for describing the reactive environment" (Kaplan & Kaplan, 1989, p.19). These categories then provide a means to examine environmental preferences, or the type of outdoor recreation setting that a visitor will prefer. The way information flow plays into the landscape perception paradigm is that visitors will base their preferences on two categories of needs: understanding of the

environment based on past experiences and exploration potential (Kaplan, 1989, 1998).

Kaplan and Kaplan's ideas resulted in a preference matrix comprised of four distinct patterns that various researchers have applied to their landscape perception studies. The four patterns based on the natural setting the individual is visiting include coherence, complexity, legibility, and mystery. *Coherence* is the ability of a visitor to organize and make sense of the outdoor setting's environment. The park visitor might assess the textures, size, and location inherent in the setting to make sense of where they are and if they are comfortable in the setting. *Complexity* can best be understood by assessing the number of visual elements in a scene that differ. A visitor may ask whether there is variety in the outdoor recreation setting or landscape. *Legibility* is how well-structured a space is. Does it have landmarks for example? It is this pattern where Kevin Lynch's work has provided important insights. One's trail experience will be affected by how legible the path is, because a "distinctive and legible environment not only offers security but also heighten the potential depth and intensity of human experience" (Lynch, 1960, p. 5). Also, the concept of mental mapping and the ability to find one's way easily (wayfinding) is integral to this part of the Kaplans' information flow process. Finally, *mystery* is a suggestion to the visitor that there is something more than meets the eye in the setting. "There must be a promise of further information if one could walk deeper into the scene" (Kaplan & Kaplan, 1989, p. 56). Mystery may be interpreted as a sense of exploration, rather than a sense of surprise. The information flow framework has thus guided numerous studies, been tested empirically, and enhanced the understanding of landscape values and the landscape perception paradigm.

From this categorization aspect of the paradigm that one can also see how what people prefer in their outdoor recreation experience, the environment that they choose to be

in, and what they notice within this experience, are all based on visitor perception and can be guided by understanding the preference matrix. Hull and Revell (1985) further posited that because perception is part of an evolutionary process, people usually have similar perceptions of scenic beauty, safety, and preferences. They also added that many researchers claim that landscape preferences and therefore perceptions are culturally dependent, possess criteria that are learned, and depend upon the visitors' past experiences and current purposes within the environment that they are in (Hull & Revell, 1985; Tuan, Y., 1985).

Landscape perception interaction process – Relation to trail experience. How do perceptual categories, preference matrixes, and landscape assessment relate to outdoor recreation experiences and in particular visitors' experiences on a trail? To better comprehend how landscape perception can be applied, Zube et al. (1982) proposed a model demonstrating the integral part that social factors such as perception play in determining outcomes of the visitor experience. The model outlines the interrelated character of the human-landscape interaction and the resulting outcomes, which are related to the visitor's quality of life and overall well-being. For instance, upon compiling a literature review of perception research involving natural resource management, landscape planning, forestry, and recreation, Zube et al. concluded that perception can be affected by various human elements. The key factors appear to be the social aspects or group influences, the norms, the motivations influencing outdoor recreation behavior, and the descriptive aspects such as an individual's attitudes, preferences and perceptions. The interaction of these human perspectives paired with various elements found in the landscape – or in this case the trail setting - creates various outcomes. Therefore, if a visitor perceives something they are not comfortable with (such as a negative environmental impact on a trail, crowding conflict, and

conflict of experience outcome or activity during the trail trip) his/her overall experience may be affected. Consequently, these outcomes such as information, satisfaction, behavior and values are all elements that have implications for how an outdoor recreation engagement is experienced. In addition, it has ramifications for how visitor perceptions are managed and integrated into one of the various visitor impact planning management frameworks.

Research on Preferences and Perceptions of the Trail Environment

This next section will look at some of the current research related to visitors' perceptions and preferences for different trail environments. This section will then present how preference and perception are integrated in some of the major themes in outdoor recreation literature.

Characteristics of a Trail that are Preferred and Perceived

Kaplan and Kaplan (1978) found that most people prefer settings that are “green” and that nature content is an important characteristic of preferred scenes. They have also found that visitors prefer scenic vistas, restorative settings, and sites along a water's edge. These elements seem to affect the perception of visitors' surroundings and of the trail environment or landscape while on their trip. For instance, Rea, Arce, and Sabucedo's (2000) study supported the need for taking user preferences into consideration during landscape management. Their results pointed to the fact that visitors group their landscape assessments into four criteria, and that visitors notice the presence of water, artificiality, roughness of landscape, and human presence within the landscape. Such factors as the trail's location and situational conditions defining the impact also make a difference in how respondents react to impacts. Studies by Noe et al. (1997) and White et al. (2001) found that visitors' perceptions of and tolerance for impacts vary widely. White et al. (2001) found that

visitors perceived major impacts such as a reduction in vegetation cover, compacted soils, and chopped or felled trees. Their results also suggested that visitors were likely to make tradeoffs regarding their evaluations of impacts and the desirability of the site in relation to its functional amenities. For example, some trails may not be as natural, but may still be desirable to some because they are wide, paved, and have access to downtown shopping areas or may shorten the commute to work.

Influences of Perception, Preference, and Attitude on Quality of Experience

Research has also found that visitors tend to prefer settings that are restorative in nature. A restorative setting holds hints of fascination. The opportunities the natural setting provides must be compatible with what the visitor desires from the setting. In addition, the extent of the natural setting is important. For instance, if a person is hiking on a wilderness trail, the “sense of being in a large enough place that its boundaries are not evident” (Kaplan & Kaplan, 1998, p. 19) may be vital. The extent of the setting will lead to a preference for that trail, and in addition the visitor will have a better outdoor recreation experience. Other factors that will affect a person’s experience on the trail are the texture and width of the trail. Therefore, if a trail is poorly eroded and over-widened, then the hiker’s experience may not be as satisfactory, because people prefer that trails be compatible with the natural surroundings (Kaplan & Kaplan, 1998). In relation to trail impacts, these environmental disturbances may not be as noticeable if there are beautiful vistas or scenic waterways along the trail. Kaplan and Kaplan (1989, 1998) have found through extensive research that points of interest, views, curves in the path, and waterways attract visitors’ attention. This may make the visitor less perceptive of impacts, or the presence of others on the trail, or if they do perceive these elements, it may not have as much effect on their overall experience. In their

study, Roggenbuck et al. (1993) found that such factors as damage to trees, noise, and litter may also influence wilderness experiences. Visitors rated site impacts as having more of an influence on their wilderness experiences than encounters with others on the trails. Lynn et al. (2003) discovered that litter, tree and plant damage, and fire rings were all perceived by hikers, and had the greatest effects on their hiking experiences. Trail extension, widening, and trail erosion also had moderate effects on their experience. Finally, Symmonds et al. (2000) study of mountain bikers established that trail erosion-related factors such as roots, gullies, and rocks may actually increase the enjoyment of biker's experiences.

There are a number of studies that evaluate how past experiences, environmental attitudes, and knowledge affect perceptions. Atuari, Bravo, and Riaz's (2000) study of natural areas in Sierra de Guadarrama found that visitors' landscape perception is influenced by the activities that they participate in (whether alpine skiing, high mountain use, enjoying nature, or picnicking). They also found a relationship between visitors' behaviors, attitudes, and expectations. For instance, the way the "landscape is perceived and the way visitors chose their preferred places is closely related to the activities they carry out, and the degree of alteration they are willing to accept" (p. 59). In their study, Hillery et al. (2001) found that respondents were more likely to perceive impacts at sites where there had been more tourists and where there was a higher intensity of impacts. Priskin's (2003) study indicated that perceptions are affected by gender, age, and the visitor's level of education. For instance, more females than males perceived a majority of the activities to be more harmful, and more younger than older visitors perceived activities as more harmful. Those visitors with a college education, technical or trade qualifications found most activities to be more harmful than those with only a secondary education. Finally, Alessa et al. (2003) found that visitors

who had a greater knowledge of the ecology of the area they were visiting were more likely to engage in damaging behaviors than visitors who were less knowledgeable. Also, visitors who perceived high ecosystem resilience in the environment were more likely to exhibit significantly higher negative behavior and therefore more negative impact on the environment.

Using visitor employed photography (VEP), Taylor, Czarnowski, Sexton, & Flick (1995) demonstrated how visitors' preferences for and perceptions of different natural resources affects experiences. Park features most often perceived by the visitors were water, vistas, management features, vegetation, wildlife, and human impacts. The majority of features photographed (approximately 89%) were listed as having a positive effect on the visitor's experience. Though a minimal number of photographs contained features that had a negative affect on the visitor's experience, the majority of these photos were of human impacts or of management features. The study also correlated the photographs and survey information using GIS to help managers locate the most important accessible features of the park and the most significant problem areas (as perceived by visitors).

Additional research points to the complexity of visitor perceptions. Lucas (1979) stated that visitors actually have a "genetic vision," and that there are really two aspects of perception that managers, planners, and researchers need to consider: "(1) the perceived importance of impact conditions relative to all other aspects of the wildland recreation setting (such as scenic appeal, fishing, solitude, freedom): and (2) the evaluation of any given physical-biological condition in desirable/undesirable terms" (Lucas, 1979, p. 24). Several studies support this philosophy. For example Gobster's (1995) study demonstrated how the design of recreation areas and trails affects user perceptions and preferences. He found that

users valued scenic beauty and trail elements such as safety management and peace and quiet the most when using a greenway trail. Further, users negatively perceived trails that had poor maintenance, rough surfaces, potholes, and horse manure. Yet, he did warn that different user groups rated their preferred trails differently depending on whether they were bicyclists, walkers/joggers, or horse riders. Therefore it is imperative that managers and planners are aware of the stakeholders' preferences when designing a trail system. In a more recent study, Shafer, Lee, and Turner (2000) noted that for visitors to have a better trail experience, trails and greenways should be planned and designed for balance among three factors: economic, social, and environmental. They found that visitors generally prefer greenways that have a significant amount of natural areas, low amounts of pollution, access to recreation, a high sense of residential community pride and identity, and places for wildlife to live. Finally, visitors perceived land use patterns, such as connectivity and livability in the greenways' patterns, and rated all of these elements as essential to providing a higher quality of experience. Similarly, Goossen and Langers (2000) found that the most important quality indicators were free access to areas of natural beauty (walkers) and tranquility (bikers). The study also noted that there were no significant differences among different user types regarding the dimension of perception quality, which is "that quality of the environment which people notice or experience (such as the beauty of the landscape or tranquility)" (Goossen & Langers, 2000, p. 241).

Integration with Other Outdoor Recreation Themes

This section describes how preference and perception are integrated in some of the major themes in outdoor recreation literature. As noted earlier, two major themes affecting visitors' experiences on trails are motivations and outcomes (benefits) of a trail trip. The

work of B. L. Driver and his colleagues focused on why people are motivated to take part in outdoor recreation, the settings in which the activities take place, and the desired psychological outcomes that come from recreation participation. His work is based on expectancy theory, which suggests that people engage in specific activities and in certain settings, because they hope to realize some sort of psychological outcomes, whether personal, social, economic or environmental (Bichis-Lupas & Moisey, 2001; Manning, 1999; Moore & Driver, 2005). Research has also focused on a wide range of other elements related to these themes: *constraints* to leisure that may affect the trail experience, *motivations* for choosing a particular trail or a certain activity on a trail, *benefits* of hiking, riding on, jogging on a trail, effects of seeing others on a trail, and finally the *experience* that the visitor hopes will come from using the trail. Yet no matter how diverse the subject matter, one commonality is often shared by all of these general leisure behavior studies – their conceptual approach. The vast majority focus on attitudes (such as understanding attitudes toward leisure), preferences (reported preferences for leisure activities), and perceptions (perceived similarity of leisure activities) to explain visitor behavior.

Another approach to understanding visitors' experiences is to examine attitudes and norms. "The social power of a norm is a function of the interaction between the cognitive component (expectations about behavioral standards and/or obligations) and the emotional component (the costs or benefits of sanctions for the behavior)" (Heywood & Murdock, 2002, p. 284). Common methods for measuring visitors' norms are to examine the social or environmental conditions that result from visitors' behaviors (Heywood & Murdock, 2002). For example, Vaske and Donnelly (2002) compiled data from 13 different studies and found that when encounters exceeded a visitor's norm for seeing others, perceptions of crowding

increased; and that “traditional crowding models predict that use levels influence the number of reported encounters between visitors and that encounters influenced perceived crowding” (p. 257). To study crowding problems, researchers might ask bird-watchers to give a number for preferable or maximum acceptable encounters with other users and total the individual responses (personal preferences) into a “return potential” curve. In addition, many have introduced a visual approach to measuring levels of encounters and other social and environmental conditions that may impact experiences on a trail. Photographs, digital images, scenic evaluations, and other visual tools have commonly been used to measure visitors’ perceptions and attitudes towards different conditions during their trail experience.

Integrative research. A common theme in the recreation research is a focus on collecting data (often through surveys) on user numbers, user characteristics, activities, crowding, conflicts, and carrying capacity (Manning, 1999). However, until recently (with some exceptions) the outdoor recreation field rarely integrated visitor behavior in regard to perceptions, preferences, norms, and attitudes into frameworks and therefore research. An integrated approach is research that incorporates both the human and natural dimensions – but focuses not only on impacts, disturbance, activity level, decision-making and stakeholder input, but also the integration of visitor behavior (perceptions, preferences, attitudes, normative approaches) into management and research. Therefore, collecting information on how both social and resource aspects affect outcomes and the total outdoor recreation experience is integral.

However, few current studies related to recreation resource impacts and outdoor recreation behaviors (that have utilized an integrated approach) exist. Perhaps this is because, “at the theoretical level we understand the complexities involved in the human

relationship with protected environments, [yet] we continue to be challenged to make integrative management tools operational in the field” (Newman et al., 2001, p. 31).

Therefore, researchers are deterred from developing research that cannot be implemented.

The research that has emerged recently can be characterized by the type of integration that has taken place and by the elements in the research. These studies can be organized into one of the following two themes: perceptions of impacts and experiences and studies that examine how the perception of documented biophysical (resource impacts) affects experiences.

Perceptions of impacts and experiences. Traditional planning frameworks such as Limits of Acceptable Change (LAC) and Visitor Experience and Resource Protection (VERP) have systematic procedures for evaluating recreation impacts, yet managers’ perceptions of impacts can differ from visitors’ perceptions of impact (Farrell et al., 2001; Floyd et al., 1997; Kim et al., 2003; White et al., 2001). Therefore it is important to understand the difference between perceptions (types and level of impact) and the evaluation or interpretation of such impacts (positive or negative quality). In their integrative study, Farrell et al. (2001) found that campers’ perceptions of ecological impacts differed from managers’. This study focused on wilderness impacts in Mt. Jefferson Wilderness, Oregon and compared and contrasted wilderness campers’ perceptions and evaluations of vegetation and soil impacts at campsites with standards set by managers and researchers. Findings suggested that visitors perceive major impacts such as a reduction in vegetation cover, compacted soils, and chopped or felled trees. Yet, “visitors’ evaluations of conditions showed no relationship to measurements” and unlike managers, did not rate them negatively. Rather, though the sites included in this study were significantly impacted by human use,

respondents indicated that the functionality of the campsite and whether damage was intentional were more important to them than the acceptable conditions managers set for that wilderness area.

In one study, researchers compared actual impacts and visitors' perceptions of the acceptability of those impacts. Deng, Qiang, Walker, and Zhang (2003) measured actual trail conditions (impacts of trampling on vegetation and soil, and tree damage) in a park as well as the visitor's perception of satisfaction when seeing these impacts (were the impacts acceptable or not in terms of their effect on satisfaction when using the trail). The majority of the visitors surveyed did not find the impacts acceptable. In addition, they found that the level of soil impact had the most effect on visitors' perceptions of hiking satisfaction.

Newman, Marion, and Cahill (2001) asked park managers and rangers to select indicators representing social, resource, and managerial conditions at Yosemite Park. The indicators, which were selected, inventoried, and plotted using GIS, had attributes that defined the quality of wilderness experiences. Diaries asking visitors to report the existing condition of selected indicators and evaluations of perceived or preferred conditions of each indicator relative to its current condition were also collected. Several resource and social indicators of quality including campsite conditions resulted and can be integrated into management frameworks.

In a study investigating the relationship between measured environmental impacts and tourists' perception of impacts, Hillery, Nancarrow, Griffin, and Syme (2001) found that a positive relationship existed between the measured impact and annual visitation to the ten sites. Yet, perceptions of impacts varied. For example, respondents were more likely to perceive impacts at sites where there had been more tourists and where there was a higher

intensity of impacts. But, when asked to compare the site that they were visiting to other sites visited (that had more environmental deterioration) tourists did not perceive greater environmental impact among sites. Also, visitors were able to distinguish among relevant environmental threats and to distinguish among impacts such as the effect of introduced plant and animals, track spreading, and vandalism. The researchers concluded that similar to other studies, tourists are not very perceptive of their own effects on natural areas, and that the impacts that visitors do notice are primarily the direct impacts of other tourists (Hillery et al., 2001).

Shin and Jaakson (1997) undertook an integrative approach in their study of visitors at three Canadian parks. Researchers assessed how wilderness users perceived the resources and examined how wilderness visitors' attitudes compared to the actual physical and biological quality of the wilderness environment being visited. When the subjective quality of the resource (the quality evaluated by visitors) was compared with objective quality (managers' evaluations) researchers found that with some exceptions (visitors with a graduate/professional degree or over 5 years of wilderness use experience) most users' wilderness quality evaluations did not agree with actual quality of the resource (wilderness manager's evaluations).

Brunson, M. (1996) presented a prototypical human-habitat suitability index after undertaking an interdisciplinary research project in western Oregon. This study combined social and biological data. Researchers examined the effects of different management practices in Pacific Northwestern forests on visitors' preferences for different forest environments. Suitability indexes based on site attributes and perceptual responses to managed forest environments were developed. Data were then combined to create

theoretically plausible indexes. R^2 values indicated that important variables may have been excluded) for understanding the suitability and scenic desirability of different areas for scenic viewing, hiking, and camping.

Finally, in a truly collaborative effort Westphal (1995) integrated not just the research approach and objectives (measuring perceptions of the river corridor and resource assessments), but also the efforts (collaboration among Friends of the Chicago River and the National Park Service, U.S. Fish and Wildlife Service, USDA Forest Service, US Army Corp of Engineers, and the MWRD) to enhance the Chicago River system. Physical assessment of the bank corridor, biological assessments of habitat potential, and social assessments of the corridor that asked about people's recreation use of the corridor and their perceptions of the river were all included. Researchers found that perceptions of water quality were important, but that respondents had an idealized view of what a clean river was. This finding pointed to a gap between what people perceive and the realities of the ecotypes. This study demonstrated the importance of understanding the images that visitors have in their mind so that they can be compared with actual impacts and assessments in the development of ecosystem management techniques.

How perception of documented biophysical (resource) impacts affects experiences.

Smith & Newsome (2002) integrated three different approaches to study resource impacts (though research questions guiding this study did not expressly say it was the researchers' objective). The integrative approach included measuring biophysical impacts at campsites in Warren National Park, Australia, surveying visitors, and addressing their perception of impacts as well as attitudes towards management preferences. Visitors were also asked how assessments of biophysical and social factors influenced the quality of their experiences.

Three indicators of importance were identified - the amount of litter, the presence of wildlife, and the number of trees damaged by people. The most important conditions influencing visitors' experiences were the number of trees damaged by humans, the amount of vegetation loss, and the erosion of banks at access points to the river, whereas, the number of other groups encountered had the least influence on visitors' experiences.

Rationale for Employing a Qualitative Approach in this Study

After immersing myself in the past and current literature, and exploring the strengths and weaknesses of the different methods previously used to examine and explore visitor behavior, I began to feel that traditional methods and approaches often missed valuable information needed for informed management and trail maintenance. This led me on a journey of discovery, one in which I had to reassess my own predilection for quantitative methods of inquiry and to explore the different approaches to data collection and analysis which would best serve this study. Therefore, in these next few sections, I will explain why I chose to use a qualitative approach rather than a quantitative approach to collecting and analyzing data for this research.

Researchers in the parks, recreation, and tourism field are often faced with defending what we do, why we do it, and in essence substantiating the value of the profession. Researchers address this challenge, in part, by producing research that provides evidence for the vital importance of our chosen path and by being open to new thoughts and ideas from others in our fields of discipline. Research focuses on various issues. Yet for most researchers the objective is the same – to provide results that can explain the values and benefits of our field in shaping and forming the physical, mental, and spiritual well being of individuals. Finally, researchers hope that implications of the research will guide future

ideas and practice in developing studies and programs that contribute vital ingredients in a person's quality of life.

Each researcher chooses to undertake this challenge differently. No matter how s/he chooses to approach a study however, s/he is guided by a philosophy of science, and a worldview, which will guide her/him in research endeavors and result in epistemological choices regarding methodology and data collection.

This next section will first explain what philosophy of science is and how it relates to research. I will then describe how philosophy of science resulted in my epistemological choice regarding methodology and data collection by examining the positivist and interpretivist paradigms (since they are the paradigms most often used to guide outdoor recreation research). Then, using examples from outdoor recreation studies, I will show how theory has been integrated and used in our research and led by various methodological approaches to gathering data.

Philosophy of Science

Individuals approach life with a certain worldview, their own sets of beliefs and truths. We all have a system of beliefs that guide us. These beliefs were typically instilled in us at an early age, (through cognition and the environment) and we view life through a lens that is filtered by the beliefs of our younger years. Therefore, I would like to believe we view life based on a combination of what we think is correct based on our earliest stages of development and what we arrive at by common sense, education, perceptions of the environment, and experience.

However, many feel that facts are what make a belief true. This, of course, causes problems in life, because if every individual has his/her own perception of reality, whose

facts are correct? One way to address what is “real” is through science. Science seeks to explain and answer the world’s questions. It is “the systematic quest for knowledge” (Ponterotto, 2005, p. 127) and one response to our need to understand the world (Rosenberg, 2005). The difference between science and other ways of explaining phenomenon can be found in the sort of standards that science sets. For instance, science is comprised of scientific standards, explanations, and methods (testing theory, hypotheses, observation, data collection, experimental designs, inductive and deductive reasoning, validity and reliability, and empirical data). “The philosophy of science seeks to uncover those standards” that science sets for itself “and the other rules that govern ‘scientific methods’” (Rosenberg, p. 22). Philosophy of science is the conceptual root supporting the quest of knowledge (Ponterotto, 2005). The philosophy of science therefore is a critical analysis of those bricks that make up the structure of science – assessing and describing what science is, the nature and character of scientific theories and methods, and the sorts of explanations scientists put forward. Finally, philosophy of science is how and why we accept and reject certain hypotheses, and how these choices measure up against other philosophical theories.

Epistemology

Epistemology is a branch of philosophy dealing with the theory of knowledge. The philosophy of science is a part of epistemology. Epistemology involves the study of the nature, extent, and justification of knowledge and how knowledge is acquired (Ponterotto, 2005; Rosenberg, 2004). Epistemology also involves “epistemological assumptions” (Creswell, 1998, p. 76), the relationship of the person who has the knowledge (researcher) to that being researched (participant, park or protected resource) (Creswell, 1998; Ponterotto, 2005). “The official epistemology of modern science is empiricism – the doctrine that our

knowledge is justified by experience – observation, data collection, experiment” (Rosenburg, 2004, p.138). Furthermore, Henderson (1991) explains the following:

Epistemology relates to one’s theory of knowledge or beliefs about how one gets information. It refers to the way that individuals approach problems and seek answers. One’s biases, assumptions, and perceptions of the world...will affect the judgments made about ways of investigating leisure reality. (p. 21)

Because the philosophy of science incorporates the following: beliefs and assumptions regarding the nature of reality, the relationship between the researcher and participant, the role of personal values, and methodological choices – a scholar’s personal philosophy of science will influence his or her selection of a research paradigm (worldview or group reality) to guide the research and approach for research (quantitative or qualitative) (Machamer, 1998; Ponterotto, 2005). Though several research paradigms organize outdoor recreation researcher’s view of the world (positivism, postpositivism, constructivism-interpretivism, critical-ideological), the two that I will focus on here are the positivist and interpretivist research paradigms (since they are the paradigms used most often to guide outdoor recreation research).

Positivism

The primary objective of positivist inquiry is to explain or predict some type of phenomenon. Outdoor recreation research that evolves from this worldview involves systematically following the scientific method, observing and then describing phenomena, and then verifying a model or theory. Positivists will focus on the presentation of hypotheses, the execution of tightly controlled experimental study, validity and reliability, the use of inferential statistics to test hypotheses, and finally, the interpretation of the

statistical results in light of the original theory (Henderson, 1991; Ponterotto, 2005).

Positivists try to take an objective role, not allowing biases to influence procedures, analyses, or the interpretation of results. Relying on a deductive method, positivists focus on efforts to verify *a priori* hypotheses (knowable independently of experience). Positivism can be traced back thousands of years to earlier philosophers of science and scientific methods used to explain the external world and has been the dominant force in science for hundreds of years. Because positivists believe in one reality, an example of a positivist conducting a study on outdoor recreation may be to introduce a tightly controlled experimental study, manipulating carefully only one variable (e.g. visitors' perceptions of impact on a trail) while holding all other variables constant (e.g. time of day, season, weather). The researcher randomly selects a very large sample of individuals hiking on a chosen trail and administers a survey (data will be analyzed statistically). The goal of the study is to apply the 'etic' knowledge of the researcher and identify one set of results (one true reality) that can be generalizable to a larger population.

Interpretivism

In contrast to researchers that work under the structure of a positivist paradigm, researchers who embark on research guided by the interpretivist paradigm focus on multiple and equally valid realities that are "divergent, and inter-related" (Henderson, 1991) rather than a single objective external reality. Researchers often chose the interpretivist paradigm, because they do not feel that scientific explanations really answer the explanatory questions or "convey the sort of understanding that really satisfies inquiry" (Rosenberg, 2005, p. 56). Researchers operating under this view of the world immerse themselves in the research and focus on reflections motivated by the interactive dialogue between the researcher and

participant. Such outdoor recreation researchers want to understand the lived experiences of participants in our parks and protect areas. Therefore, a distinguishing characteristic of the interpretivist paradigm,

...is the centrality of the interaction between the investigator and the object of investigation. Only through this interaction can deeper meaning be uncovered. The researcher and her or his participants jointly create (co-construct) findings from their interactive dialogue and interpretation. (Ponterotto, 2005, p. 130)

Further, outdoor recreation researchers desire a more subjective reality with the emphasis of their research perhaps focusing on induction and grounded theory – theory that emerges from the context of the data analysis. Finally, within this worldview “The dynamic qualities of research emerge in the course of framing questions, immersion in the discovery of evidence, and interpreting the meaning of data” (Henderson, 1991, p. 25). It is therefore no surprise that this paradigm provides the principal foundation for qualitative research methods and data analysis. A researcher operating under this paradigm might accompany and interview a small number of Outward Bound hikers several times (conducting in-depth interviews before and after their trip) to find out how their experiences on a trip to the Grand Canyon changed their perceptions of ability and confidence. Rather than evoking the researcher’s meaning, an interpretivist will focus on the “emic” knowledge (participant’s meaning). “There are multiple meanings of a phenomenon in the minds of people who experience it as well as multiple interpretations of the data (multiple realities); the researcher neither attempts to unearth a single ‘truth’ from the realities of participants nor tries to achieve outside verification of his or her analysis”(Ponterotto, 2005, p. 131). Henderson notes though, “the ‘etic’ knowledge of the researcher must be applied [as well] to develop grounded theory and

to test and generate theoretical propositions” (p. 59). During this process the researcher will also allow his or her biases, experiences, expectations, and values to come out. Often, a reader will be exposed to the impact of the emotional and intellectual life of the researcher as he/she reflects and discusses these elements in his/her analyses. Yet, this will be acknowledged and communicated in great detail in reporting the study.

Methodology

Methodology refers to the processes and procedures inherent in our approach to the research. “One’s approach encompasses the assumptions, interests, and purposes, which will shape the methods chosen” (Henderson, 1991, pp. 10-11). Therefore, research method is dictated by the researchers’ ontology and epistemology. As explained, researchers operating under a positivist paradigm attempt to simulate scientific methods and procedures using, “standardized measures that fit diverse various opinions and experiences into predetermined response categories” (Patton, 1987, p.9). Carefully controlling or manipulating the environment and not allowing one’s biases, emotions, and expectations to influence the outcomes accomplish this goal.

The goal of this position is to uncover and explain relationships among variables that will eventually lead to universal or “etic” law that forms the foundation for prediction and control of phenomena. This position (particularly in the positivist extreme) attempts to embrace the ‘hard science’ methods and goals of chemistry, physics, and mathematics. (Ponterotto, 2005, 132)

Therefore, the positivist paradigm often leads to a quantitative approach, which typically uses methods such as surveys and experiments in “answering specific research questions or testing hypotheses and confirming theory” (Henderson, 1991, p. 27). There are further paradigm

assumptions inherent in this methodology. As Creswell (1974) notes,

Consistent with the methodology of a positivist framework, instruments will be used to collect data. Because reality can be measured and it exists apart from the researcher the validity and reliability of results will become important. Through the careful design of data collection, the researcher attempts to eliminate bias and to select a representation sample from the population-all aspects of a positivist methodology. One also establishes "cause and effect" in the positivist methodology. (p. 116)

In contrast, since interpretivists want to immerse themselves over a longer period of time in the participants' reality, this often leads to methods that allow them to enter into the participant's world (naturalistic approach rather than a scientific approach to studying phenomenon). "Methods and specific techniques will emerge from the approach selected" (Henderson, 1991, p. 29). Due to the nature of a qualitative approach, interpretivists often chose this framework to guide their research in the selection of methods, data, and analysis procedures. Though Guba and Lincoln (1981) warned "the difference between paradigms is not one of qualitative verses quantitative" (in Henderson, 1991), a positivist worldview often results in quantitative approaches and analysis of data. Similarly, researchers with an interpretivist view of the world often choose qualitative approaches and data analysis techniques (though there are times that using a qualitative method does not imply an interpretivist worldview or data analysis technique). The three major components of qualitative research are data (gathering), procedures used to interpret and organize the data, and approaches to doing qualitative research (often grounded theory) (Strauss & Corbin, 1998). Choosing to adopt a qualitative approach, leads to a choice of five categories of qualitative research procedures - biographical studies, phenomenological studies, grounded

theory study, ethnography, and case studies. Qualitative research methods that are commonly seen in the research are participant observations, analysis of documents, photographs, video, and in-depth interviews. These methods often lead to thick descriptions, and result in “discovery, but these methods may sometimes result in theory confirmation” (Henderson, 1991, p. 28). Reasons for using qualitative research methodologies are often dictated by our preferences, experiences, philosophical orientation, and worldviews, but the most valid reason for choosing a qualitative approach to research is the nature of the research problem (Strauss & Corbin, 1998).

Philosophical Anchors

This next section will explore how to bridge philosophy of science with practice and further examines how the position of the two paradigms are related to the “philosophical anchors” of ontology, epistemology, and methodology by adopting an outline provided by Creswell (1998). The following section will apply examples from our field to show how these anchors are related to our philosophical position.

Ontology. Because ontology addresses the nature of reality and being - a researcher conducting a qualitative study of preferences for scenic quality along a trail in a particular state park, for example, needs to remember that the individuals involved in the research situation construct reality in different ways. Hence, multiple realities exist – the researcher’s reality, the person reading the study results, the park managers, and most importantly each one of the participants who visit the park that day come with their own perceptions, attitudes, user characteristics, motivations, and experiences – thus their own realities. Therefore, the researcher will need to capture and report the multiple realities and interpret the multiple voices through extensive interviews, quotes, and themes that reflect words used by the

visitors. The researcher will then need to advance evidence of different perspectives on each of the themes that emerge from the data (Creswell, 1998).

Epistemology. Based on the epistemological assumption “the relationship of the researcher to that being researched” (p. 76), the researcher will need to interact with the visitors on the trail being studied, observe the visitors for a long period of time, and immerse themselves in the experience. As Creswell (1998) verified, “this role and the close distance between the researcher and the participants have implications for the axiological assumption, the role of values in a study” (p. 76). In this same qualitative study, the researcher admits his/her biases, experiences, and values, and reports this information. For example, the researcher may be an avid mountain-biker who enjoys riding at this particular park due to the challenging nature of its trail system, but pays little attention to the view around him. The researcher’s voice will probably come through and his/her presence will be apparent in the text. In addition, during the coding and analysis of data, the researcher will not be checking for internal validity, external validity, generalizability and objectivity, rather he/she will employ techniques such as credibility, transferability, dependability, and transferability in interpretations and discussion of the data (Creswell, 1998; Henderson, 1991; Strauss & Corbin, 1998).

Methodology. Finally, from the ontology and epistemology, axiology, and rhetorical structures emerges the methodological assumption – how the researcher conceptualizes the research process (Creswell, 1998; Hanson, Creswell, Creswell, Clark, & Petska, 2005; Ponterotto, 2005). In a quantitative methodological approach the researcher starts deductively by trying to prove or disprove a theory, rejecting or accepting certain hypotheses based on the collection of data. In a qualitative methodological approach, the researcher will

start inductively “although in grounded theory...the initial inductive logic of generating open coding and generating a theory evolves into the deductive process of examining the theory against existing and new databases” (Creswell, 1998, p. 77).

The advantages of using a *quantitative* approach is that it measures the perceptions, attitudes, preferences, norms, satisfaction, experiences, characteristics, motivations, etc. of a large group of visitors, limiting their responses to a set of questions, which facilitates comparison. Often, a random sample of visitors is selected, data is then collected, and analysis of data leads to statistical information and a generalizable set of findings (Patton, 1987). In contrast, *qualitative* methods do not produce data or results that are generalizable to populations. Rather, interpretations of data from a purposively selected set of visitors tends to be interlinked with procedures and analysis, and hence provide in-depth and detailed descriptions, thoughts and observations about that group’s perceptions, feelings, knowledge, intentions, and meanings. Using a *qualitative* approach therefore does not attempt to fit visitors’ behaviors into a standardized category, but rather results in thick descriptions of people’s individual experiences and meanings associated with their visit.

Both quantitative and qualitative approaches to research are valuable. The most appropriate approach depends on the questions the researcher wants to answer and what he/she is going to do with the information and data when finished with the study. Yet, based on the strengths and weaknesses inherent in both methodologies, perhaps the best approach to research in our field would often be a mixed methods approach, mixing both quantitative and qualitative data collection in a single study. “All methods of data collection have limitations, the use of multiple methods can neutralize or cancel out some of the disadvantages of certain methods” (Creswell, Clark, Gutman, Hanson, 2003, p. 210).

Further, Havercamp, Morrow, and Ponterotto (2005) point out “Quantitative research...excels at producing images characterized by precision. Qualitative research...can offer a glimpse of ‘what resides beneath’” (p. 124). Also, integrating qualitative data collection methods and analysis into research creates thicker descriptions and richer data. As outdoor recreation researchers, we want to capture both the precision and what lies beneath when trying to understand visitors to our parks and protected areas. Conducting research that addresses the limitations in previous research, by creating new ways of looking at and addressing the questions left unanswered can be accomplished by using this approach to research. Further, mixed-methods research can be used to develop integrated research that actually addresses the questions visitors, managers, policymakers, and researchers are asking. Finally, some researchers have begun to see how integral different approaches or mixed method approaches are when trying to understand and assess visitor behavior. But we still have a long way to go before mixed-method approaches are used and defined as such, because as I have explained, philosophical assumptions guide us in our epistemological choices.

Applications of Methodological Choices in this Research

Philosophical assumptions mark quantitative and qualitative studies and therefore epistemological choices influence the methodological approaches and methods for data collection and analysis that are undertaken. This next section will show how researchers within the outdoor recreation field have used different methodological approaches to study visitor behavior and characteristics in different settings. I will also show how theory – formal (existing theory) and substantive (generating theory contextual to the place or activity) – has been integrated and described in outdoor recreation studies, by presenting

current research in our field. A review of this research, helped guide me in selecting the best methods of data collection for my current study.

A review of research has found that many of the earlier studies in our field were largely descriptive and focused on user characteristics, participants' activities, and visitors' social characteristics. Manning (1999) concurred that there was an "absence of a strong theoretical foundation, along with an overemphasis on applied problem-solving" (p. 6). Recently, this has changed as researchers began to realize the need for integrating theory that explains what we have seen or observed. For theory "is more than a set of findings; it offers an explanation about phenomena....generating theories about phenomena, rather than just generating a set of findings, is important to the development of a field of knowledge" (Strauss & Corbin, 1998, p. 22-23). Theories can be classified as substantive or formal. "theories might be substantive in that the results relate directly to the specific data and offer a foundation for further development and testing....[whereas formal theories] have been previously identified by other researchers or theorists"(Henderson, Presley, Bialeschki, 2004). The following selection of studies, each under a certain theme in outdoor recreation research shows examples of how theory is integrated. In addition to indicating how it is integrated, the methods for data collection will be explicated. Finally, methods that pertain to my research interests will be compared and contrasted.

Experiences

Lee and Shafer (2002) used Affect Control Theory to guide their research on understanding the dynamic nature of the leisure experience. On-site sampling methods were used to collect data on the Brays Bayou Trail in Houston, Texas. Questions were open-ended and resulted in data, which were analyzed using INTERACT II software. This software is

“used to investigate impression formation” (p. 298) and to predict emotions that are likely to be experienced. Content analysis of data resulted in seven broad categories. Interestingly, though the software resulted in emotion prediction equations, the researchers “attempted to both analyze and report the data in a way which allowed a degree of richness based on individual data points” (p. 304).

Patterson, Watson, Williams, and Roggenbuck (1998) grounded their research in “the normative commitments of a hermeneutic paradigm” (p. 423) when examining white water rafters’ experiences. They realized that “while the motivational approach may tell us that people visit parks to enjoy nature, this approach does not explore what it means to ‘enjoy nature’” (p. 425). Also the researchers proved that an understanding of experiences could be strengthened by this approach because, “it viewed recreation as an emergent experience motivated by the not very well-defined goal of acquiring stories that ultimately enrich one’s life” (p. 423). Qualitative methods were used to gather and analyze the data. Hermeneutic analyses were used, which involved in-depth exploration of individual interviews to identify themes, followed by a part-whole analysis to develop a nomothetic (across individuals) understanding of the data.

Borrie, Freimund, Davenport and Manning, (2001) developed a mixed-methods approach; employing both a process and product based approach to assess visitor motivations and support for management actions at Yellowstone National Park. A survey including recreation experience preference (REP) scales (which measures a range of potential motivations for recreation) and in-depth interviews were their methods of choice (Moore & Driver, 2005). The researchers felt that though a product based approach allowed for the empirical assessment of the degree and extent to which selected motivations contributed to

the quality of recreation experiences, they did not provide “insights into the nature of recreation motivation and why visitors might support or oppose alternative management practices” (p. 74). Quantitative survey data were statistically analyzed, whereas data from the in-depth interviews were transcribed and resulted in four themes, which emerged from the participants’ comments.

Preferences and Perceptions

Using a conceptual framework focused on environmental perception and visual preference to guide his study, Hammitt (1988) analyzed the perception of Blue Ridge Parkway visitors at vista scenes and assessed their preferences for the many vista landscapes along the parkways. Visitors were surveyed and asked to provide visual preference ratings (1 through 5) for 96 photos. Statistical analyses were run to see which vistas were the most preferred. Results indicated that visitors along the parkway preferred vistas containing waterscapes the most, while those areas, which were least maintained (where vegetation largely blocked the views) were the least preferred.

Schreyer and Beaulieu (1986) were also interested in exploring variations in preferences for environmental attributes. In this case, those attributes that influenced the choice of a specific setting in which to recreate were assessed. Guiding this study was the Categorization Theory, which states, “there exists an internal structuring system that allows an organism to order its perceptions of the world” (p. 235). Two samples were surveyed using a questionnaire with open-ended format. Though the data collection was qualitative in nature, analysis was quantitative resulting in statistical data on visitor attribute preferences.

Using the landscape perception paradigm as a building block, Farrell, Hall, and White (2001) interviewed visitors and assessed sites for impacts at Mount Jefferson Wilderness

Area, Oregon. Open-ended structured interviews were conducted with each group encountered at a campsite. In interviews, respondents were asked to also provide ratings articulating their perceptions of impacts and to provide reasons for their ratings. Interviews were used, “because of concerns that other methods do not detect important elements of perception and evaluation, or may cue visitors to prior responses by using words such as ‘damage’ or ‘destruction’” (p. 234). Qualitative methods were used - interviews were transcribed and resulted in several themes. Respondents’ ratings of impacts and concurrent site assessment data were analyzed statistically.

Similar to the previous study, landscape perception (more specifically the psychophysical paradigm) guided this study’s research approach. This study used visitor employed photography (VEP) and explicated how visitors’ preferences for and perceptions of different natural resources affected experiences (Taylor, Czarnowski, Sexton, & Flick, 1995). Their approach involved exploring participants in the environment directly and used VEP and follow-up surveys to determine Rocky Mountain National Park visitors’ environmental preferences and perceptions of critical elements in the resource setting. Though the VEP approach was qualitative, data were quantified based on features photographed and used in combination with statistically analyzed data from the survey. Using a similar approach, Jones (2004) used the psychosocial paradigm to guide his study of preferences and evaluations of visual impacts of rock climbing at Rock Canyon Park, Utah. A questionnaire was administered that asked visitors to rate photographs of near-view cliff scenes that contained climbing impacts. Descriptive statistics, principal components analyses, and subject factor scores were run on the data. Interestingly, contrary to what

managers thought researchers would find, results indicated that park visitors did not perceive significant visual impacts (of fixed-anchors and chalk) in this area.

Attribution Theory provided a theoretical framework for Alessa , Bennett, Kliskey (2003), who set out to measure the effects of tourists' personal knowledge, values, and perception of ecosystem health on their behavior in the Pacific Rim National Forest and Reserve's intertidal zone in British Columbia. Their findings suggested that a tourist's values or social norms for behavior, assessed by measuring Personal Attribution (PATT) in a written survey, were inversely correlated to the average number of depreciative behaviors. For instance, visitors who expressed lower PATT were more likely to engage in biologically damaging behavior. In addition, statistical analysis of data found that perceptions of ecosystem health scores and personal attribution scores were both highly significant and strong contributing variables to the number of observed harmful behaviors (Alessa et al., 2003).

A symbolic interaction thought process was used to provide a theoretical perspective to guide Noe, Hammitt, and Bixler (1997) in their analysis of on-site user perceptions of resource and use impacts at three national parks. Researchers wanted to investigate the "symbolic meaning that different groups of park visitors assign[ed] to specific impact situations" (p. 323). A seasonally adjusted sample were administered a two-phase survey – first the visitors were intercepted on-site and then they were sent a 12-page questionnaire. Statistical analysis of data found that visitors' perceptions of and tolerance for impacts varied widely.

Different Data Collection Methods

Park and trail managers are charged with a dual mission, to protect natural resources for future generations and to provide for the appropriate public enjoyment of these resources. A significant component of this responsibility is understanding visitors' experiences (Manning, 1999). Various techniques for collecting data such as surveying, interviewing, and evaluating written material have been used to capture, assess, and understand park and trail visitors' perceptions and experiences. The previous section showed different approaches and methodologies that researchers use to measure similar themes in outdoor recreation research. This next section will further examine the types of methods that are used for data collection.

Current Methods Used in Conducting Perception and Preference Research

Shelby & Harris (1985) stated, "If user opinions are considered important, viable methods are needed for gathering evaluative data" (p. 58). Because different methodologies of data collection may measure different elements of visitor behavior, meaning, and knowledge, researchers need to fully understand the methods that they are using to measure visitors' perceptions, preferences, and attitudes, towards crowding, impacts, conflict, and experiences, as well as understanding motivations, satisfaction levels and the benefits of outdoor recreation. In addition, they need to take into consideration the inherent differences in applying each method. Further, in light of varying resources, funding, visitor accessibility, and technologies available, managers and researchers will need to find the best method to collect data on visitors. Finally, understanding the intrinsic differences in each method will be valuable, helping researchers and managers who are interested in selecting the most appropriate methods for measuring visitor behavior, meaning, and knowledge. The next section will review different methods for gathering this information.

A review of the current research related to visitors' perceptions of recreation impacts found that there are various approaches to collecting visitor data, and demonstrates that there are positive and negative factors associated with each method. Studies have employed on-site open-ended interviews (Farrell et al., 2001) and on-site closed-ended surveys (Kim, Lee, & Shelby, 2003) to assess user perceptions and evaluations of impacts. For example, Farrell et al. (2001) chose to use open-ended interviews rather than written surveys because they felt that (1) written surveys may cue visitors to respond "properly" by using words like "destruction," and (2) interviews would allow them to detect important elements of evaluation that would be lost with a written survey. On-site methods are advantageous because they provide the most realistic exposure to the actual impacts being evaluated. In addition, respondents evaluated the impact while they were exposed to it, which reduced mental processing of impacts and potential recall bias. These integrative studies have involved comparing visitors' perceptions of impacts to actual impacts, standards, or indicators for natural area conditions. Kim et al. (2003) used the normative approach to assess biophysical conditions and then focused on how respondents evaluated these conditions. They introduced various methods for evaluating trail impacts, focusing primarily on a comparison between written survey methods and the utilization of photos to assess visitors' perception, acceptability, and importance of impacts. They also established that photo methods are valid substitutes for on-site surveys. A selection of indicators was established from the data (*e.g.*, area of large rocks on trail, area of wood steps, area of bare roots, areas of bare soil, area of small stones, and area of stone steps). These indicators provided the foundation for a subsequent study by the same researchers (Kim & Shelby, 2005) comparing three norm measurement alternatives that are specifically designed for trail

management using Image Capture Technology (ICT). They found that photograph simulation techniques could be a useful tool in establishing more objective and quantitative standards for trail management and for the monitoring of trail conditions by managers. Indicators and standards of quality are key elements of many of the planning and management frameworks, so normative evaluations of stakeholders, when implemented, could be a valuable tool to control impacts that exceed standards.

Mailed questionnaires, post-trip interviews, written evaluations, photo elicitation, and videos have been the predominant instruments used to collect off-site data. Research concentrating on visitors' perceptions has used survey questions regarding hypothetical situations (Shafer & Hammitt, 1995), evaluations of written descriptions (Shelby & Harris, 1985), and post-visit mail surveys (Noe et al., 1995) to investigate the acceptability of resource impacts. Several have noted that the use of hypothetical survey questions may be a relatively ineffective method because it forces respondents to make judgments separate from actual site conditions, so respondents may interpret different things from the same list of impacts (Kim et al., 2003; Shelby & Harris, 1985). Moreover, respondents may react to the *idea* of an impact rather than an actual *perception* of the impact (White et al., 2001). Finally, Kim et al. noted that, "respondents may also interpret or imagine quite different things, even on the same list of items" (p. 283) when taking a written survey. Therefore selecting the correct wording is often challenging. All of these issues may limit the validity of findings from written descriptions, post-visit, and mailed surveys. However, using such off-site survey methods could be less costly, more convenient, and can be administered without additional impacts to the resource.

Scenic views or other site elements may distract on-site respondents from evaluating specific impacts. Several studies have used a photo survey method to address this weakness of on-site assessments (Kim et al., 2003; Shelby & Harris, 1985). Shelby & Harris (1985) explained that, “If the goal is to evaluate a specific environmental condition, such as the extent of bare ground, photos...may allow respondents to better focus on that characteristic, without being influenced by other features such as the quality of the view or proximity to water” (p. 59). Using photos may lead respondents to rate their perception of impacts without considering other factors. In addition, respondents do not have to imagine impacts, like they do with a written survey method, so there is less likelihood for error due to wording and interpretation (Kim et al., 2003). Photographic evaluations may also be more economical, timely, and convenient than on-site visits.

Photographs have been used extensively in landscape assessment studies, and have been confirmed as a valid substitute for on-site evaluations (Kellomaki & Savolainen, 1984; Shuttleworth, 1980). Photographs have also been utilized in recreation management studies to assess crowding norms (Heywood & Murdock, 2002; Manning, Lime, Freimund, & Pitt, 1996; Manning, Newman, Valliere, Wang, & Lawson, 2001; Manning, Valliere, Wang, & Jacobi, 1999). In fact, Manning et al. (1999) suggest that visual presentations of normative scenarios may result in more valid crowding norms. Past studies of recreation impacts have also implied that evaluations of impacts based on photographs are similar to ratings made in the field (Kim et al., 2003; Shelby & Harris, 1985). Meitner (2004) who used “surrogate methods” to assess people’s perceptions of scenic beauty (methodological approach was to use different types of photos, 360 degree views, panoramic, slides, etc.), stated that the use of alternate methods is necessary. He claimed that they have been a preferred and cost-effective

method of assessing human perceptions and evaluations of natural environments (2004).

Addressing “representational validity” he also stated that various studies report high levels of consistency between perceptual judgments and expressed preference based on photos versus direct experiences of landscapes. Although some researchers suggest that photos may allow respondents to better perceive specific features within the landscape, Zube et al (1974) found that photos were less reliable for the perception of specific features within the landscape. Furthermore, photos cannot display non-visual impacts like odors and sounds, nor can photos adequately represent hard-to-photograph components like overall forest conditions (Kim et al., 2003).

In conclusion, because of the inherent differences among the data collection methods discussed above, a researcher will have to take a serious look at the objectives of the study to choose the method and data collection tools that will best address their research questions. Their choices will often be guided by their philosophical perspective and may integrate various approaches and methods to enhance the quality of their study.

Summary

Past research supports the ideology that visitors to our parks and other natural areas perceive impacts, and that they have normative values and assessments, which can guide managers in establishing indicators of quality. In addition, research suggests that people will prefer certain settings, indicating a relationship among past experiences, scenic qualities, and perceptions of impacts on overall recreation experiences. Existing research also indicates that integration of this information with biological and experiential data may be integral to the successful implementation of these ideas into practice.

A review of outdoor recreation research has also shown that various techniques for collecting data such as surveying, interviewing, and evaluating written material have been used to capture, assess, and understand park and trail visitors' perceptions and experiences. However, of these studies, few have been undertaken that employed a qualitative or mixed-methods approach, which would have allowed for more in-depth and detailed descriptions, thoughts and observations about visitors' perceptions, feelings, knowledge, intentions, and meanings. Therefore, more research guided by a qualitative or mixed-methods approach needs to be conducted in order to explore people's individual experiences and the meanings associated with their visits. In summary, an exploration of the past and current research indicates that there are several gaps in our current understanding of visitor behavior (in relation to perceptions and experiences), therefore we need to look at traditional ways of collecting visitor behavior research and develop studies that meet the recreational needs of visitors, help managers meet management objectives, while at the same time finding approaches that protect the very resources visitors depend on for the restoration of their mental and physical well-being.

In conclusion, this chapter presented the past and more current literature related to visitor preference, perception, and recreation experiences. It also explored the different ways that researchers in the outdoor recreation field have approached visitor behavior studies. Lastly, this chapter allowed the reader to view my own exploration and struggle with developing a philosophical perspective and explained how this journey guided the methodological choices for the current study. The methodological approach and therefore the data collection methods used in this study are outlined in the next chapter.

CHAPTER 3

METHODOLOGY

Chapters one and two provided the introduction and background information for my study. This chapter will explain what grounded theory is, and explicate the methods and research questions that guided this study's data collection and analysis process.

Purpose Statement

The purpose of this grounded theory study was to understand park visitors' perceptions of elements of the trail environment within one of our national parks and to explore how these perceptions affected the visitors' outdoor recreation experiences. The study's objectives were to discover the following:

1. What elements and resource conditions did visitors perceive along the trail? What was the nature of their perceptions?
2. In what ways did these perceptions relate to their experiences?

Rationale for Employing a Grounded Theory Strategy

Once I decided that I wanted to use a qualitative approach to guide my study, I had to choose one of the several strategies of inquiry associated with the qualitative approach (as I outlined in an earlier section). As noted, choosing to adopt a qualitative approach, lead to a choice of five categories of qualitative research procedures - biographical studies, phenomenological studies, grounded theory study and ethnography, and case studies. Qualitative research methods that are commonly seen in the literature are participant observations, analysis of documents, photographs, video, and in-depth interviews. These methods often lead to thick descriptions and result in discovery, but sometimes they lead to theory confirmation (Henderson, 1991). Strauss & Corbin (1998) outline several reasons for

using qualitative research methodologies such as the researcher's preferences, experiences, philosophical orientation, and worldviews, but the most valid reason for choosing a qualitative approach to research is the nature of the research problem. It was the nature of the research problem, which led me to finally chose this approach and dictated choosing a grounded theory strategy (and hence the methods of data collection that I employed). As an outdoor recreation researcher I wanted to understand the lived experiences of participants in our parks and protect areas – specifically those people who used the trail at GRSM. By using this strategy I was able to immerse myself in the research and focus on reflections motivated by the interactive dialogue between the participant and myself.

Grounded Theory

Grounded theory is a type of research method, which was developed primarily by the sociologists Anslem Strauss and Barney Glaser (1967). A grounded theory strategy is one “in which the researcher attempts to derive a general, abstract theory of a process, action, or interaction grounded in the views of participants in a study” (Creswell, 2003, p. 14). This process involves allowing the theory to emerge from the data (Patton, 1980). The theory is “derived from data, systemically gathered and analyzed through the research process...data collection, analysis, and eventual theory stand in close relationship to one another” (Straus & Corbin, 1998, p. 12). The theory that emerges from the analysis and categorization of coded data (because it is drawn from the data) is more “likely to offer insight, enhance understanding and provide a meaningful guide” (Straus & Corbin, 1998, p. 12) of the trail users on the GRSM. Two key characteristics are associated with this strategy, “the constant comparison of data with emerging categories and theoretical sampling of different groups to maximize the similarities and the difference of information” (Creswell, 2003, p. 14). A

researcher that utilizes this approach will formulate either substantive (setting specific) or formal theory, about the phenomena he/she is studying, which can then be evaluated (Glaser & Strauss, 2006; Henderson, 1991; Strauss & Corbin, 1998).

Researcher's Role

Because a qualitative approach leads the researcher operating under this world view to immerse him/herself in the research and focus on reflections motivated by the interactive dialogue between he/she and the participant, it is important to understand the researcher's "personal values, assumptions and biases at the outset of the study" (Creswell, 2003). The next section will therefore outline the potential biases I have taken steps to try to eliminate or minimize in order to not impose my own viewpoints when interpreting the data.

My perceptions of visitor impacts, experiences, and trail management styles have been shaped by my personal experiences. As an undergraduate I spent four years studying, observing, and researching people's interrelationship, interaction, and impact on the natural environment. I then interacted with local and national park visitors and assessed and educated users on their impacts on the natural environment. For the last few years, I have immersed myself in biological and social research related to visitor impacts and experiences and have written several papers specific to this study, as well as presented various papers on this subject. The dialogue I have had with other managers and researchers in the field provided a context, which has guided this study and has formed many biases. It has heightened my sensitivity, awareness, and knowledge of the challenges, decisions, and issues encountered by managers and researchers in our field. As an avid trail user, I have developed a preference for certain types of management styles, trail construction, and maintenance. I also possess a strong view of how other users should act, have an idea of what they may

perceive, and the types of experiences that they could hope to attain from their visit. With all of this in mind I still hope to employ every effort to remain objective, because these views may shape the way I explore, analyze, code, and categorize the data and hence influence the way I interpret the findings. Therefore, it will be important to explain how rigor, trustworthiness, credibility, transferability, and dependability pertain to this study. Finally, I tried to overcome these biases by using triangulation in this study. I will demonstrate how I attempted to meet the tenets of trustworthiness and rigor later in this section.

Study Characteristics

Study Site

The study took place in the Great Smoky Mountains National Park (GRSM) located in North Carolina and Tennessee. GRSM is the most visited national park in the country, and one of the most threatened, appearing on the “America’s Ten Most Endangered National Parks” list for the sixth consecutive year in 2005 (NPCA, 2006). Nearly all of the 800 square miles of forested parkland within this International Biosphere Reserve and World Heritage Site are proposed as designated wilderness, and are therefore managed for “unimpaired” resources and outstanding opportunities for primitive and unconfined recreation. The park’s trail system is essential in both these regards, providing visitors with a diversity of recreation experiences depending on interest, level, and outcome desired.

The particular trail examined in this study was selected by the National Park Service’s Backcountry Trail Manager and both of my doctoral advisors (avid backcountry hikers) – since they had the greatest experience within GRSM. Our goal was to select a trail that exhibited the following criteria: a single-track natural trail with a variety of resource conditions, well traveled, scenically beautiful, and allowing for a diversity of uses so that we

would have access to a large and diverse cross-section of users. We found this type of trail in Newfound Gap, which borders both North Carolina and Tennessee. The 2.9-mile segment of the Appalachian Trail (AT) headed north out of Newfound Gap to Icewater Spring Shelter was selected as the study site. This trail exhibited all of the qualities mentioned above and was used by long distance hikers and day hikers. In addition, a great deal of trail maintenance and management (e.g., waterbars and rock steps) had been undertaken on this part of the Appalachian Trail. The trail was fairly rough (in the hiking literature it was classified as having a *moderate* difficulty level – some steep grades and some level stretches) and required hikers to scale large boulders in some parts.

Sample

Because I wanted a diverse group of individuals, a purposive sample of 33 Appalachian Trail (AT) day hikers (using theoretical sampling methods as described later) were asked to participate in the study. I chose to use this type of sampling methodology because it allowed me to select information rich cases, which I could study in depth, “studying information-rich cases yield insights and in-depth understanding rather than empirical generalizations” (Patton, 2002, p. 230). Since I was interested in a specific behavior and setting, this was deemed the best way to attain the type of sample that would allow me to explore my research objectives.

Participants were intercepted at the trailhead at Newfound Gap during the months of September and October 2005. Only those participants who planned to hike out and back along the entire 2.9-mile (5.8 total miles) stretch between the Newfound Gap Trailhead and Icewater Spring Shelter that day were chosen. Data collection took place on two week days and two weekend days in hopes of securing a more diverse sample.

Visitors were approached at the trailhead at Newfound Gap. This trailhead is heavily used and attracts a diverse cross-section of users, since it is located at a large rest stop and scenic picnic site (one of the most popular in the park) on the North Carolina and Tennessee border. Because of a variety of user types, it was hard to identify which visitors were planning (and able) to hike the 5.8 mile trail (rated as moderate intensity by the National Park Service). Therefore I employed the selection strategy advised by the park's back country manager. To identify those participants that would fit into the user group I hoped to sample, I looked first at the visitor's footwear, and then observed whether he/she was carrying a bottle of water, and finally I looked at how each person was outfitted (e.g., what he/she was carrying such as backpacks, sleeping bags, or hiking poles). This classification criterion was quite successful and allowed me to spend my time more efficiently. Once I identified those users who appeared qualified to be included in the sample, I approached each and asked them to participate. Of the approximately 47 visitors I asked to participate, 14 refused either because they were not planning on coming back that day (camping), they did not know if they could make it to the shelter and back, or because they just were not interested in participating. I was fortunate in the fact that those that did agree ended up being a fairly diverse (e.g., age, gender, education, income level) group of participants. Because, though attaining a diverse sample was my initial goal, I found out quickly that I could not choose to be too selective or I would not have many participants in my study. So I ended up asking more people (even those not meeting my "visual criteria") to participate towards the final weekend.

Theoretical sampling and saturation. As mentioned, I chose to use theoretical sampling to gather my participant pool. Theoretical sampling is a type of sampling method

that is concept-driven and based on saturation of the data. Furthermore, this sampling approach “is multistage where one is continually seeking out new possibilities and discovering grounded theory” (Henderson, 1991, p. 134). Theoretical sampling is unique in that gathering the data is,

Driven by concepts derived from the evolving theory and based on the concept of ‘making comparisons,’ whose purpose is to go to places, people, or events that will maximize opportunities to discover variations among concepts and to densify categories in terms of their properties and dimensions. (Strauss & Corbin, 1998, p. 201)

The reason I chose this type of sampling is because it allowed me to make comparisons across various conditions and allowed me to change directions if the reality of the data did not fit the initial decisions I had made when I set out to explore visitor’s perceptions of this trail environment. This was a “process of data collection for generating theory” whereby I collected, coded, and analyzed data and then decided what data to continue to collect until the theory emerged (Henderson, 1991, p. 133). Again, one must keep in mind that I was not concerned with gathering a random sample and assuring generalizability of my results, my main purpose was “to generate theory, not to establish verifications with the ‘facts’” (Glaser & Strauss, 2006, p. 48). Additionally, I had to focus on the fact that “the qualitative approach is not concerned about adequate numbers or random selection, but in trying to present a working picture of the broader social structure from which the observations are drawn” (Henderson, 1991, p. 132). Therefore, my sample size was not fixed at the beginning of the study; instead I continued to ask participants to take part

in my study until the data gathered lead to categories which were “saturated,” or in other words,

Until (a) no new or relevant data seem to emerge regarding a category, (b) the category is well developed in terms of its properties and dimensions demonstrating variation, and (c) the relationships among categories are well established and validated. (Strauss & Corbin, 1998, p. 212)

I will explain in the findings section how I reached saturation of the data by following the steps outlined by Strauss and Corbin (1998).

Instruments

Using various methods of gathering data strengthens a qualitative approach to conducting research. Therefore, I used a multi-methods approach to gathering data which employed photographs, journals, and interviews.

Photographs and journals. My primary data collection method was Visitor Employed Photography (VEP). The VEP method employed was adapted from the following studies (see Kim et al., 2003; Lynn, 2000; Taylor et al., 1995) and entailed having participants take pictures along the trail, documenting information about their pictures and experiences in a log, and participating in an interview after they finished their trail trip. Each morning when I reached the site, I hung a large poster board on the fence near the trailhead to inform interested participants of where I was from and what my study was about. The poster board contained a brief flyer explaining who I was, a copy of the National Park Service Data Collecting Permit, a map of the study site outlining and highlighting the study setting's beginning and end points, and a copy of the trail study consent form. Alongside the board, I set up several camping chairs, a cooler of water from which I offered all participants a bottle

of water when they returned, clipboards with the consent form and photograph journal attached, and my digital tape recorders.

When a visitor got close enough to the trailhead or stopped to read my poster board and I observed that they seemed to be planning to use the trail that day, I approached him/her and asked if he/she would be interested in participating in a trail study. I explained who I was, the institution and department that I was representing, and included a brief description of my study

Once a park visitor agreed to participate, he/she was given a disposable 24-exposure digital camera. I then asked them to “photograph those elements/features of the trail environment that they noticed, which added or detracted from the quality of their experience” (anything that they wanted to – I did not put limitations on specific elements). The goal was to capture images of those elements or locations in the trail environment that had the strongest effects on the quality of the participant’s trail experience. In addition, each participant was given a “Photograph Log Booklet” and asked to record details for each photo that related to their general experience on the trail. Specifically, the photograph log asked the following questions for each photograph:

- What element/feature of the trail environment did you photograph?
- Describe why you selected this element/feature of the trail environment to photograph?
- Describe what type of effect this element/feature of the trail environment had on your overall experience?

Answers to these questions provided me with the photographers' intentions regarding the object photographed. It also provided a check on the categories and themes that would emerge from coding the photographs.

Interviews. After each participant returned from the hike (most hikers came back after 4-5 hours), he/she was asked to turn in the camera and answer several open-ended questions related to their trip. A general interview guide approach was used (Patton, 1990) and the answers to these questions were recorded using two tape recorders (for backup purposes) (see Appendix A). In addition, I jotted down detailed notes of observations I had about the participant. These semi-structured interviews supplemented the (VEP) assessment and lead to richer and thicker descriptions of each participant's experience. This approach allowed me to outline a set of issues before the interview and have the guide serve as a checklist. In addition, it allowed me to build a conversation within a specific subject area. Also, because my interview time was limited (because multiple participants sometimes returned from their hike at the same time), and there was a diverse group of people interviewed, this approach provided a more systematic and comprehensive process by delimiting issues to be discussed. An added advantage is that this approach was flexible enough to allow other topics to emerge. Interviews ranged from 5-10 minutes and included the questions noted below. Keep in mind though, because these were semi-structured interviews, questions were not necessarily asked in this order. Furthermore, other questions not listed below were often asked (that emerged from the conversation with each individual).

Note card – demographic information. After visitors completed their journals and the interviews, they were asked to fill out a brief note card which asked them how many times

they visited the park, their level of income and education, their age, and whether they were willing to be contacted for follow-up questions.

Data analysis

“Qualitative data analysis involves reduction of the amount of information to a smaller set of categories, themes, or propositions...without losing its essential characteristics and meaning” (Smith & Glass, 1987, p. 271). The method of data analysis chosen for this study was a grounded theory approach. One of the most crucial elements to this approach is the use of constant comparison; therefore my data collection and data analysis were a simultaneous process. Based on work by Creswell (2003), Strauss and Corbin (1998), and Henderson (1991), constant comparison was used to analyze the interviews and journals, and content analysis was employed to analyze the participants’ photographs.

Interviews and Journals

Each interview was transcribed verbatim using the *Digital Voice Editor 2*. This software program came with the digital recorder and allowed me to use a set of “quick keys” to play, stop, rewind, and slow down the playback, etc. as I concurrently typed the transcriptions as an MS Word document. I then reviewed the interview repeatedly during transcription to make sure that I did not miss any words or inflections. As I transcribed, I also took detailed notes of the participant’s behavior during the interview (e.g., laughter, significant pauses, excitement in his/her voice, anger, etc.). Once these data sets were compiled, I began a process of constant comparative analysis, which involved open and axial coding (Appendix A). During open coding, a microanalysis of the data took place. This step involved developing field notes and memos, as well as writing initial thoughts, ideas, and impressions. “Early notes include[d] categories, the concepts that point to categories, and

some properties and dimensions” (Strauss & Corbin, 1998, p. 224). Reflective comments were jotted in the margins of each interview and key and similar phrases were underlined and highlighted. In open coding, I formed initial categories of information about the visitors’ perceptions and their outdoor recreation experiences. In each category, properties or subcategories were located and several properties emerged.

Next, the data were coded using axial coding, through which I began to identify central themes. This second step involved using memos, notes, and diagrams to find relationships to fit the pieces together to find an explanatory theme. The purpose of this step was “to relate categories and to continue developing them in terms of their properties and dimensions” (Strauss & Corbin, 1998, p. 230). This step also encouraged me to develop initial theoretical notes based on the code notes. Selective coding was the final step in the analysis, including integrating the “concepts around a core category and the filling in of categories in need of further development and refinement” (Strauss & Corbin, 1998, p. 236-37). This resulted in theoretical and operational notes. During this entire process, I also continued to revisit the literature. From this process, theory began to emerge. Analytic assertions were based on categorizing similar statements, ideas, and experiences. The analysis validated several formal theories, which will be explained in detail in the final chapter.

Photographs

Finally, enumerative strategies were used to supplement descriptive data resulting from analysis of the journals (Henderson, 1991). Photos were divided into two groups based on whether the participant had indicated in their photo log that the elements photographed were positive or negative. Then each group was organized and based on themes. In addition

photographs were coded and numbered (noting how many times certain elements came up in each picture) so that I had an idea of how many times each theme was photographed. I then coded and counted data within each photograph to see which elements of the trail (i.e., scenic vistas, fallen trees, exposed tree roots, people, etc.) were photographed most often. These elements were then categorized. From these categories, several themes emerged, which will be discussed in the findings section.

Rigor, Trustworthiness, Credibility, Transferability, and Dependability

Researchers who frame their studies in a positivist paradigm are concerned with establishing reliability, validity, and generalizability of results. They also strive to remain objective. In qualitative research the researcher is concerned with building trustworthiness and rigor into the research procedures, yet Creswell (2003) explains how validity, though it does not carry the same connotation in qualitative research is still seen as a strength. Further, though researchers have different constructs for what they do, there is a parallel between the terminology for the quantitative and qualitative approach (Henderson, 1991). This correspondence can be found in the following steps qualitative researchers take to establish trustworthiness and rigor: credibility (internal validity), transferability (external validity), dependability (reliability), and confirmability (objectivity). I will outline how I addressed each of these strategies in the next sections.

To further reduce bias and to ensure accurate interpretation of the data I also undertook several of the strategies available to check the accuracy of my findings, which were outlined by Creswell (2003). The strategies I used were (a) data triangulation, (b) using rich, thick descriptions to convey my findings, (c) clarifying my bias in a self-reflection that

explained to readers my viewpoints and perspective, and finally (d) I took advantage of peer debriefing to increase the accuracy of my written accounts.

Data triangulation involves using different sources of information to gather data (Denzin & Lincoln, 1998). In this study I used three data sources to explore what was occurring on this part of the Appalachian Trail – photographs, journals, and interviews. Patton (1990) explains that this can only strengthen your study, because

Each data source has strengths and weaknesses. By using a variety of sources and resources, the evaluator-observer can build on the strengths of each type of data collection while minimizing the weaknesses of any single approach. A multimethods approach to fieldwork increases both the validity and the reliability of evaluation data. (Chapter 6, p. 158)

Once data analysis took place with each data source, a judgment as to the authenticity of the qualitative inquiries was made. These were based on the concepts of trustworthiness (Henderson, 1991) - creditability, transferability, dependability, and confirmability of the methods and findings. Credibility addresses the internal validity of the study. I achieved this by discussing my role as the researcher and addressing my biases up front. I could have also used member checks and gone back to individuals to check out conclusions, but I did not end up doing this, because through triangulation I felt that I had a firm grasp on what the participants' perceptions and views were and a good set of checks and balances in place. I also used key informants to help achieve this goal – these informants were members of my committee who were experts in the field of trail and perception research. I was also able to share my ideas and seek input through various presentations. These presentations opened up my research, data, and findings to outside experts in the field – who were able to add

valuable assessments of the categories, and themes that were emerging from the data. This feedback and discussion validated the accuracy of my data and findings.

Transferability, or the ability to generalize, was achieved by providing thick descriptions of the participants' responses and by the use of interviews, observations, and documents to corroborate their responses. These descriptions are provided in the findings section.

The dependability issue relates to the consistency of the findings and the reliability of the study. As noted, I used triangulation (second opinions) to make sure that what I was recording as data is what actually occurred in the setting. I had a clear, well thought out plan as well as an "audit" trail to show how I arrived at my conclusions. I also achieved confirmability or objectivity by using factual data, looking for a variety of explanations, and being open to the participant's voice.

Ethical Issues (Institutional Review Board)

As with all research studies, certain ethical considerations must be followed. The first step I undertook was to submit an application to the Institutional Review Board (IRB) in order to conduct this study. Because the participants were not children (age 19 +), and no harm came to them by conducting this study, there were not any problems associated with this process. I also developed and employed a subject consent form (and included my contact information as well as that of the North Carolina State University Institutional Review Board for the use of Human Subjects in Research) (see Appendix C).

Before any of the subjects participated in this study they were asked to read this form and to sign it. They were also given a copy of the same consent form to take home with

them, so that they could refer back to it, if they had any questions during or after their participation.

Summary

In this chapter I discussed the research methods for the study. The next chapter will present the findings from the grounded theory process of discovery. I will explore the trail users' experiences by using content analysis of the study participants' photographs, interspersed with narrative text from the trail users' journals and interviews. The next chapter will therefore include both the findings and my interpretations of the data.

CHAPTER 4

FINDINGS

This section discusses the results of the study including the major themes that emerged from the data analysis and is designed to provide an understanding of the trail visitors' perceptions of certain elements on the trail as well as their recreation experiences. The first section will give a demographic overview of the participants and provide a summary of the photographs (grouped into themes). Next, each theme is presented, using supporting evidence from the photographs, photograph journal entries, and post-hike interviews. This presentation includes an exploration of the themes emerging from each data collection method. Finally, excerpts from participants' interviews are employed to explain how perceptions of the various elements along the trail related to and ultimately affected each person's experiences.

A breakdown of participants' demographic information can be seen in Appendix D. Forty-two percent of the participants were male, and 58% were female. In general, study participants were well educated, with 85% of the respondents having earned a college degree. Participants' ages ranged from the 20's to the 60's (36% were less than 30 years old, 39% were between the ages of 30-50 years old, and 25% were age 50 years or older). The sample also had a relatively high household incomes, with 44% of the participants having a household income level of \$50,000-\$74,999, and 25% of those participating in the study having a household income level of \$100,000 or greater. In addition, 85% of the participants were first time users of this trail.

Because one focus of this study was on the elements of the trail environment that visitors perceived and how these perceptions affected their experiences (see research questions), I reviewed all of the photographs and noted the elements that were captured by the respondents. These researcher-identified elements were then compared with whether these features were recorded in the photograph logs by the respondent as the photo subject. I found that my content analysis of the photographs was in accordance with what the participant had recorded in their journal (as the main element being photographed). In addition, the participant's notation of why he/she selected the feature and the effect the element/feature had on each photographer's experience were explored.

Analysis of the photographs ($n=274$) and photograph logs ($n=33$) found that participants noticed both negative and positive aspects of the trail environment (as recorded in their journals). Eighty-three percent of the pictures taken contained elements of the trail environment that visitors liked and 17% of the pictures contained elements that were disliked (see Figure 1) on or along the trail.

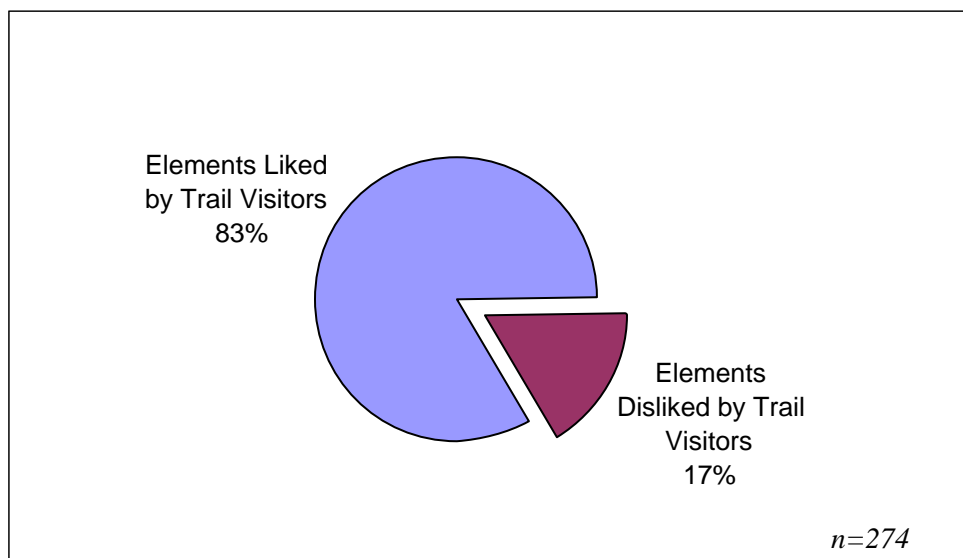


Figure 1. Breakdown of the types of features photographed by Great Smoky Mountains National Park visitors.

After pooling all of the respondents' photographs, I found that in both sets of photographs (those that reflected elements that visitors liked and those disliked), the same four themes emerged – nature-oriented details, scenic values, management influences, and the presence of other people. The fifth theme, depreciative behavior was found in only those photographs that contained elements that were disliked by participants. These elements were then organized in order – from the element that was captured most often in the pictures to the element that was least photographed by visitors along the trail in order to see how many photographs were taken in each theme.

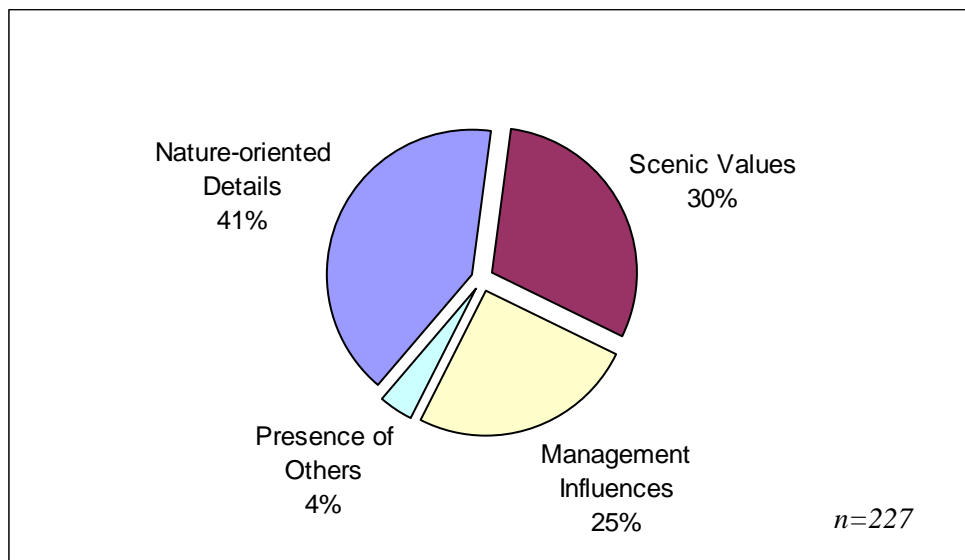


Figure 2. Percentage of photographs taken within each theme by Great Smoky Mountains National Park visitors that contained elements that were liked by visitors.

When only the photographs that reflected positive elements of the trail ($n=227$) were grouped into the four themes (see Figure 2), 41% contained some sort of nature-oriented detail, which included elements such as wildlife, plants, or rock formations. Thirty percent of the pictures focused on scenes or scenic vistas along the trail, which contained elements of scenic overlooks or beautiful views of mountain ranges. Another 25% of the pictures were taken of elements along the trail that indicated a manager's influence such as erosion control,

structures, tree removal, and signage. Finally, 4% of the participants' positive photographs were of such elements as the photographers' family, friends, or others that they had enjoyed meeting during their day hike.

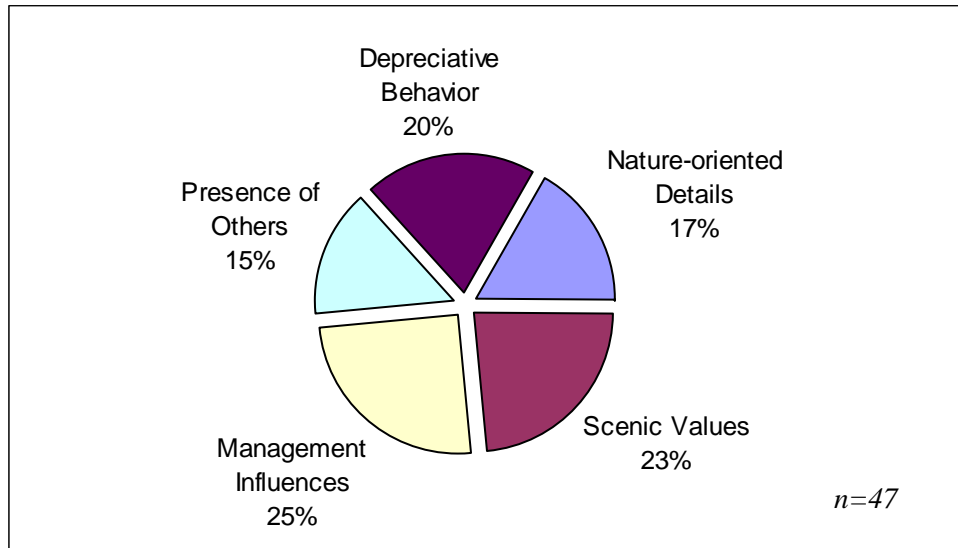


Figure 3. Percentage of photographs taken within each theme by Great Smoky Mountains National Park visitors that contained elements that were disliked by visitors.

The pictures of disliked (or negative) elements of the trail ($n=47$) showed less of a disparity among the different themes (see Figure 3). For instance, 17 % of the photographs were of nature-oriented details that either concerned the participant or which they felt were unpleasant to look at such as “snake holes” or shadowed areas caused by bushes, which led to unease or fear. Twenty-three percent of the photographs in the negative group were of dead trees and smog, (which respondents noted in their photograph logs reflected a concern about acid rain, the Hemlock Woolly Adelgid, and civilization’s “encroachment” into the park). Twenty-five percent of the negative photographs were comprised of management issues, such things as, trees overhanging the trail that had not been cleared, waterbars, metal rebar, erosion, or signage that was unclear. The least number of photographs reflecting elements of the trail environment that were disliked (15%) were of other people, whom had

somehow negatively affected the respondent's experience, because the person or people encountered were walking too slowly, crowding the trail, or engaged in an activity different from that of the participant, etc. Finally, 19% of the photographs captured the results of some sort of depreciative behavior such as litter, graffiti, and defecation near the trail (e.g., improper waste disposal procedures).

Themes

As noted above, after an analysis of the photographs, photograph logs, and interviews was completed, several themes emerged from the data. These themes are explained in greater detail in the following sections. In addition, sample photographs from each group are included to illustrate and support the findings. The themes that emerged from the data were the following: nature-oriented details, scenic values, management influences (to the natural area on and around the trail), the presence of others, and depreciative behavior.

Photographs, Photograph Journals, and Interviews

Nature-Oriented Details

Photographs and journals. Whether hiking alone or with a group, each of the 33 participants given a camera during their day-hike noticed and photographed more nature-oriented details such as plants and wildlife than any other type of feature (see Figures 4-7). This implies that many people may prefer settings that have an abundance of nature content and that this is an important characteristic of preferred scenes. This frame of thought was reflected in subjects' pictures as well as through an analysis of the photograph logs. When asked what they were photographing and the type of effect seeing these elements had on the recreation experience, Angel and Buffy noted their appreciation of the "flowers and bees...nature working its lifecycle" and the "calming" effect that perceiving these elements

had on their visit. Faith and Julie also noted the positive effect the plants had on their experience. “Dead tree with mushroom [and] moss...[which was] allowing dead growth to support existing growth – ecosystems” was reminiscent to them of “how nature wanted it to be.” In addition, Caitlin and Cordelia found solace in the “green ground cover [and] moss in roots of the tree” because it was “so delicate in texture...brilliant green [and] soft.” They noted, “It is the simple small parts of nature that we are amazed by even in a large massive forest.” Finally Anya took a picture of a fern noting its “beauty.” “What’s not to like about the trail?” she asked.



Figure 4. Photograph taken by Faith and Julie reflecting nature-oriented details that were liked.



Figure 5. Photograph taken by Caitlin and Cordelia (Joyce took a similar one) reflecting nature-oriented details that were liked.



Figure 6. Photograph taken by Riley and Summer reflecting nature-oriented details that were liked.



Figure 7. Photograph taken by Anya reflecting nature-oriented details that were liked.

The same types of nature-oriented details that so many visitors found to have a positive effect on the experience contrarily had a negative effect on a few users' experiences (see Figures 8-11). For instance, one hiker claimed that she took a picture of "moss covering tree roots" because it had a negative effect on her experience by "detract[ing] from [the] overall natural beauty" of the area (Buffy). Similarly, a young mother visiting with her family wrote that seeing a natural "cave" was a negative experience, because it made her a "little scared because [she] wasn't sure what was living in it" and seeing a "snake hole" later down the trail made her "walk a little faster"(Joyce).



Figure 8. Photograph taken by Joyce reflecting nature-oriented details that were disliked.



Figure 9. Photograph taken by Buffy and Angel reflecting nature-oriented details that were disliked.



Figure 10. Photograph taken by Joyce reflecting nature-oriented details that were disliked.

Interviews. As with the information gleaned from the photographs and logs, most participants explained that nature-oriented details were the attribute of the trail environment most photographed during their day hike. Sarah explained that details found in nature were the most inspiring to her because of the wonder and beauty found in each of the elements she came across while on the trail.

Well what really struck me, and you know I could have taken a lot more pictures but I didn't, it was always this cute, wonderful little nature thing like little ferns growing out of the rocks, the trees that were you know hanging onto the rocks for dear life. [I found myself photographing] trees that have fallen over and left this (you know) beautiful mass of moss and ferns, everything growing... just ... beautiful things.

Harmony agreed, stating that upon reflection she and her family had taken more pictures of nature-oriented details than anything else they had noticed along the trail. Despite the beautiful day this family was visiting on, pictures of elements found in nature superseded even those pictures taken of the striking vistas.

Probably the smaller things like the leaves and the moss and maybe just the broken twig or root system that you could really see. Smaller elements, the views are great too but I'd say we took way more of small things.

Similarly Caitlin and Cordelia felt joy and appreciation for the plants and animals found in nature. They explained that the small details were noticed the most by both of them and contributed to a positive experience.

Cordelia: You know we just love nature in general, flowers, you know she'll stop and look at fungus every time. I'll stop and look for mainly the flowers or the butterflies...just nature in general, we prefer that, just appreciate that.

Caitlin: *I like the butterflies.*

Cordelia: *Ahh...a lot of little things – a lot of small details. A little butterfly here, a little caterpillar up there...ummm...we did take a picture of fungus (laughter).*

Caitlin: *Just the small details...I think we appreciate that.*

They then concluded their interviews with perhaps the best summary of why noticing the nature-oriented details was so important to their overall experience of the trip along the trail that day.

Cordelia: *You know its just appreciation of the small details...and ummm if you are not paying attention, you miss them.*

In summary, many visitors along this trail found pleasure in the “small details” and perceived those elements in nature that surrounded them on this trail. However, some found uncertainty, fear, and anxiety, from those elements that they felt were unattractive or unfamiliar. Overall though, small plant life, wildlife, interesting rock formations, and the organisms that fed and thrived in this ecosystem were noticed and had some sort of affect on respondents’ experiences.

Scenic Values

Photographs and journals. It came as no surprise that interview responses revealed that one of the motivating factors for participants taking a day-hike along the Newfound Gap section of the Appalachian Trail was due to the scenic views. As previous research has found, visitors prefer scenic vistas, restorative settings, and sites along the water’s edge (Kaplan & Kaplan, 1998). These elements seem to affect the visitors’ perceptions of their surroundings and of the trail environment or landscape. Similarly, scenic views were the second most photographed category of elements (see Figures 11 & 12). One male hiker –

who had once visited this trail section many years ago – found joy in the “high altitude vistas” writing, “it’s one of the reasons I chose this hike [for the] inspiration (hey I’m a pastor – inspiration is my business)” (Giles). Lila and Donnie agreed. It is the “trees, scenery, beautiful view” we “appreciate the purity of nature” because it is “calming.”



Figure 11. Photograph taken by Lila and Donnie reflecting scenic values that were liked.



Figure 12. Photograph taken by Xander and Willow reflecting scenic values that were liked.

Though each participant appeared to love the views, such negative aspects as perceiving invasive species, wooly adelgid damage, hearing vehicle noise, pollution or smog, and acid rain came up often in respondents’ logs as negative aspects of some of the views photographed (see Figures 13 & 14). For instance, one male wrote seeing both the “view and haze” had a negative effect on his experience. “Hiking for views is an important part of [the]

Smokies experience. [I] love the views but [am] concerned about the air quality” (Bob).

Similarly, Caitlin and Cordelia, two female science teachers, were deeply disturbed by the

“dead trees...I hate to see the dead trees because they are dying from disease” they noted.

“[We] are sad and concerned for the future use of the forest.” Likewise, Tina noted, “It is sad

to see diseased trees...dead trees, natural and destructive. [It is] negative, but reality.” Thus,

perceptions of the same scenic theme along the trail emerged as both positive and negative

contributors to visitors’ experiences.



Figure 13. Photographs taken by Caitlin reflecting scenic values that were disliked.



Figure 14. Photographs taken by Riley and Summer reflecting scenic values that were disliked.

Interviews. As noted, after coding the pictures and journals, scenic views emerged as the second most photographed element of the trail and its surroundings. It was easy to understand why, once the interviews were completed. An overwhelming feeling of appreciation was conveyed by most of the respondents for the beauty provided by this part of the Appalachian Trail. When asked what types of features they found themselves photographing (“Was there something that stood out?”) Lindsey claimed it was the “*Fantastic, beautiful views.*” A young couple agreed, adding, “*You know it was the entire package. I mean the views and the smells, and the shade. The breeze*” (Donnie and Elizabeth). Xander, who had traveled this part of the AT previously, found that it was the views that kept him coming back to this part of the AT.

Well I’ve been up here before at Icewater Springs and we mainly chose it to go to the Bunion but from my experience this has more scenic overviews or scenic lookouts you know then any other trail in the mountains or any part of the AT that I’ve been on.

However, because the views were so important to the trip experience for most respondents, the scenery was also the source of a large number of people’s negative experiences. Due to the fact that participants were using this trail to enjoy the scenic vistas, some were even more perceptive of any negative elements, which affected the views.

Lindsey was highly disturbed with what he and his wife had found during their hike that weekend – the *Hemlock Woolly Adelgid*.

Lindsey: *We wondered about the dead trees [he said]. We heard that there was a beetle in the Hemlocks.*

Interviewer: *Yes, the Hemlock Woolly Adelgid...yes and that is one of the things destroying the trees.*

Lindsey: *That is? Yes, we didn't know if it was pollution or not, but at Charlie's Bunion we could see the layer of pollution. We could see the haze you know?*

Interviewer: *How did that affect your experience?*

Lindsey: *Well it just made us kind of sad.*

Tara: *Yeah, you know that this park could be that bad.*

Another hiker had a similar response when asked what he had noticed during his trip that day.

Bob: *Well the views are magnificent you know and that's as I remembered...ummm so I took some pictures of the view. I took some pictures of the dead spruce ummm...or fir, I'm not sure which it is, my silviculture is not very good. But umm, that was sort of distressing, it makes you wonder about environmental issues, and then the haze. Ahhh, you know this is a fall day you'd expect a little bit clearer conditions. I would expect!*

Interviewer: *Yes.*

Bob: *So I was troubled a little bit by the haze, because I suspect that some of that is – if not most of that – is air pollution. Interviewer: Yeah. So how did seeing these things affect your experience? The things you just mentioned.*

Bob: *Well you know it's kind of; it's sort of a negative aspect of it. It bothers you a little bit about the fact that you have such a beautiful place and we make it [like this]. You know I realize that the, the ahh tree thing is an insect deal?*

Interviewer: *Mmhmm...the Wooly Adelgid.*

Bob: *Yeah, but the ahhh haze. You know, I mean it is just sad that the air quality is not better.*

Scenic is often used to describe something that is of or relating to natural scenery. Many of the visitors taking part in this study indicated that they had chosen this trail due to its scenic potential and in their interviews expressed joy in the beautiful vistas and scenes afforded from various lookouts. However, when attractive views and vistas were marred by smoggy conditions and trees that were dying (from disease, acid rain, and non-native insects); respondents indicated that the scenic values of this trail were compromised. Therefore, the same elements that afforded positive experiences, also led some to feel sad and concerned for the future of this park.

Management Influences

Photographs and journals. The third theme to emerge was a frequent perception (and often an appreciation) of trail and park management practices along this 2.9-mile stretch of the AT (see Figure 15 & 16). Bob enthusiastically wrote next to his picture, “Shelter at Icewater Spring...very nice...I’ll be back to camp!” Glory concurred, feeling the shelter was “neat and well kept...[and provided] a nice rest.” Another participant recorded, “Stairs on a long uphill stretch...somebody went to the trouble and expense of trail maintenance” (Giles). He appreciated the “ease of use and safety” and that it “controls erosion.” Similarly Angel and Buffy photographed “natural steps” because they “liked the natural rock formation incorporated into [the] trail.” It left them “pleased” with the experience. Bob felt that the “trail signs [were] an excellent feature” because it was a good way “to keep track of progress.” Finally, Giles noted that the “white blaze markers” were extremely helpful because he “found [him]self looking for them when unsure of trail direction.” This led to “ease of use and less frustration.”



Figure 15. Photograph taken by Glory reflecting management influences that were liked.



Figure 16. Photograph taken by Julie reflecting management influences that were liked.

As with other themes, the same elements that some hikers found positive were those attributes of the trail environment that left other respondents with unpleasant reactions (see Figures 17-19). For instance, one participant was frustrated when he got lost and could not find any trail markings, noting “white blaze markers...I found myself looking for them when unsure of trail direction”(Spike). A family agreed writing, “signs...lack of info...we went the wrong way” (Gigi). They further recommended that better marked trails would increase “ease of use and [lead to] less frustration.” Visitors’ experiences were also affected by the “log stairs [which]...detracts from [the] natural trail”(Buffy and Angel). In accordance, two young males found that the stairs were “too many...too close together” (Jonathon & Lorne).



Figure 17. Photograph taken by Harmony reflecting management influences that were disliked.



Figure 18. Photograph taken by Spike and Tina reflecting management influences that were disliked.



Figure 19. Photograph taken by Joyce reflecting management influences that were disliked.

Interviews. Congruent with the data that emerged from the photograph logs and the images represented in the visitors' photographs, most participants were very aware of those efforts made by park staff and volunteers to build and maintain the trail. Donnie and Elizabeth were very appreciative of the *"quality of the trails"* and the efforts taken to maintain the trail, stating that *"We were really impressed with how well they were maintained and how clean they were."*

Another couple loved the signage, explaining, *"The signs, the signs... we took pictures of the signs. We liked the signage; they were good. I mean we've been on trails that...[had] no signage! You know? I mean that is so helpful"* (Lindsey and Tara). Another lone hiker agreed, *"Umm, I liked the trail signs. I've always liked the wooden carved trail signs they have...I mean that's a kind of nice way to know how many miles"* (Bob).

Another maintenance effort that most of the visitors noticed was the erosion control devices. One couple noted, *"The steps and things like that, that were put in... We thought that enhanced our experience"* (Lindsey and Tara). Though, there were mixed feelings about seeing the waterbars across the trail and having to step up and over them along the whole 5.8 mile trip (roundtrip), even while many understood their purpose, accepted them, and felt they were necessary. In addition, those interviewed, appreciated that if the waterbars had to be there, at least they blended into the landscape reasonably well. This sentiment was echoed by a majority of those interviewed.

Willow: *At first I was like what are these bars and because I know like at some other places... We were just talking about it, it keeps the water from going down the trail? He knew, I didn't.*

Interviewer: *Did seeing things like that impact your experience at all?*

Xander: *No, not really. I'm the one that likes the trail as natural as possible – no pavement or anything that would turn me off. But, I think it's ok, because I've been up here in the spring and you're basically walking in a creek bed you know in the spring. So I know that helps. Your feet are so cold and wet when you get back to where you are going and your boots are wet the whole day and you're walking. So that's kind of nice. So if it is subtle, and it is pretty subtle...they've been there for a while.*

Similarly, two women also noticed the waterbars and felt that they were positive aspects of the trail experience. In fact, they had noticed a lot of erosion in places along the trail where there were less waterbars in place.

Faith: *Umm we noticed on the way...as we got lower and lower in elevation that there seemed to be more erosion on the trail.*

Interviewer: *So you saw it further in or more along this part?*

Faith: *More along this part....it seems that nature is taking care of the other part.*

Interviewer: *So you like the waterbars?*

Julie: *Mmmhmmm.*

Interviewer: *So how did the things that you've just been talking about – did it add to your experience? Take away from your experience?*

Faith: *I think ahhh...as far as the waterbars, those were positive. The erosion was a bit negative.*

Though the photographs and logs indicated that some respondents felt that there were sometimes too many waterbars, that fallen trees needed to be cut down over the trail, and that signage may not have been as clear as they had hoped, the majority of those asked in the

interviews felt that managers and volunteers were doing a great job and even wondered *“How all of these areas can possibly be managed”* (Harmony) – echoing what was on the minds of many. *“Ummm, I’m glad someone does it (laughter). I don’t know how they research it and get the funds on top of everything else [though]”* (Harmony).

In summary, all of the participants interviewed in this study perceived efforts by management to “improve” the quality of the trail and trail environment (though some participants disliked the improvements they still noticed them). Whether through directional signs, blazes, waterbars, shelters, erosion control, or the clearing of fallen trees (from across the trail) volunteers’ and managers’ actions were affecting visitors’ experiences. However, the same management influences that some visitors appreciated, others found problematic.

Presence of Others

Photographs and journals. There has been a significant amount of research on the effects of encountering others during a recreation engagement. Studies on recreation conflict and crowding often take into consideration visitors’ perceptions and preferences when assessing recreation experiences.

Analysis of the pictures and log entries (reflections) found that people were almost equally split between instances when seeing others had a positive or negative effect on their experience (see Figures 20-22). Anya noted the positive experience her group attained from seeing others. “Friendly hikers, people you meet...what’s not to like about the AT” she wrote. Two female science teachers appreciatively noted “backpackers...hot hikers...people getting away from crowds and taking advantage of the park...wow, I’m always impressed with backpackers!”(Cordelia and Caitlin).



Figure 20. Photograph taken by Caitlin and Cordelia reflecting the presence of others that was liked.



Figure 21. Photograph taken by Harmony reflecting the presence of others that was liked.



Figure 22. Photograph taken by Anya reflecting the presence of others that was liked.

On the contrary, Bob claimed that “people [had a] substantial effect on the wilderness experience” and that he “would prefer to encounter fewer people” during a hike on the AT. Donnie and Elizabeth had a similar perception, writing “people...every other minute you run into other people [there is] no seclusion or privacy,” indicating possible crowding problems. Faith also did not like all the people, stating, “People ‘hiking’ on [the] trail aggravated the experience.” This included a negative experience with “impatient hikers ‘pushing’ [her] along the hike.”(see Figures 23 & 24).



Figure 23. Photograph taken by Faith reflecting presence of others that was disliked.



Figure 24. Photograph taken by Donnie and Elizabeth reflecting presence of others that was disliked.

Interviews. Whether a lone backpacker, a young couple enjoying a day together, or a family on a day trip – all interviewed frequently noticed other people on the trail. In addition, similar to the other themes, there were positive and negative outcomes from meeting other people on the trail. For some of the respondents, running into a various people using the trail the day of their hike had a negative effect on the experiences. When asked how her trip was, Tara said that she would have liked to have seen “*A few less people (laughter) – it is a well used trail (said emphatically).*” Her husband agreed.

Lindsey: *We actually knew it would be – we have the liberty of staying home on weekends and going during the week...and we usually do that, but we’re leaving on Monday so...we thought we’d try to get this one in. We knew there was going to be a lot of folks.*

Interviewer: *Did people impact your experience?*

Tara: *Yeah. I mean it is crowded.*

Lindsey: *It is very crowded!*

Two women even referred to the number of other people on the trail as “*like cattle,*” which negatively affected their experience until they “*got further up...away from the groups of people*” (Faith and Julie). Similarly, Joyce, who had come to the trail with her young daughter and husband to expose her daughter to a short hike, felt that other people negatively affected her experience too.

The more experienced hikers were going faster than we were - you know they were not exactly impolite, but they are just not...you know they are used to going and going...and I have a 3 year old and I’m pregnant so we were trying to take it easy so

they kind of were, kind of pushing people out of the way...but...laughter...but other than that, it was OK.

Yet, often depending on the people they met (the activity others were doing, or who the individual or group was with), many were not affected as negatively by running into others along the trail. Another hiker – out that day to achieve solitude and peace felt that seeing others had surprising results.

Interviewer: Did you like seeing other people? Did that impact your experience at all?

Giles: Well, it turned out alright. I ahhh, I didn't realize this was such a busy trail and umm. You know I really came more for the solitude. But in fact had some wonderful conversations. Met an 80 year old guy named Pete that was a Nuclear Scientist in his former profession and ...80 years old! That's disgusting. So, so it turned out fine. It turned out fine. Ummm, but usually if I come up from Florida – so if I come up this far to go hiking it's because I'm trying to get away from people.

Sometimes, it seemed that the type of person or people met influenced whether the experience was positive or negative. For instance two female science teachers explained why.

Caitlin: I think the people that you meet. I mean maybe the people that you meet on the trail.

Cordelia: Yeah, you know now that you mention it....that does affect it [the experience].

Caitlin: And that to me I think makes a big difference of who I'm talking to. The people that you meet out here, a little bit further away are socially friendly, you know

even in passing, just common courtesy to stop to let you know the person going up to pass you sees that. And I think I don't know, I mean I appreciate that a lot.

Cordelia: *Yeah, yeah.*

Caitlin: *It makes the trip...it impacts your trip up here!*

Cordelia: *Yeah, I hadn't really thought about that until you as soon as you started saying that.*

Caitlin: *And we saw two backpackers... I mean they had been gone for 2 ½ days or something and they were....and I was kind of like "Hmmm, there are some people doing some hard core stuff...glad to see it."*

Therefore, an exploration of this theme indicated that people did indeed perceive the presence of other people along the trail. In addition, whether a respondent had a positive or negative experience when meeting others depended somewhat on whether the other person encountered was "similar" to the person being interviewed (in activity, grouping, etc.) and sometimes on the respondent's personal motivation for visiting the trail the day they were interviewed.

Depreciative Behavior

Photographs and journals. Unlike the other four themes, this theme was the only one that included pictures, comments, and attributes that were all negative and wholeheartedly disliked on the trail (see Figures 25-27). Therefore, elements that were included in this theme had a negative effect on visitors' experiences.

Giles related his disgust of some people's actions by including a photograph of a "tree used as a bathroom...[noting] it definitely affected my experience today...Some guy had just stopped to crap about 6 feet from the trail and it reeked!" Spike and Tina wrote that seeing a

“water bottle in the brush...it shouldn’t be there...it’s discouraging to see people can’t carry their trash out with them,” negatively affected her experience. Julie photographed a “cigarette butt on [the] trail” explaining, “people should leave no trace behind – it is a nuisance when people are smoking on the trail.” Finally, Anya found that seeing “Trash” left her and her friends with a bad experience, exclaiming, “Pitiful! Smoking on the AT? Leaving Butts? This is what not to like about the AT.”



Figure 25. Photographs taken by Spike and Tina reflecting depreciative behavior that was disliked.



Figure 26. Photograph taken by Willow and Xander reflecting depreciative behavior that was disliked.



Figure 27. Photograph taken by Anya reflecting depreciative behavior that was disliked.

Interviews. From the photographs and the photographs logs, participants indicated that seeing litter, graffiti, and improper disposal of human waste, all negatively impacted their experiences. However, the interviews revealed that, overall, many were really impressed with how well the trail was maintained and respected by other users. Wesley found that *“Well there are no papers, or anything of that nature. I think obviously people that use it are respecting nature.”* But he did note that seeing these elements would have had an effect on him and his wife’s experience. Another couple was also struck by the lack of litter, but did notice and was disappointed by some graffiti.

Donnie: *The only thing I noticed was graffiti on some of the rocks, that was about it.*

Interviewer: *Ok and how did that affect your experience – the graffiti?*

Donnie: *It was an eyesore but...*

Elizabeth: *(interrupting) But at the same time...seeing that made us realize that there wasn’t any trash on the trail at all...like...*

Donnie: *yeah...*

Elizabeth: *Which is amazing! Like I don’t think I’ve ever walked on a trail that is this clean.*

Interviewer: *So that was a good thing?*

Elizabeth: *That was great...yeah.*

Xander and Willow agreed with this overall sentiment.

Willow: *And we couldn't photograph all the good. You know what I mean? There were so many good things, but I know the one thing that we didn't like was where the graffiti was, that was scratched in the rocks.*

Xander: *Yeah. Whoever Joey is, he's a bum!*

One lone hiker was also surprised by the lack of litter; however he was disturbed by another type of depreciative behavior.

Giles: *I didn't see any garbage. I did not see one piece of garbage as a matter of fact. Ummm, in fact I thought about that. How do you take a picture of no garbage (laughter)?*

Giles: *It seemed like people you know stuck to the trails, I mean there wasn't a bunch of mashed down stuff... I wouldn't say that there was anything negative. Except for one of my pictures it's kind of funny.*

Giles: *Apparently somebody had just used the restroom before I passed by so it was kind of malodorous...pretty bad.*

In review, an exploration of the interviews revealed that depreciative behavior was noticed by many of the participants, but that because there was so little perceived by each person, that the overall trip experience was not overly impacted. In fact, those interviewed seemed to have an expectation that there would be even more depreciative behavior (especially litter) than they saw, which is not surprising due to the number of people that used this trail for day hikes and overnight backpacking trips. However, due to the efforts of

Appalachian Trail volunteers, park managers, and/or other trail visitors' respect for the trail environment, there were few occurrences of depreciative behavior on this particular trail.

Effect on Experience

Taken together, what effect did perceiving the various elements of the trail and trail environment have on the participants' experiences? Study findings indicated that noticing many of the elements did not detract significantly from the participants' overall outdoor experiences. However, noticing positive elements may have increased participants' overall experiences. Though the participants' perceived both negative and positive aspects of the trail environment and did note that seeing both had positive and negative effects on their experiences, all participants still indicated having an *overall* positive experience. This can be seen in the following excerpts from Wesley and Sarah:

Wesley: *Yes, when we started out there were some dead trees that in the wind seem that someday will come down...and ahh I don't know – if you know they used to call those “widowmakers”?* (nervous laughter)

Interviewer: *Oh they still do.*

Wesley: *Ummm, I don't know if they do that sort of maintenance on the trail?*

Interviewer: *So it was more of a negative experience than a...?*

Wesley: *Oh it was a little negative but going out – coming back with the blue skies... it's very beautiful!*

Sarah: *It's pretty* [his wife said in agreement]

Anya's comments were similarly contradictory. She and the group she was with noticed depreciative behavior (a cigarette butt) and yet the overall beauty of the area, the companions she was with, and the overall hike led her to have a “wonderful time.”

Yeah we took some pictures of Joe and me and a lot of hikers and we just took pictures of things that we thought were beautiful, but and then we took a picture of a...we saw a cigarette butt and so we said ohh! We have to take a picture of this horrible cigarette butt. You know, it was great. We had a wonderful time! (Anya)

Another indication of how study participants felt about their overall trip experience was how each responded to the last question of the interviews. When asked how satisfied he or she was with the trip experience, the overwhelming response from each participant was “very satisfied.” Yet, how could this be, when all of the subjects had perceived negative aspects of the trail and had photographed, and expressed observations and feelings about these negative attributes of the trail either in their photographs, journals, and/or interviews? This conclusion will be discussed in the last chapter.

Summary

This chapter explored several themes that had emerged from the photographs, photograph logs, and the interviews. The participants’ photographs and quotes taken from their logs and interviews supported these themes and enabled me to answer each of the research objectives. A discussion of the findings, implications, and what these results mean takes place in the concluding chapter.

CHAPTER 5

DISCUSSION & IMPLICATIONS

A discussion of the study's findings and implications for management and future research are presented in this final chapter. To most effectively interpret these findings, it is helpful to revisit the original intent of this study, which was to understand park visitors' perceptions of the trail environment on one part of the Appalachian Trail and to explore how their perceptions affected their overall recreation experiences. The study's objectives were to discover the following:

1. What elements and resource conditions did visitors perceive along the trail? What was the nature of their perceptions?
2. In what ways did these perceptions affect their experiences?

The first part of this section will discuss possible explanations for visitors' perceptions of elements along the trail – presenting several formal theories to further substantive formulations. The next section will similarly draw from various theories and formulations (which emerged from the data) to assist in explaining visitors' experiences. Following this, a reflection on the usefulness of this study's approach and the strengths and limitations of this methodology are discussed. This final chapter concludes with several implications for future research and management.

Elements and Resource Conditions Perceived

The data from this study suggest that visitors *are* perceptive of their surroundings and that certain elements of the trail do have a positive or negative effect on each individual's experience. Results revealed several themes emerging from the photographs, photograph logs, and the interviews. Specifically, visitors noticed and were affected by the following

attributes of the trail environment: nature-oriented details, scenic values, management influences, the presence of other people, and other trail users' depreciative behavior. Yet, an analysis of the transcribed photograph logs and interview data indicated that while noticing these elements did affect aspects of the experience (detracting from, adding to, and/or having little effect); visitors' negative perceptions did not detract significantly from the participants' *overall* outdoor experiences. However, visitors' positive perceptions may have added to the quality of their *overall* experiences.

Nature-Oriented Details

Whether hiking alone or with a group, each participant given a camera during their day-hike overwhelmingly noticed nature-oriented details such as plants, wildlife, rock formations, and other elements of the natural environment. These findings were consistent with past trail perception and preference research, which found that people prefer trails that are compatible with the natural surroundings and that perceptions of only *certain* aspects of the trail environment affects experiences. This also supports the contention that most people prefer settings that are “green” and that nature content is an important characteristic of preferred scenes (Kaplan & Kaplan, 1978). Results were also consistent with research (Gobster, 1995; Goossen & Langers, 2000; Kaplan & Kaplan, 1989, 1998; Shafer, Lee, & Turner, 2000) that found that users have a general affinity toward scenes with a combination of natural elements such as those found along the Newfound Gap Trail.

Also, nature-oriented details along with the next theme (scenic values) tended to be the most photographed elements on and along the trail. Perceiving these elements also appeared to have mostly a positive effect on visitors' experiences. This outcome could be because people's responses to nature are not predicated by one's cultures or differences,

rather similarities in responses to natural scenes may outweigh the differences among various individuals, groups, and cultures (Van den Berg, Vlek, and Oeterier, 1998), leading to more similar than dissimilar perceptions and experiences.

Scenic Values

The data revealed that participants also preferred such scenes as picturesque overlooks in addition to mountain ranges and valleys. These were important elements of these trail experiences, and this finding lends support to research that points to “human preferences for natural looking landscapes that include canopy trees or water features, and that allow views out across the landscape” (Nassauer, 1995, p. 231). Because the views were such an important element of the trip experience, this could also be why many participants were more perceptive of and negatively affected by noticing tree disease, woolly adelgid damage, acid rain, and smog during their hike. However it was perplexing that not all participants noted and took both positive and negative pictures of the natural scenery. One explanation may be the visitors’ previous knowledge of these negative resource impacts. Indeed, Buyoff et al.’s (1979, 1982 in Ulrich, 1986) research found that preference for certain landscapes is based on knowledge of the natural settings. In their research, they found that seeing tree damage from insects (in their case the southern pine beetle) diminished preference among observers who were informed about the damage or who were knowledgeable about forestry, but did not always lead to negative judgment by uninformed individuals. In this case, visitors could have had information about the different resource impacts before going on the trail. In addition to personal knowledge, visitor’s had additional access to educational literature at the visitor center, and information from a large interpretive sign sitting (explaining the impact of acid rain) on the edge of the Newfound Gap parking lot.

Management Influences

Participants were also perceptive of efforts to maintain and improve the trail itself. The majority of the pictures in this theme were positive. Perhaps this is because, “nearly all landscapes are judged and enjoyed according to the degree that they clearly exhibit care” (Nassauer, 1987, p. 68). This viewpoint was clearly seen in this study’s findings, which revealed positive perceptions of the following: erosion control efforts (mitigating environmental damage and muddiness), trail signs and blazes (contributed to ease of wayfinding), the shelter, and waterbars (how well they blended into the natural landscape).

Yet this finding does not explain why some visitors had negative remarks about trail maintenance efforts. For example, some participants expressed unhappiness with seeing cut logs so close to the trail and with having to step over too many waterbars. Many also felt that the trail should be left as natural as possible. Perhaps the un-naturalness of the waterbars (human impact on the trail) and the inconvenience of having to step over the numerous waterbars may have led visitors to have negative experiences related to these elements. In addition, there may have also been a safety issue – since visitors would have had to look down frequently to see where they were walking for fear of tripping over a raised water bar, instead of enjoying the views surrounding them. Therefore, perceptions in this theme were often conflicting.

Similar to the theme before, this variance may be the result of the diversity of the group. Several of the participants were extremely active in conservation efforts and were able to define and point out various resource impacts, trail maintenance objectives, and management practices. However, the other subset was not as familiar with the backcountry experience and presented no evidence, expectations, or previous knowledge of management

ideologies in their interviews. Research has also found that people differ in their perception of the naturalness of an area as well, so conceivably these perceptions could have been affected by prior knowledge and expectations of the naturalness of this trail and the concurrent management practices used. Further, some research has found that those landscapes, which have rough ground textures, and unstructured high complexity, will also elicit low preference or dislike (Kaplan & Kaplan, 1986; Ulrich, 1986), and that visitors do prefer natural materials on trails. Hence, the rockiness and number of waterbars, may have negatively affected some visitors' experience. Cole (1996) also found that of the management preferences assessed in his studies,

The clearest trend was a decline in purist attitudes regarding trails. Support for high-standard trails, for building bridges over creeks (where bridges are needed only to keep feet from getting wet), and for administrative use of chain saws to clear trails increased, while support for low-standard trails and leaving a few trees blown down across the trail decreased. (p. 3)

So conceivably visitors' expectations are changing. Further research will need to be conducted on this aspect of the study to find out whether these hold true for a larger more diverse sample of trail users.

Also, research has indicated that visitors are most comfortable and satisfied when there is understandable information, such as signs and landmarks that ease a person's ability to way find, understand the trail environment, and provide orientation (Kaplan et. al, 1998), which could help explain why pictures of trail signs and blazes were so prevalent. Finally, seeing manmade signs may have been a positive perception because elements such as a trail sign, blazes, waterbars, and the shelter "captivate visitor attention, not because they coincide

with the high object typed diversity and sensory contrast nature of habitat edges, but because they are signs that are innately related to the person and social works of the visitor... [and hence] have a heightened, immediate effect on visitors to those environments” (Kaplan et al., 1998, p. 80). Therefore, visitors were attracted by objects that afforded these possibilities.

Presence of Others

Another finding, which indicated conflicting effects on experiences, was of visitors’ perceptions of others on the trail. There was a mixed set of positive and negative experiences resulting from noticing and encountering other people on the trail. This may be because visitor conflict is often asymmetrical (one group consistently reports that it has a conflict with another group all or most of the time, but conversely the competing group reports experiencing little or no conflict) (Hoger & Chavez, 1998). For instance, some groups were avid backcountry backpackers (whose goal was to hike a longer distance than the 2.9 miles along the trail that day); other participants were there to enjoy and discover nature’s mystery. Some participants reported using this trail because they wanted to take a leisurely hike with their families or partner, while other participants were there to get away from their daily stressful lives. When these derived experiences conflicted, participants reported having a negative effect.

Another reason why visitors may have had contradictory experiences may be due to their varying attitudes and norms. Norms are the standards that individuals use for evaluating behavior, activities, environments, and management proposals as good or bad, better or worse. They measure the degree to which they felt certain conditions ought to exist (Manning, 1999). Because social characteristics are an evolving characteristic (changing as we age and meet others), norms will tend to be dynamic throughout life as well.

The social power of a norm is a function of the interaction between the cognitive component (expectations about behavioral standards and/or obligations) and the emotional component (the costs or benefits of sanctions for the behavior). (Heywood & Murdock, 2002, p. 284).

Consequently, each person's norms may have influenced how they perceived others on the trail and how they responded during these encounters. Because each participant's norms (standards of evaluation or preferences) are different, they will influence motivation, attitudes, perceptions, and eventually the satisfaction that each trail visitor has during his/her trail trip on the AT.

Depreciative Behavior

Unlike the other four themes, the depreciative behavior theme was the only one that included pictures, comments, and attributes that were all negative and wholeheartedly disliked on the trail. Elements that were included in this theme therefore had only a negative effect on visitors' experiences. This is not surprising since previous research has established that the most intolerable recreation use impact in a natural area is litter (Floyd et al., 1997; Shafer & Hammit, 1995; Roggenbuck et al., 1993). In their study, Roggenbuck et al. (1993) found that such factors as damage to trees, noise, and litter influence the wilderness experience. Visitors in their study rated site impacts as having more of an influence on their wilderness experiences than encounters with others on the trails. Similarly, Lynn et al. (2003) discovered that litter, tree and plant damage, and fire rings were all perceived by hikers, but that seeing litter had the greatest effect on participant's hiking experiences. These findings therefore support previous research on trail and park experiences.

Nature of Experiences

As noted previously, when the study findings were taken together, they indicated that noticing elements along the trail did not detract significantly from the participants' overall outdoor experiences. However, noticing positive elements of the trail environment may have increased the quality of their experiences. Though the participants' perceived both negative and positive aspects of the trail environment, they still indicated having an *overall* positive experience. Another indication of how study participants felt about their overall trip experience was how they responded to the last question of the interviews. When asked how satisfied he or she was with the trip experience, the overwhelming response from participants was "very satisfied". Yet, how could this be, when all of the subjects had perceived negative aspects of the trail and had photographed, and relayed observations and feelings about negative elements of the trail either in their journals or interviews?

To understand why the participants were ultimately satisfied with their experience one needs to look at all aspects of the person. First, what were the participants' expectations when setting out to use the Newfound Gap Trail? Expectancy theory postulates that participants engage in recreation activities with the expectation that this engagement will fulfill needs, motivations or other desired states (Manning, 1999). Most participants indicated that this was the first time they had visited this trail. So this may have affected their expectations. Further, as Hull et al. (1992) found in their study, the recreation benefits and the experiences attained, which lead to satisfaction are not always static, but also dynamic in nature. Therefore each participant's expectations when s/he set out that morning or afternoon may have influenced the final experiential outcome regardless of her/his perceptions.

Further, perception can be affected by various human elements (Zube et al., 1974). The interaction of each participant's human perspectives paired with various elements found in the landscape – or in this case the trail setting - created various outcomes. In this particular study, the key factors affecting the visitor's experience were the social aspects or group influences, the norms, the motivations influencing outdoor recreation behavior, and the descriptive aspects such as an individual's attitudes, preferences and perceptions. Therefore, when one of the participants perceived something they were not comfortable with (such as a negative nature-oriented detail, depreciative behavior, a crowding conflict, and conflict of experience outcome or activity during the trail trip) his/her overall experience was affected. Since outcomes such as information, satisfaction, behavior and values are all elements that have implications for how an outdoor recreation engagement is experienced, we must take into consideration that there are other factors besides just their perceptions that could have lead them to have an *overall* negative or positive trail trip experience.

Formal Theories

Several theories have been used to explain this contradiction between one's contradictory perceptions and the feeling of an overall positive experience.

Cognitive Dissonance Theory

One theory in particular stands out and helps to explain the process of negotiation and rationalization found when interpreting the data - Cognitive Dissonance Theory (Fretinger, 1962). Cognitive Dissonance Theory involves a process of rationalization, and has been widely used to examine people's coping behaviors. Fretinger postulated the following:

1. The existence of dissonance, being psychologically uncomfortable, will motivate the person to try to reduce the dissonance and achieve consonance.

2. When dissonance is present, in addition to trying to reduce it, the person will actively avoid situations and information, which would likely increase the dissonance. (1962, p. 3)

This theoretical approach has also been extended to examining visitors' satisfaction levels in regard to crowding. Manning considered this process of rationalization in regard to coping behaviors when faced with crowding during recreation experiences. He reasoned that,

Since recreation activities are voluntarily selected and sometimes involve a substantial investment of time, money, and effort, some people may rationalize their experience and report high levels of satisfaction, regardless of conditions. (Manning, 1999, p. 97)

His rationale was rooted in the fact that,

People tend to order their thoughts in ways that reduce inconsistencies and associated stress. Therefore to reduce internal conflict people may be inclined to rate their recreation experiences highly regardless of actual conditions. (Manning, 1999, p. 98)

A similar rationale can be applied towards this study and may help explain why the participants had positive and negative experiences from perceiving certain attributes, yet still reported enjoying the overall trail trip. Most of the participants in this study reported traveling some distance to this park and had high expectations for this particular part of the trip. They had voluntarily chosen to spend the majority of their day at Newfound Gap on this part of the AT, invested money, time, and emotions into their hike, and must have hoped for a positive experience. Therefore, though there were some negative conditions along the

trail, visitors may have reduced dissonant thoughts or experiences in order to achieve consonance and overall satisfaction with their trip.

Theory of Affective Response

However, many environmental psychologists would say that there is a lot more to understanding the internal processes that generate feelings about the natural environment and have an affect on experiences (Ulrich, 1983). The Theory of Affective Response postulates that a person will visit a natural environment and perceive some element within it that will lead to an initial affective reaction such as liking or disliking a scenic vista. This reaction will result in cognition of the area as good or bad, harmful, safe, etc. and a resulting feeling or response. Such factors as a person's culture, past experiences, and history will affect these cognitions and behavior. "The framework further assumes that certain broad classes of content (e.g. water, vegetation) can produce visual ambiances that quickly elicit affective reactions prior to identification or extensive processing" (Ulrich, 1983, p. 92). According to Affective Response Theory, the affect, cognition, and responses are part of a complex grouping of different factors that all affect a visitor's experience. Hence, noticing positive and negative aspects of the trail will not solely lead a visitor to have a concurrent positive or negative experience. As noted previously, there are other factors that contribute to this overall feeling.

In addition, and in accordance with this theoretical framework, "evaluations may be accompanied by memories and association which, along with emerging emotions, add to the complexity of the observer's conscious experience" and there may be interplay of thoughts and feelings (p. 92). For example, one male participant in my study associated this trip with a memory of earlier trips with his family, noting,

Donnie: *Ummm...it reminded me of ummm well number one it is just beautiful and so it's memorable. But, like the scents and the sounds, and the sights kind of reminded me of trips we've taken to like the northwest. So I don't know if that answers the questions, but it's what goes through my mind like it's almost like nostalgia.*

Therefore, such memories and associations may have overshadowed any negative perceptions he had had of the trail environment and contributed to an overall positive experience.

Other Possible Explanations

Biological theories such as prospect-refuge theory (Appleton) and information processing theory (Kaplan & Kaplan) are also useful in accounting for the widely shared landscape preference for the forested environment. This part of the trail was brimming with scenic vistas that simultaneously afforded pockets of protection while still allowing wide-open views of the land below. These theories also focus on the complexity of attempting to explore visitor's perceptions of the natural environment and provide insight into the trail environment that the participants preferred in this study. As Kaplan (1986) clarified, visitors will respond not only to the elements they see, but also to their arrangement and what such arrangement makes possible. For instance, how easily the setting can be understood and explored is based on the "direct perception of the elements in the scene in terms of their number, grouping, and placement" (p. 13). If that is not complex enough, the visitors will also respond differently to these elements depending on their prior experience and on their current situation.

Therefore, in addition, to those factors that influence a person's perception and hence overall experience – one must take into consideration that the participant is processing

information continuously on the trail. Accordingly, “some types of information attract more attention and are thereby more readily perceived” (Cherem & Driver, 1983, p. 77). Further, a visitors’ surrounding will provide context for the things he or she sees in the environment and can affect how each individual interprets what they have seen. Therefore, visitors may perceive certain impacts such as litter, scenic vistas, trail erosion, and nature-oriented details like a beautiful display of moss, but their surroundings will affect how these perceptions are interpreted. Also for some people, trails will be more desirable if they have hints of complexity, mystery, legibility, and coherence as explained in Chapter 2. This was apparently the case with Giles, who noted, “*Yeah I put on there safety and ease and finding your way and not slipping and not having to walk through mud. That kind of stuff.*”

In addition, to those elements of the trail, the potential for movement is also critical (Nassauer, 1995). The trail must be easily negotiated and navigable. The opportunities the natural setting provides must be compatible with what the visitor desires from the setting. In addition, the extent of the natural setting is important. For instance, if a person is hiking on a wilderness trail, the “sense of being in a large enough place that its boundaries are not evident” (Kaplan & Kaplan, 1998, p. 19) is vital. The extent of the setting will lead to a preference for that trail, and in addition the visitor will have a better outdoor recreation experience. Other factors that will affect a person’s experience on the trail are the texture and width of the trail. Therefore, if a trail is badly eroded and over-widened, then the hiker’s experience may not be as satisfactory, because people prefer that trails be compatible with the natural surroundings.

Such factors as whether the part of the AT they were on afforded certain opportunities and experiences were also important to the experiential process. Gibson’s research pointed to

the idea that people perceive the world around them in order to successfully operate in that environment. His research centered on the “notion that we perceive objects against backgrounds in the real world not by perceiving forms per se but by perceiving invariant relationships among features of the figure and ground” (Gibson, 1987, p. 646). Gibson felt that perception was designed for action. Gibson called the perceivable possibilities for action “affordances”. “An affordance is what an environment offers the perceiver, or in other words, what the perceiver would be able to do in the setting” (Gibson, 1979, in Kaplan & Kaplan, 1989, p. 32). For instance one couple hoped for seclusion and a romantic getaway – to “*get away from people for a few hours*” – but were not able to find that on this trail due to how well traveled it was, noting “*at first there were quite a few people which was sort of annoying*” (Donnie and Elizabeth). The trail therefore did not afford opportunities for the desired type of activity and experience that had motivated them to use this trail in the first place. Another participant – a minister – came for the solitude and to read his bible, but again was not able to because of the many people he encountered, “*I didn’t realize this was such a busy trail and umm. You know really, came more for the solitude*” (Giles). Ironically, though, because of the type of people he met, “*in fact had some wonderful conversations*” and overall did not mind the encounters. Therefore, what the trail affords can and in this case probably did have an overall affect on the participants’ experiences.

Emerging Theory – Trail Visitor Experience Model

Each of the theories discussed above are helpful in explaining pieces of the interactive processes among humans and the natural environment. In particular, Kaplan and Kaplan’s (1998) information processing theory is applicable to this study, because it helps clarify why people may have responded to the trail environment based on the elements they

perceived along the trail and how these different elements were organized. However, this theory still seems insufficient in explaining the entire dynamic process, which takes place when people visit trails, parks, or other natural areas. Results from this study indicated that visitors' perceptions, preferences, and experiences are more complex and that noticing positive elements on and along the trail environment may contribute to an increased *overall* positive experience, but that noticing negative elements did not appear to negatively affect visitors' *overall* experiences.

Therefore, results seem to suggest that not just one aspect of what people notice will have an effect on their experience, rather the whole nature of a person needs to be understood and explored to comprehend what it is about the landscape that evokes an "aesthetic experience" (Nassauer, 1997, p. 82) and overall satisfaction with an outdoor experience. Whether it is the design of the landscape, the motivations influencing outdoor recreation behavior, the norms, social aspects or group influences, the descriptive aspects such as an individual's attitudes, preferences and perceptions, or one's sense of comfort, previous knowledge and past experiences – all of these factors play a significant role in affecting what a visitor notices and hence their *overall* experience. Only by exploring the intricate interrelationship of the whole person in relation to the environment will researchers and managers understand the outcomes resulting from visitors' interactions with the natural world, and hence what it is that visitors notice (and why noticing certain elements in the natural landscape affects their experiences).

A model explaining how the trail environment may have been perceived and why it resulted in an overall positive effect on visitors' experiences is proposed below (see Figure 28). The model uses as a foundation, Kaplan and Kaplan's Preference Matrix, which is a

three dimensional matrix explaining how visitors understand (coherence and legibility) information from the setting and how they view the environment in regard to its potential for exploration (complexity and mystery). The model then draws on other aspects of outdoor recreation behavior to formulate an explanation for this study's discoveries.

In order to conceptualize how the trail environment affected each visitor, one must first look at the perspectives that have been taken historically when examining outdoor recreation behavior. Throughout history, social scientists have examined social characteristics of outdoor recreation participants in hopes of explaining what activities and experiences people will seek. Emphasis has been put on such social aspects as culture, ethnicity, income level, age, occupation, and demographics. Why are these important in explaining outdoor recreation behavior? As Manning (1999) explains, "this information is fundamental to an eventual understanding of more sophisticated issues such as why people participate in outdoor recreation, and is also important in predicting future recreation patterns and evaluating issues of social equity" (p. 25). Not only is this information fundamental, but I feel that it is also the most important element in dictating the type of outdoor recreation activities that a person embarks on, what he/she perceives during their trip, and may be the most influential factor in guiding the outdoor recreation experiences that people will have and seek out. Therefore a visitor's social characteristics form the first part of my model.

It is important to note that this element is not static – on the contrary – most people's social characteristics will change throughout life. Each stage of life starting with childhood, going on to young adulthood, then to adulthood, having one's own family, and finally ending with senior citizen status can change so much over time that the outdoor recreation motivations, preferences, expectations, attitudes, and ultimately one's satisfaction with an

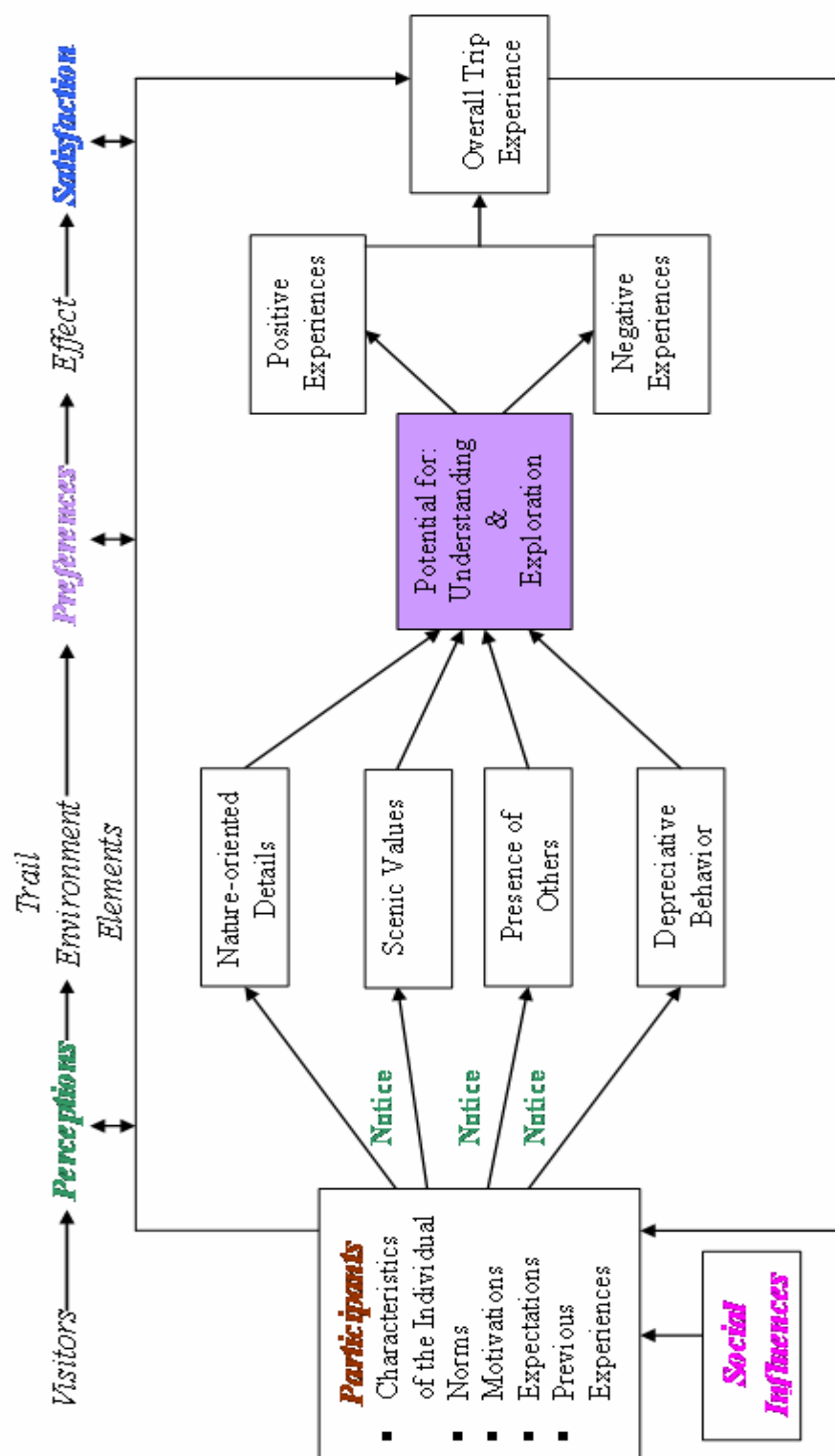


Figure 28. Trail visitor experience model.

outdoor recreation experience can be different at later stages from when that person first started out. Finally, the characteristics of the individual can be influenced during each of these phases by the social group they are with.

Heavily related to characteristics of the individual (visitor) are norms. Norms are the standards that individuals use for evaluating behavior, activities, environments, and management proposals as good or bad, better or worse. They measure the degree to which an individual feels selected conditions *ought* to exist (Manning, 1999). Because social characteristics are an evolving characteristic, norms will be dynamic throughout life as well. I do feel though that the basic premises upon which you are brought up with will remain the overshadowing or dominant force dictating acceptance or development of later norms.

One's norms or standards of evaluation or preferences are not better or worse than another's, just different and will therefore influence the type of motivation, dictate the attitudes and perceptions, and eventually the satisfaction that someone has with the experience and the activities. The next two elements of this model are motivations and descriptive aspects of visitor behavior. I feel that motivations and the descriptive aspects (perceptions, preferences) of outdoor recreation behavior are linked and can each greatly influence the other elements. This assumption is supported by research that has found that motivations for recreation are often related to a user's attitudes, preferences, and perceptions (Petrick et al., 2001). Key to understanding these two elements though is being able to follow the evolution of research in outdoor recreation interpretation. As Manning (1999) explains, studies by various researchers (notably Beverly Driver) over the last twenty years have led to a shift from an "activity approach" to a "behavioral approach" and focus on why people participate in recreation activities and the benefits gained from such participation. I

argue that the “why” of this concept will be dictated by the social characteristics and norms that a person brings to the outdoor recreation “table”. Therefore the model portrays these elements as an offshoot of social characteristics because an outdoor recreation participant will have the motivation or lack thereof to participate based on the social characteristics in his/her background. In the same light, social characteristics will dictate whether a person has a positive or negative attitude, what their perception of the activity or experience is, and will ultimately lead a person to have different preferences for outdoor recreation experiences based on what their norms and social characteristics have previously been.

The concluding element in this model is satisfaction. The basis for making satisfaction the final element of the model is grounded in expectancy theory - the precept that participants engage in recreation activities with the expectation that this will fulfill needs, motivations or other desired states (Bichis-Lupas & Moisey, 2001; Manning, 1999; Moore & Driver, 2005). This fulfillment, the desired state attained, is satisfaction, and as Hull et al., (1992) find in their study, recreation benefits and the experiences attained are not always static, but also dynamic in nature. Therefore to understand why a person is ultimately satisfied with their experience you need to look at all aspects of the person. What social characteristics make up the person or the group undertaking the activity? How did this affect the norms and attitudes, or perceptions of the activity or experience? Did preconceived notions affect them? Finally, the researcher needs to understand what motivations the person has, and how this influences how satisfied s/he is with the experience. Another aspect making this understanding challenging is that there are so many elements dictating a person’s satisfaction with the experience. This has led researchers to change their approach to studying satisfaction, shifting from more descriptive, exploratory, and disciplinary based

studies to more conceptually based, explanatory and multidisciplinary research. Key to this shift is the realization that participants of outdoor recreation differ fundamentally and that these fundamental differences (the elements in the other parts of the model) will affect the measurement and level of satisfaction that a person will have.

In relation to this study, visitors perceived various elements along the trail environment, which were grouped into the following five themes: nature-oriented details, scenic values, management influences, presence of others, and depreciative behavior. When they noticed these elements they assessed them based on the trail environment's potential for understanding and exploration. This led each visitor to have high or low preferences for the elements and hence the setting. These preferences led to both positive and negative experiences. However, due to the visitor's social characteristics, motivations for visiting this part of the Appalachian Trail, and their satisfaction with the trip, all of the participants reported having an overall positive experience. Therefore, a visitor's perceptions and preferences for certain settings cannot be viewed in isolation from the other aspects of the visitor experience.

In conclusion, finding a model that fits visitors' perceptions and explains how their perceptions affect experiences is incredibly challenging. As the research (Manning, 1999) demonstrates, there is not yet a consensus of which element is most important in dictating the experience, nor is there a concise model that links all of these elements. The elements that are included in this model are all important in dictating how a natural setting is perceived and are all interlinked in the process of attaining a satisfactory experience. Finally, implicit to understanding this model is the acceptance that this model follows you throughout life. It is

a dynamic model that is always changing and shifting as a person matures; and similar to life it has to make room for the unexpected events that make life interesting and complete.

Usefulness of this Methodological Approach

Despite the complexity of this issue and the various factors needed to explore and understand trail visitors' perceptions and the effects these perceptions had on experiences – I feel that the methodological approach proved to be an extremely useful means of gathering this information. Using visitor-employed photography combined with post-trip interviews allowed a unique way of exploring visitor behavior on the Newfound Gap part of the AT and allowed me to explore what it was that visitors noticed along the trail. This study therefore provided a rationale for and support for visitor-employed photography's efficacy in capturing what is important to visitors to our natural environments

Therefore, I would highly advise using VEP in coordination with other methods – such as interviews and photograph logs. After analyzing data from the photographs and photograph logs, I began to get a sense of the participants' feelings, impressions, their perceptions of this area and how it had affected their experiences. It was extremely fascinating seeing the trail through their eyes. As Clark-Ibanez (2004) realized, allowing the participant to take the pictures adds an additional layer of intimacy that regular face-to-face interviews sometimes lack. This is one reason why I chose to use visitor employed photography rather than other types of photo elicitation methods or scenic preference ratings (e.g., the Kaplan's method of choice). The type of visual imagery or technique used in this study empowered the trail study participants and allowed them to expose the researcher to aspects of their experiences otherwise ignored or taken for granted by predominantly quantitative methods. VEP let the participants choose what was important to them, and I (the

researcher) did not influence their answers as I would have if I had taken photographs of attributes along the trail environment, which previous research had found important and then had the participants give me a preference rating.

In addition, I found that using triangulation strengthened this study and enabled a more effective exploration of the study participants' experiences. For instance, it was not until I began analyzing the interviews that I was able to observe the internal rationalization, the negotiation, and compromise that took place during this type of trail experience. Having the interviews supplemented the other methods and lead to richer data. For example, I wrote the following observation in my research journal shortly after beginning to code the data and organize it into themes.

With the photographs and the logs you get a quick snapshot of the participant's experience and a brief explanation of that attribute that was photographed. But it is not until you interview the participant that you get the whole package and everything begins to fall into place. For instance, there is a type of negotiation taking place within each participant. When asked about what they like and do not like, they are quick to answer. They even agree that negative perceptions had an effect on their experience. But when asked how satisfied they were, all of the participants overwhelmingly responded that they were incredibly satisfied with their experience. It was almost as though since they had traveled so far, and the weather was beautiful and they had spent all day on this particular trail, that they could easily ignore the negative: the litter, the feces, the overcrowding, the steep, uneven surfaces that were often complained about. Because overall it was a great experience!

Therefore the use of respondent-generated photographs and photo logs combined with the interviews was key to understanding user perceptions and their reflections of their park

experiences. Using VEP alone or with other qualitative methodologies such as interviews or participant observations can elucidate dynamics and insights not otherwise found through other methodological approaches and ultimately produced richer data. Consequently, broader use of these three methods (triangulation) could help us better understand (among other things) a) the importance of trail design, trail management, and the influence of perception on quality of experiences, b) factors that influence visitor perceptions, c) visitor conflict issues.

Finally, qualitative methods do not produce data or results that are as generalizable to populations and data could be interpreted in various ways. Yet, interpretations of data from this study provided in-depth and detailed descriptions, thoughts and observations about the participants' perceptions, feelings, knowledge, intentions, and meanings. Using this approach did not attempt to fit visitors' behaviors into a standardized category, but rather resulted in thick descriptions of people's individual experiences and meanings associated with their visit.

Limitations of the Study

Resources

There were several limitations to this study. Due to budgetary constraints, I was not able to gather as much data as I would have liked. A larger sample size would have afforded a richer database of information from which to draw conclusions. Though the cameras were disposable, the cost of purchasing and developing the pictures is still something that must be taken into consideration when undertaking a VEP study. Researchers using VEP should expect to spend at least \$12-15 on a quality disposable digital camera and approximately \$8-10 developing one roll of film (which includes a very useful digital CD). In addition, this

methodological approach is time consuming especially in regard to the analysis and interpretation stages.

Group Effect

Another limitation is that the participant's perspective/view may have been influenced or partially lost in a group setting. Though I initially set out to give one camera and photograph log to an individual (and wanted just that individual's response), oftentimes I received pictures and entries from their entire group. In addition, both members of a couple or group often wanted to participate in the post-hike interviews and share their experiences with me. Therefore, even if only one person in a group took pictures of elements on or along the trail, I still received impressions and reflections on the "group's" trip experience (rather than just the individual I had given the camera to at the onset).

This concern was broached during a recent paper presentation with some reticence. However, after getting other researchers' feedback and then reflecting on how the process unfolded, I agreed that the dynamics and interplay of participants in a couple or group may have not only enriched the data, but allowed participants to be more comfortable and open with their observations. Furthermore, this approach was not intended to produce generalizable results.

Impact on Participant's Experience

Another concern I had was whether I was impacting participants' experiences by asking them to participate in the study. In her study, Loeffler et al. (2003) recruited participants after they had already completed their outdoor experience "thus leaving the initial experience fresh and untouched by the research process" (p. 552). In addition, they noted in their study, that sending participants out with a camera and asking them to

photograph elements of the experience that were meaningful would have “involved the participant in an intentional, directed search for meaning” (p. 552). This has been the contention of many researchers, leading to an ethical dilemma of how to best gather research without impacting the visitor experience and guiding their behavior. Researchers using VEP in the future will therefore need to address this issue in future studies.

I was also worried that asking visitors to participate in the study would negatively affect their experiences (as it may with post-hike surveys and questionnaires). However, I found that most participants were excited about taking pictures of elements they liked and disliked on the trail. And rather than negatively impact their experience, I found that most welcomed the ability to share what they thought was important. It allowed participants to identify what was important to them and to share these perceptions in a more meaningful and significant way than just filling out a questionnaire after the fact – allowing for richer and more comprehensive data.

What Went Unphotographed?

These factors bring into focus another issue. What went unphotographed? Some study participants expressed that they had taken pictures of negative aspects because they felt I had asked them too. Others claimed that because of the quality of the cameras that they could not capture details that were far away, but still obvious to the human eye. Still other participants articulated that they were more attentive to detail because they wanted to find things that they liked and disliked to record. For instance, at the conclusion of one of the interviews one couple stated the following when asked if there was anything else that they would like to add about their experience.

Interviewer: *Ok, so is there anything else you two would like to add about your experience today?*

Xander: *We enjoyed it.*

Willow: *Yeah, we did. We enjoyed it. Thanks for letting us do this. Because it really helped us you know to be able to pay more attention. Like I felt like I was trying to look for things more than I would have. So it made me a little more observant I guess.*

Consequently, asking this particular couple to participate in the study made them more perceptive of their surroundings. This was an unintended consequence, yet apparently a positive result for them of participation. Hopefully, more participants were also more perceptive of their surroundings and took more joy in the “small” and large details that make nature and our role in it so vital.

In summary, researchers using VEP need to be aware of the cost of using this technique particularly in terms of time, group interaction and the impact this has on individual perspectives (hence the data), the effect participation has on the visitor’s experience, and finally the significance of those elements that went unphotographed. These were all limitations of the study, and will need to be addressed in future application of VEP.

Implications for Management

As noted in Chapter 1, managers are often focused on reducing impacts on the resource while at the same time providing high-quality outdoor recreation opportunities, so that visitors can have high-quality outdoor recreation experiences. However past research suggests that managers often differ from visitors in their perception (types and level of impact) and their evaluation or interpretation of such impacts (positive or negative quality)

(Farrell et al., 2001; Floyd et al., 1997; Kim et al., 2003; White et al., 2001). Therefore, it is important, though challenging, for managers to learn how to reconcile their own perceptions with those of visitors and to draw management strategies that best serve the common good. Managers will need to evaluate and define standards of quality that both safeguard the trail environment and provide a positive visitor experience by collecting information from visitors about what defines satisfying recreation experiences.

Findings from this research indicate that using VEP as a strategy to inventory and understand what visitors prefer may help managers carry out the mission they are entrusted with and to protect, design, and manage future park trails in a way that will sustain park resources. In addition, this method may be useful and applicable in other park and open space studies too. Several themes emerged from this study. These themes all point in the same direction – visitors perceive certain elements along the trail more than others and that these elements are affecting aspects of their experience. Therefore, this next section will outline how employing results from this study and using VEP could potentially enhance trail management procedures.

Applications and Advice

Though results from this study are not generalizable, findings seem to indicate that visitors are noticing five main categories of elements: nature-oriented details, scenic values, management influences, the presence of other people, and other trail users' depreciative behavior. Consequently, managers may want to focus on these categories of trail elements and use them as a foundation when deciding where to allocate scarce funds and resources. Managers could also use these categories of elements as baselines when creating a larger survey geared toward exploring visitors' experiences.

This study also opened up other methods of inquiry and allowed an introspective look at the trail environment through the visitors' eyes. Results demonstrated the importance of park staff stopping to talk to visitors regularly to explore their perceptions of the trail environment. Perhaps, this could be instituted as part of a ranger's job to expose management to new ways of thinking and viewing the trail environment. Participants are often interested in sharing their perceptions and experiences with park rangers and this would allow managers to bridge new levels of understanding between themselves and users. However, managers need to keep in mind that these results may not be applicable to all trail types. For instance, managers need to be aware of the differences inherent in the type of trail they are managing (paved, natural), the location of the trail (backcountry, frontcountry), type of user and activity level desired, and also the region of the country they are in. Hence, being able to identify elements that are applicable to each manager's trail environment is essential to effectively instituting new management techniques.

Another application of this study's results is in the methodology used. Site managers may want to think about implementing a systematic approach to identify and manage recreation impacts using VEP as an exploratory tool. Consider one of the existing science-based recreation impact management frameworks mentioned above such as LAC, VERP, and VIM – these frameworks allow managers to define the appropriate types of recreation opportunities to be provided, the kinds of visitors to be served, and the acceptable limits to environmental changes. Results of studies such as this one could guide managers in understanding what trail visitors are noticing and how different elements are affecting trail users' experiences.

Second, managers need to pay special attention to the method used when evaluating perceptions. Managers may be more familiar with quantitative approaches to gathering visitor data such as questionnaires, surveys, and post-trip evaluations, but this study points to the potential of using other methods such as photographs or written descriptions in accordance with more quantitative methods of assessing perceptions of impacts as valid substitutes. Using VEP in combination with interviews and/or trail impact assessments can help improve managers' current understanding of the relationships among resource impacts, perceptions, and outdoor recreation experiences. Therefore, this technique could aid in trail management and supplement other visitor data collection methods.

Next, VEP can help managers determine what impacts their visitors perceive and are concerned about. For instance, from applying VEP in their parks, managers can discover whether trail visitors perceive physical, biological, or social impacts – which impacts, and how these perceptions are affecting experiences. VEP can help managers explore these questions and find answers so that they allocate scarce resources to those areas that are most affected.

Managers are also charged with planning, designing, and managing natural areas in ways that maintain the resource's ecological integrity while at the same time providing high quality visitor experiences. VEP can help establish an inventory of what visitors find important. This can be accomplished by implementing management techniques that help reduce the amount of impacts most commonly observed by visitors such as litter, tree and plant damage, campfire rings, trail extensions, trail widening, and erosion.

Once managers gather this information, I advise them to have resource-related objectives and to communicate their objectives to visitors. Managers need to be explicit

about the rationale underlying management decisions and policies since visitors may have different backgrounds and training than professional managers and therefore may perceive different elements along the trail differently. They will also need to focus on education and outreach to prevent visitor impacts on trails and other natural resource areas since this study points to the fact that knowledge may impact perceptions. Consider using or adapting existing successful programs such as Leave No Trace. Finally, managers will need to collect information on visitor perceptions since they may be different than managers' perceptions and be cognizant and receptive to understanding the perspectives of diverse groups when choosing which experiences to provide.

Finally, managers are going to need to understand how trail design affects a trail visitor's perception and experience. Informed designers and managers will need to assess whose experiences the trail design will be affecting (e.g., hiker, backpacker, eco-tourist, ATV rider, equestrian, birdwatcher, nature lover, mountain-biker, cross-country skier, dog-walker, etc.) and understand visitors' perceptions of and preferences for different experiences, which will be affected by visitor conflict, crowding, norms, impacts, and benefits. They will also need to understand the design and management issues related to building and maintaining trails (e.g., the types of elements that are attractive to users). Therefore, results from this study can guide the creation of future survey questions and assessments of user behavior.

In conclusion, objective information on trail visitors should play an important role in setting maintenance and management priorities for allocating scarce funds and resources. Evaluating human factors such as perceptions will assist managers to implement a systematic approach to identify and manage recreation resource impacts in accordance with one of the existing science-based recreation impact management frameworks such as Visitor

Experience and Resource Protection (VERP) or Limits of Acceptable Change (LAC).

Implementation will allow managers to define the appropriate types of experiences to be provided, the kinds of visitors to be served, and the acceptable limits to environmental impacts. VEP shows great potential in helping managers get closer to meeting their objectives and carrying out the National Parks Service's mission.

Future Research

The analysis of this visitor data initiates the process of asking whether VEP is a viable approach for capturing visitors' perceptions and experiences and for assessing what it is that visitors find important during their park visits. These are questions that every researcher needs to ask him/herself before undertaking a visitor behavior study. Therefore, additional applications of VEP in the future will be needed to help understand whether this tool can be effective in exploring trail visitors' experiences and when designing trails. Future research using VEP in trail settings should look at different seasons and utilize a larger samples size. In addition, researchers may want to compare perceptions of impacts/conditions along the trail to actual impacts and apply it to different types of trails (e.g., quality levels, urban greenways). Because of the ecological diversity of this area, different seasons will bring a fresh variety of plant life, animals, trail conditions, and opportunities for discovery. Questions arising from the results need to be addressed in further research using a larger sample size and employing more in-depth probes related to why participants reported being satisfied with their trip even though they noticed negative impacts during their trail trip experience. Also, additional research needs to be undertaken that examines the group effect among participants. Exploring the interaction that takes place between participants (while taking pictures, recording thoughts in the journals, or during the

post-hike interview) merits further examination. Another potential area for future research lies in applying this technique with different cultures and varying natural environments, because culture often “filters landscape perception” (Nassauer, 1995, p. 234).

Therefore, cultural differences in regard to perception may need to be taken into consideration in future research. Over the last decade, there has been considerable migration of people within and among geographic regions of the United States. This has started to create an impact on the urban and open space interface. The growth in development of these areas has presented new dilemmas in both the areas where people are moving and for the public land management agencies in those areas. Issues that have emerged from these shifting patterns include: the impacts of rural residential development, conflicts among existing and new residents concerning appropriate local development and management of public lands, and conflicts between people and wildlife. A concurrent issue will be the importance of assessing and addressing the perceptions, values, and needs of our nation’s growing multi-cultural, diverse ethnic minority population with respect to these urban parks and forests and their management. We therefore need to understand how these changes will affect motivations, experiences, needs, and demands for trails. Research and practice, which focus on management issues related to urban parks and forests, rural development, and on understanding the values, attitudes, and behaviors of the ethnic minorities that use these trails, will be invaluable in our field. Information of this nature can be attained by using VEP as an inventory tool to find what different people prefer and how these perceptions affect their experiences and guide us to new realms of trail design and outdoor recreation meaning.

Finally, when the social/human dimension was introduced into the predominantly hard science field of natural resource management, we created an opportunity for integrating

qualitative approaches into our research. Mixed-methods research can be used to develop integrated research that actually addresses the questions visitors, managers, and researchers are asking. Introducing qualitative methods such as VEP into integrative research creates thicker descriptions and richer data, and addresses different questions than quantitative data. Research that combines both approaches in the future can provide more valuable data in guiding future management and provide a more comprehensive understanding of trail users.

Conclusion

The purpose of this grounded theory study was to understand park visitors' perceptions of a specific hiking trail environment and to explore how their perceptions affected their overall recreation experiences. The study revealed that visitors to this part of the Appalachian Trail are noticing various elements along the trail, such as nature-oriented details, scenic values, management influences, the presence of others, and depreciative behavior. In addition, results from the study indicated that noticing these elements affected different aspects of visitors' experiences. For instance, perceiving positive elements of the trail environment may have enhanced the quality of the participants' *overall* experiences. Yet, noticing negative elements did not detract significantly from visitors' *overall* experiences.

However, there is still a significant gap in our understanding of visitors, which will need to be addressed in the future. Consequently, though this study adds to an increasing body of knowledge focused on visitor perceptions and visitor employed photography – these findings provoked many more questions for future research and practice. Results from this study will therefore be valuable in developing future research tools and instruments for

measuring visitor perceptions and in providing a guide for future recreation behavior research.

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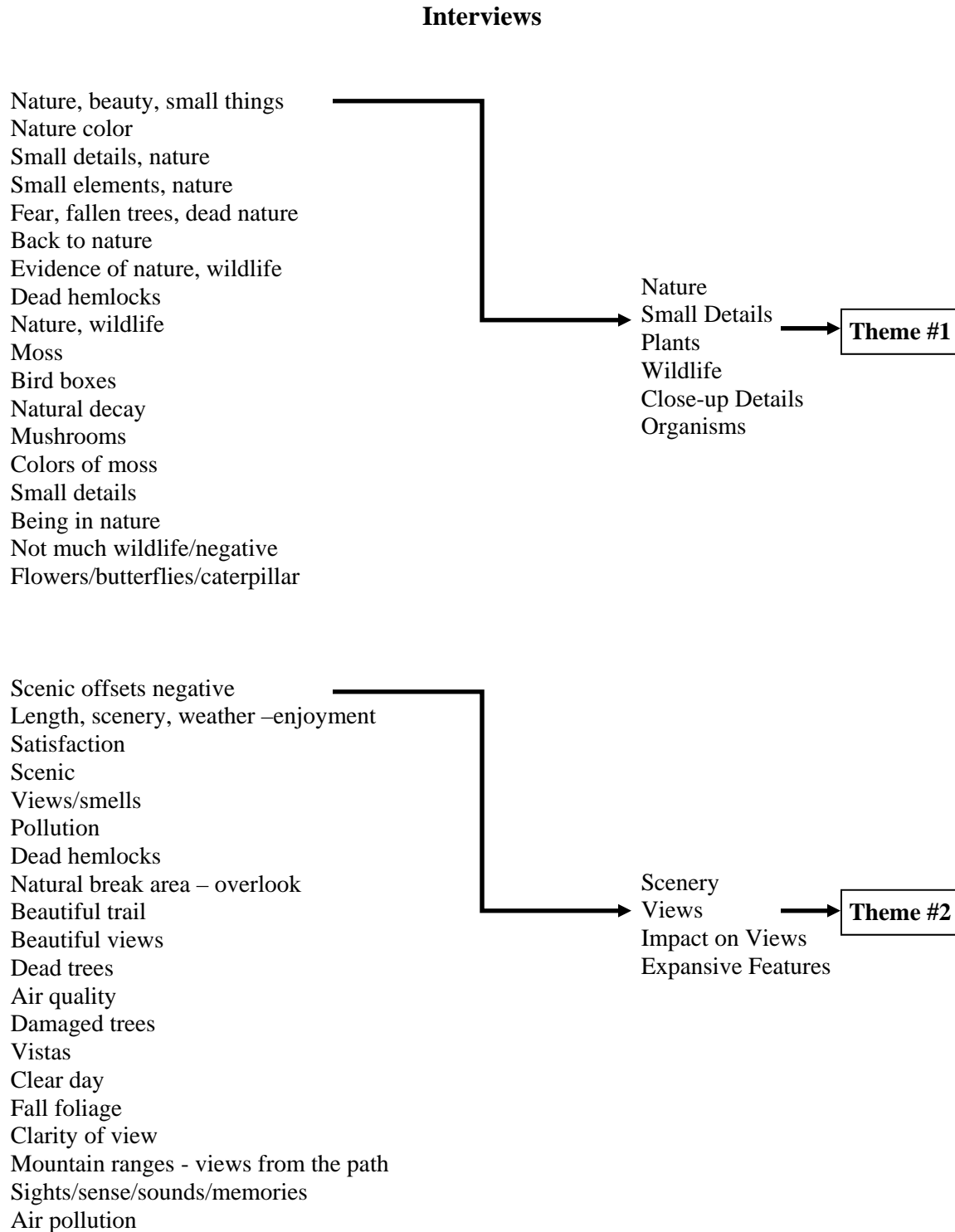
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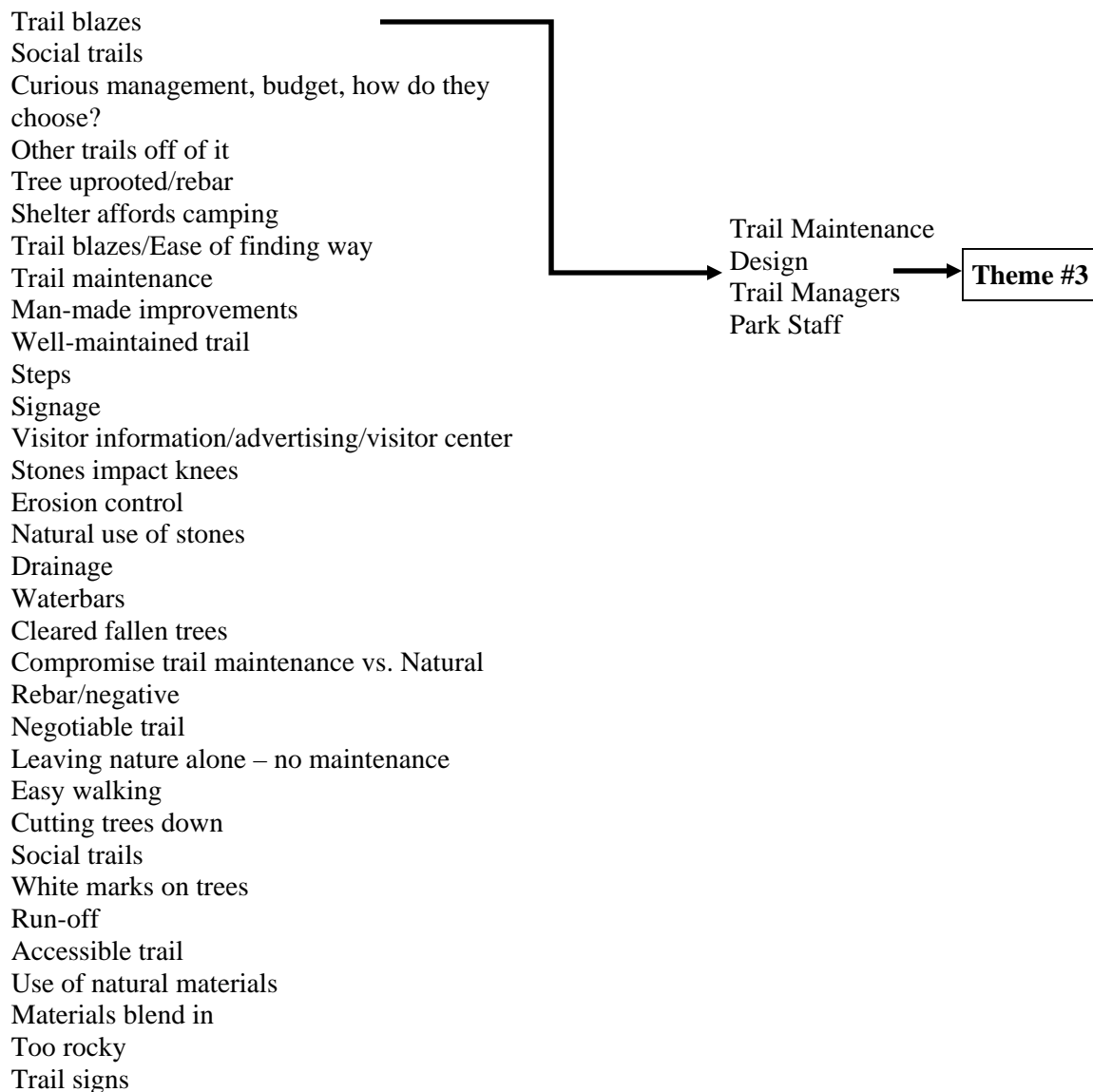
APPENDICES

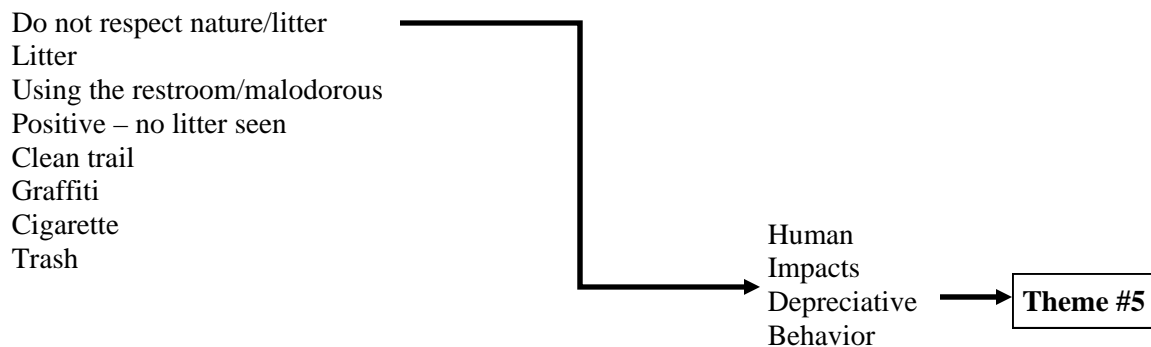
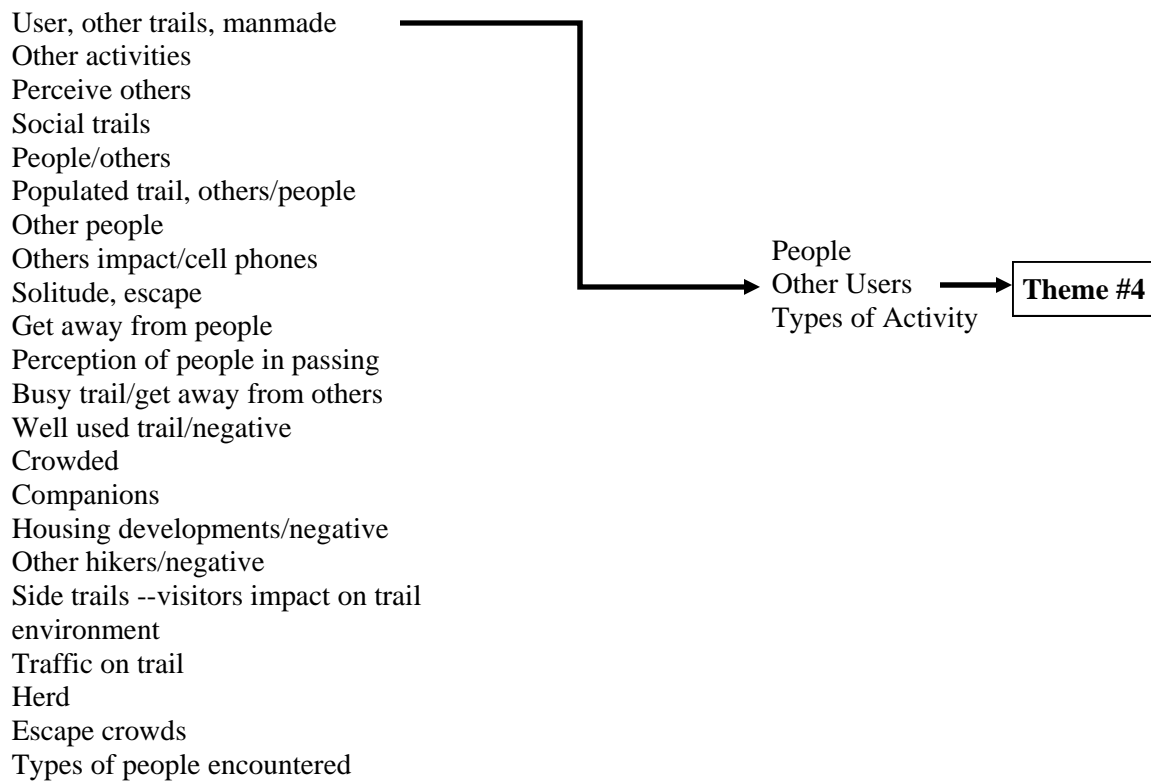
APPENDIX A: INTERVIEW GUIDE

1. How was your trail trip today?
 - a. Probe: Did you enjoy yourself? Why/why not?
2. What types of activities do you usually do on the trail?
3. What motivates you to use this trail? Visit this park?
4. How would you describe the group that you were with today on this trail trip?
5. What types of features along the trail did you find yourself photographing?
 - a. Probe: What features/elements do you like/not like on the trail?
 - b. Probe: What was missing from this trail environment that you usually like to see? Why?
 - c. Probe: What do you wish had not been on or around the trail during your trip today? Why?
6. How did the _____ (feature) affect your experience?
 - a. Probe: Did it have a positive/negative effect on your experience?
 - b. Probe: Why did it have this effect?
7. How familiar are you with this trail?
8. Are you familiar with the term resource impacts?
 - a. If yes, how much?
 - b. If not define for them.
 - c. Did you notice any resource impacts and if so did they add/detract from your overall experience? Why?
9. Overall how satisfied were you with your trail trip? Would you visit this trail again in the future? Why/why not?

APPENDIX B: STUDY STRUCTURE – CODING DIAGRAM

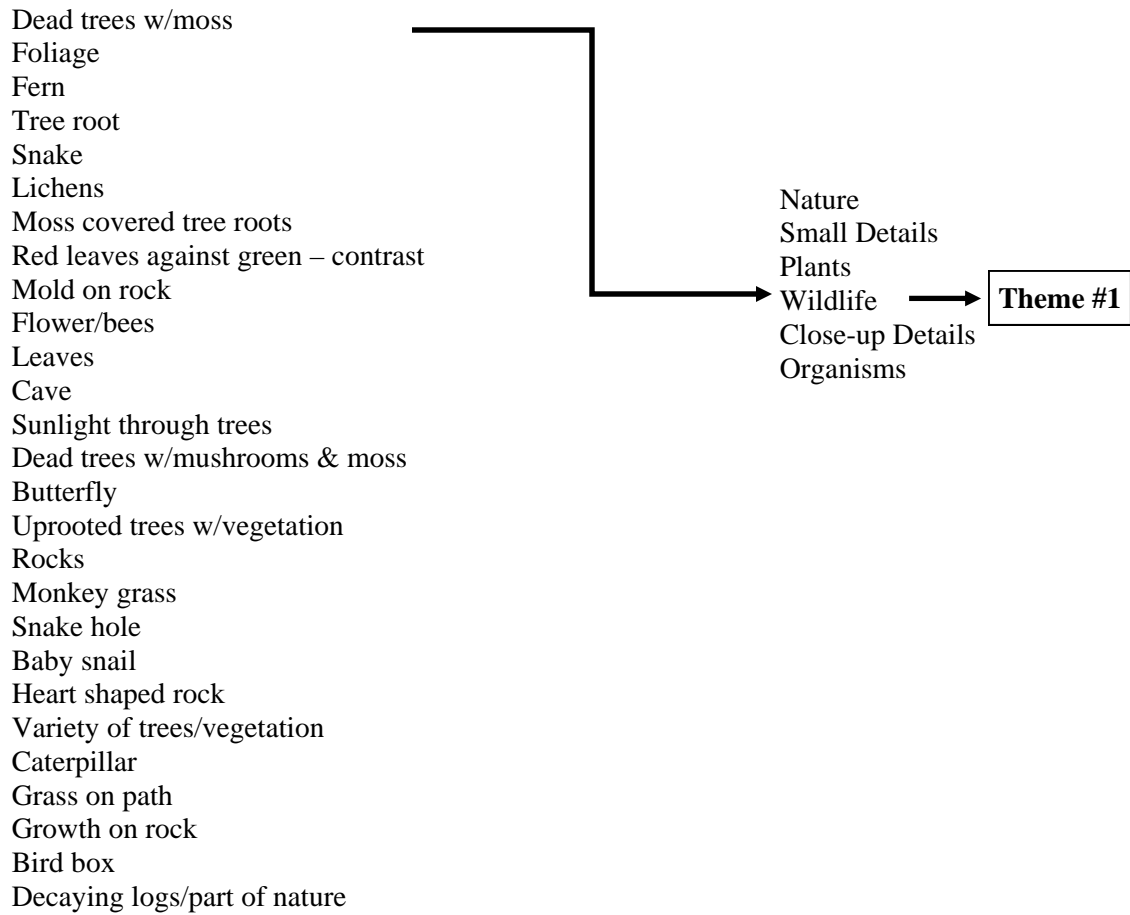


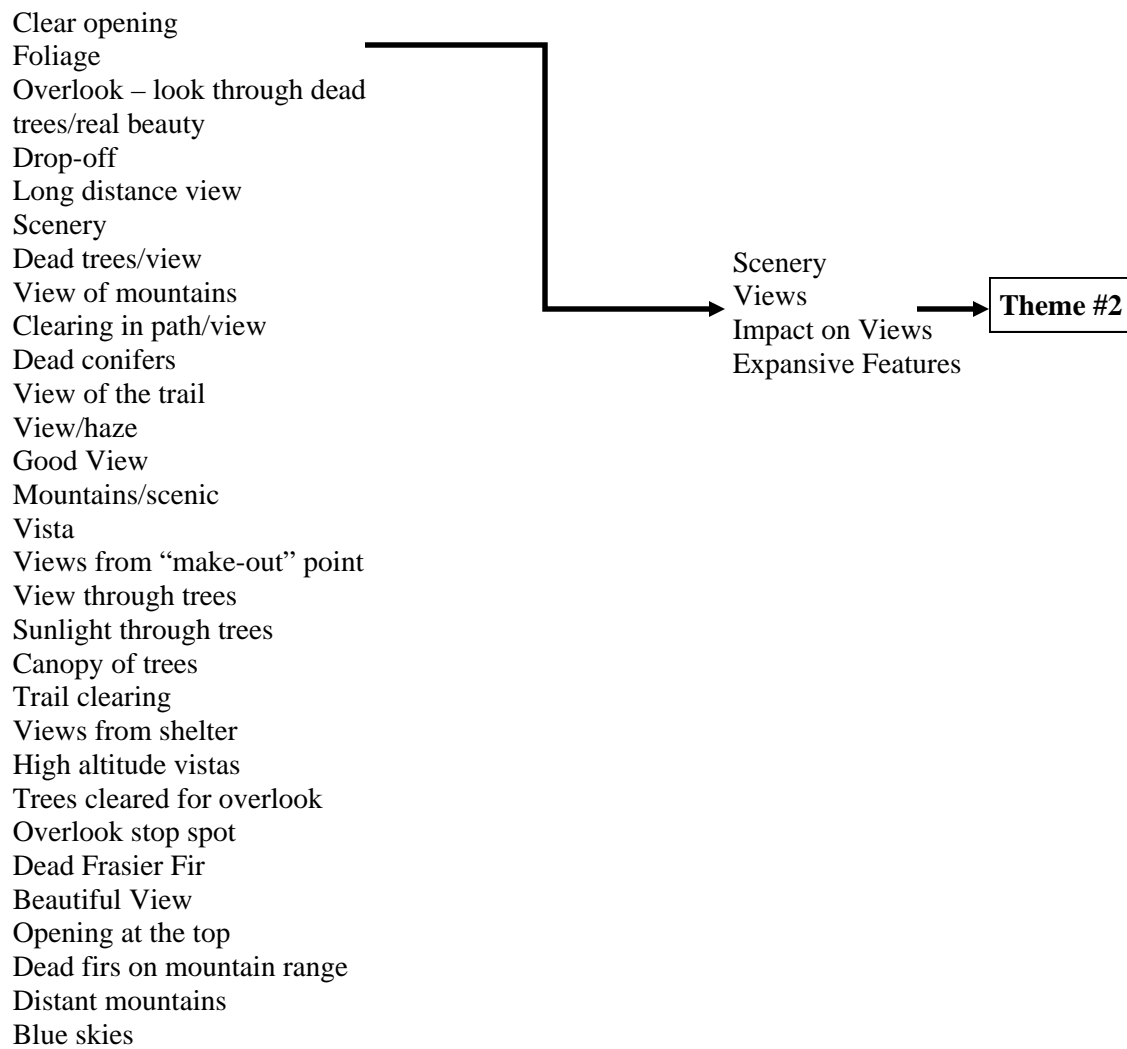


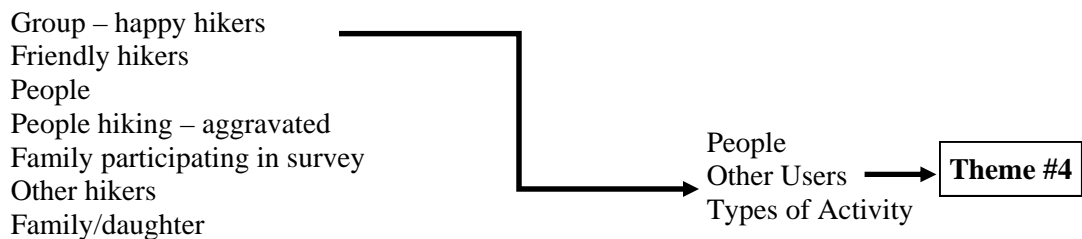
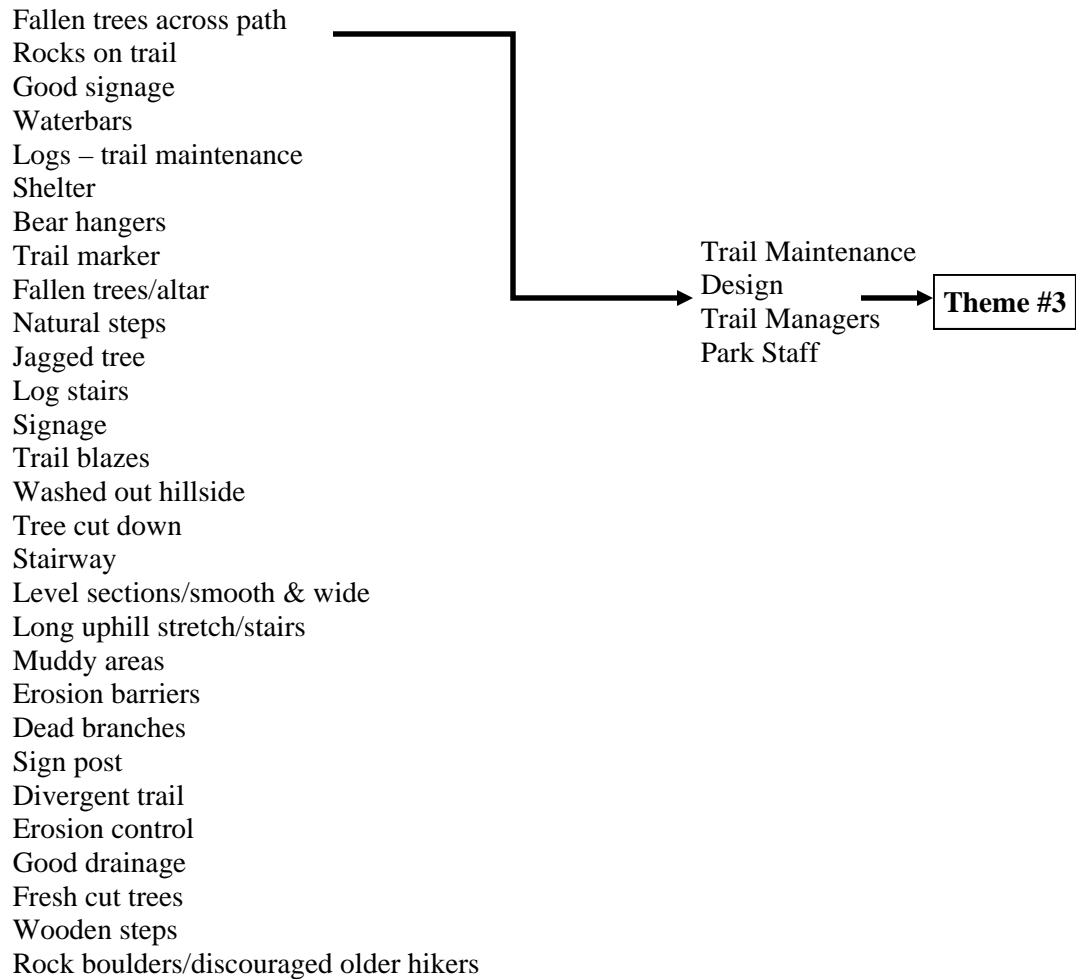


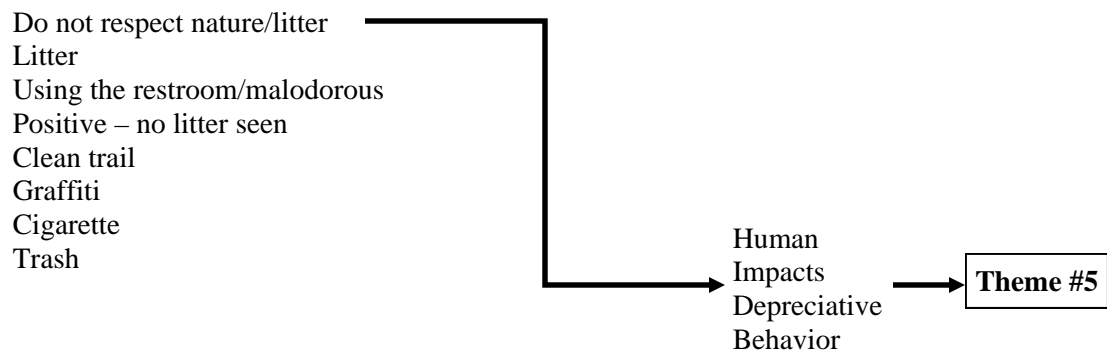
KEY: Theme #1: Nature-Oriented Details
 Theme #2: Scenic Values
 Theme #3: Management Influences
 Theme #4: Presence of Others
 Theme #5: Depreciative Behavior

Photograph Journals









KEY: Theme #1: Nature-Oriented Details
Theme #2: Scenic Values
Theme #3: Management Influences
Theme #4: Presence of Others
Theme #5: Depreciative Behavior

APPENDIX C: CONSENT FORM

This survey is being conducted by North Carolina State University as part of a research study. Its purpose is to gather information about trail users' perceptions and experiences in the Great Smoky Mountains National Park to help park managers better meet the needs of trail visitors.

Your participation in this survey is voluntary. However, **your cooperation is extremely important, because each interviewed person will represent many other trail users who were not surveyed.** All responses are strictly confidential and results will be summarized so that the answers you provide cannot be associated with you or anyone in your group.

There are two parts to the survey. The first part involves you (the participant) taking pictures along the trail and documenting your pictures and experiences in your Photograph Log Booklet. At the end of your hike today, we will collect the camera (so we can keep the photographs) and the log booklet. If you would like a copy of your photographs, they will be sent to you once the study is completed. The second part of the study entails a brief interview with the primary investigator at the conclusion of your trail trip. All subjects' identities will be coded on the photographs and interview data, and the key to the code will be destroyed once all the data is collected.

APPENDIX D: STUDY PARTICIPANTS' DEMOGRAPHIC INFORMATION

| Survey | Times Visited Trail | Household Income | Education | Age | Male¹ | Female¹ |
|---------------|----------------------------|-------------------------|------------------|------------|-------------------------|---------------------------|
| 50 | 1 | Not Available | College | 30-50 | | Anya |
| 51a | 1 | 100000> | Post Graduate | <30 | | Buffy |
| 51b | 1 | 100000> | Post Graduate | <30 | Angel | |
| 52 | 1 | 100000> | Graduate | 30-50 | Bob | |
| 53a | 1 | 25,000-49,000 | College | <30 | | Caitlin |
| 53b | 1 | 50,000-74,999 | College | <30 | | Cordelia |
| 54a | 1 | 50,000-74,999 | College | <30 | Charles | |
| 54b | 1 | 50,000-74,999 | College | <30 | | Lilah |
| 55a | 1 | 25,000-49,000 | College | 30-50 | Donnie | |
| 55b | 1 | 25,000-49,000 | College | 30-50 | | Elizabeth |
| 56a | 1 | 100000> | College | 30-50 | | Faith |
| 56b | 1 | 100000> | College | 30-50 | | Julie |
| 57 | 1 | 25,000-49,000 | College | <30 | | Joyce |
| 58 | 3 | 100000> | Graduate | 30-50 | | Harmony |
| 59 | 1 | 50,000-74,999 | Graduate | 30-50 | Giles | |
| 60 | 1 | 50,000-74,999 | High School | <30 | | Glory |
| 61a | 2 | 25,000-49,000 | High School | <30 | Jonathon | |
| 61b | 2 | 25,000-49,000 | High School | <30 | Lorne | |
| 62a | 1 | 50,000-74,999 | Graduate | 51> | Lindsey | |
| 62b | 1 | 50,000-74,999 | Graduate | 51> | | Tara |
| 63 | 1 | 50,000-74,999 | College | 30-50 | | Dawn |
| 64a | 2 | 50,000-74,999 | Graduate | 51> | Connor | |
| 64b | 2 | 50,000-74,999 | Graduate | 51> | | Winifred |
| 65a | 1 | 100000> | Graduate | 30-50 | Riley | |
| 65b | 1 | 100000> | Graduate | 30-50 | | Summer |
| 66a | 1 | 50,000-74,999 | College | 51> | Wesley | |
| 66b | 1 | 50,000-74,999 | College | 51> | | Sarah |
| 67a | 1 | 50,000-74,999 | College | 30-50 | Spike | |
| 67b | 1 | 50,000-74,999 | College | 30-50 | | Tina |
| 68a | 1 | 25,000-49,000 | High School | 51> | Oz | |
| 68b | 1 | 25,000-49,000 | High School | 51> | | Gigi |
| 69a | 1 | 25,000-49,000 | College | <30 | Xander | |
| 69b | 1 | 25,000-49,000 | College | <30 | | Willow |

¹ Study participants were given Pseudonyms.