

**Measuring the Multiple, Deep, and Unfolding
Aspects of the Wilderness Experience
Using the Experience Sampling Method**

by

William T. Borrie

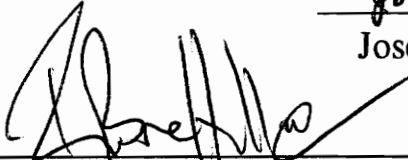
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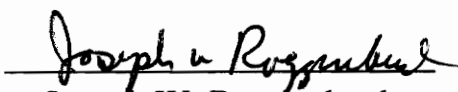
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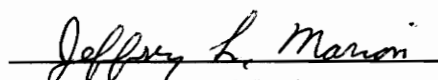
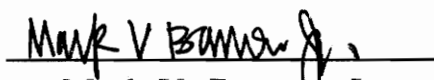
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Abstract

This study of the wilderness visitors to the Okefenokee National Wildlife Refuge, Georgia sought to better define the dimensions of the lived wilderness experience, and the modes in which it is experienced; to understand the dynamics of the wilderness experience and how the wilderness experience changes across time; and to examine the relationship between the wilderness experience and ideal leisure. Because of people's apparent difficulty in accurately reporting experiences after the visit, the Experience Sampling Method was the primary data collection procedure.

Six aspects of the wilderness experience were identified, inspired by the writings of Henry David Thoreau, John Muir, Aldo Leopold, Sigurd Olson, and other wilderness writers : oneness, primitiveness, humility, timelessness, solitude, and care. Five modes of experiencing the wilderness were developed based on the work of environmental psychology and leisure scholars : focus on self (introspection), focus on others (socialness), focus on task (task orientation), focus on emotions (emotional intensity), and

focus on environment (environmental sensitivity). Confirmatory factor analysis, principal component analysis and reliability analyses were carried out to assess the stability and meaningfulness of the scales used to operationalize these dimensions.

Sixty-two visitors were asked to carry and respond to the study questionnaire during multiple moments of their visit to the Okefenokee Wilderness. Oneness, humility, timelessness, and care appeared to be pertinent dimensions of the wilderness experience, as were the more traditionally measured values of solitude and primitiveness. Using a repeated measures analysis of variance, time was a significant factor in determining item response, thus demonstrating the dynamic nature of the wilderness experience. Ideal or peak leisure, operationalized by a combination of three measures of leisure (intrinsic motivation, perceived freedom, and connotative leisure) and high levels of intensity, was found to be correlated with raised feelings of oneness, humility, primitiveness, and solitude. The Experience Sampling Method identified important multiple dimensions of the wilderness experience, and demonstrated the dynamic nature of the experience more vividly than past post-hoc measures. However, the study also identified potential problems of ESM as a data collection instrument in wilderness : concerns of obtrusiveness on the visitor's experience, behavioral reactance, and respondent compliance.

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Chapter 1 - Introduction

Companionship with the gods and true leisure - this is perhaps what modern man seeks when he goes to the wilderness. Olson (1966, p. 216)

Introduction

Wilderness. The very word conjures up a myriad of images : fierce storms, in rugged locations; peaceful moments, serene beauty; and strong individuals seeking sanctuary in the wilds of the forest or desert. The word wilderness evokes many symbols of the land. Indeed, our notions of wilderness trace nicely the historic relationship Americans have with the natural world. From the fear and intimidation that the wild forests presented pioneers, to the spiritual retreat that many seek today, wilderness, as a concept and as a designation, has become a source of national pride, and has been said to be a crucial part of what it means to be an American (Nash, 1982). The opportunity to experience true wildlands, and the knowledge that there is still such land available, rest easily with most Americans' view of themselves and of their country. The notion of wilderness, and of the wilderness experience, today has very widespread support, even among those who are unlikely ever to visit wilderness.

The basis of support for wilderness, therefore, seems to lie not just in the recreational opportunities that wilderness provides, but in the opportunities for engagement that it offers. The wilderness experience is more than the opportunity to hike or canoe, it is more than the chance to enjoy beautiful countryside. Joseph Sax (1980) suggests :

Is it simply the setting, the fascinating stream or the grand scenery ? Or is there something about the activity itself essential to production of profound satisfaction ?

Neither the setting nor the activity in itself seems to be decisive; rather, it is the presence

of something capable of engaging, rather than merely occupying, the individual - a stimulus for intensity of experience for the full involvement of the senses and the mind.

(p. 29)

Visiting wilderness is more than merely recreating in wild country. It is symbolic, and it is intense. It is a chance to seek and find a new relationship with the natural world. It seems to be leisure of a particular kind, one that bears more meaning and significance than just recreating. Perhaps it is a spiritual experience, defined as an opportunity to understand our 'place' in the world (McDonald and Schreyer, 1991), to increase our awareness of the community of life (McDonald et al., 1988).

Wilderness provides a very intimate opportunity to relate to nature. There are few, if any, external distractions. By definition, evidence of human activity is kept to a minimum. There is a sense of escape in wilderness, of escaping the pressures and responsibilities of the working world. Wilderness in America is not home, in the domestic sense, and those who choose to go into wilderness are visitors to this place. It is a location of new horizons and fresh possibilities. Nature is allowed to develop its fullest extent, since naturalness and natural processes are mandated in the 1964 Wilderness Act. Wilderness is clearly different from the social and physical environments in which most Americans live.

Nature might be dealt with on its terms, in as natural a manner as possible. Wilderness provides an opportunity for the visitor not so much to manage or garden the environment but to engage it directly in as natural a fashion as possible. Wilderness fosters an authentic relationship with the natural world, perhaps permitting the fullest development of humans, other creatures and the earth itself. Wilderness provides one of the greatest opportunities

for both people and nature to freely co-exist, beyond the constraints of technological society.

Wilderness is also a symbolic resource. It represents the maturity and wisdom of a society that recognizes the value of a natural interaction between humans and the environment. It reflects the political will, and therefore perhaps, the values of the people. The ideas of the general populace that led to the preservation of wilderness and of the wilderness experience were greatly influenced by writers such as Henry David Thoreau and John Muir. The philosophy of wilderness, an encapsulation of the values and meanings of wilderness, is derived from the works and actions of these great men. Their ideas not only circulated in intellectual and academic circles, but also received widespread readership and consideration across the country. Modern media widened and increased their impact. The concepts espoused by these early wilderness philosophers influenced conservation and preservation leaders, as well as legislators. Although the idea of wilderness is heavily freighted with personal and symbolic meaning, a common core runs through it, a core attributable to the influential writers and philosophers.

The Wilderness Act of 1964 represents one window on this underlying body of wilderness thought. It was a long eight years from the introduction of the nation's first wilderness bill in 1956 until its final passage, by a vote in the House of Representatives of 374 to 1. Compromises and simplifications had to be made in the various drafts, including the initial one, to ensure passage of what for years had been an exceedingly controversial measure. The system which the Act established, the National Wilderness Preservation System, was small but would soon grow. Indeed, the study, designation and legislative protection of wilderness lands have continued to occupy the attention of the public, resource managers,

and Congress over the last 30 years. Political support for wilderness, although now countered by strong private-rights constituencies, is still strong, and the designation of federal and state lands as wilderness continues (for example, the Arizona Desert Wilderness Act of 1990, the Los Padres Condor and River Protection Act of 1992, the Colorado Wilderness Act of 1993 and the California Desert Protection Act of 1994).

While the 1964 Wilderness Act is an articulate statement of wilderness ideals, it could not and would not encompass the entire meaning and significance of wilderness in the American cultural context. Although legislation reflects American ideals, it is constrained by the framework and milieu of law, the realities of budgets, as well as the compromises of the political process. Thirty years have passed since the passage of the 1964 Act, and the acreage of wilderness has increased from 9 million to 104 million. Subsequent wilderness legislation and administrative regulation of land management agencies evolved, but these developments are mainly within the definitions of the 1964 Act. In particular, the administrative focus remains on recreational values of wilderness, and a particular type of recreation at that. In recent times, wilderness interest, particularly in academic and activist communities, has shifted to more holistic concerns. Newer ethical stances such as Deep Ecology, Ecofeminism, and the Gaia hypothesis have focused on broader values of wilderness than recreation. Wilderness, and wilderness experiences, have come to represent a symbol and a metaphor of a better relationship to wild nature. These ideas, like the Wilderness Act, have their origins in the body of work of scholars like Henry David Thoreau, John Muir, Aldo Leopold, and Sigurd Olson. Investigation of the meanings of the wilderness experience and of the value of wilderness should not be governed solely by the words of the 1964 Act. Instead, attention should also be given to some of the richer,

more holistic dimensions common to cultural meanings and writings of wilderness scholars.

The 1964 Act defines wilderness to be :

An area of undeveloped Federal land retaining its primeval character and influence ... and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may contain ecological, geological, or other features of scientific, educational, scenic or historical value.

The mandatory attributes of wilderness were, therefore, size, naturalness, and solitude or primitive recreation (Hendee, Stankey and Lucas, 1990). The Eastern Wilderness Act of 1975 designates land as wilderness in order to :

Preserve such areas as an enduring resource of wilderness which shall be managed to promote and perpetuate the wilderness character of the land and its specific values of solitude, physical and mental challenge, scientific study, inspiration, and primitive recreation.

Note that both the Acts specifically mention the recreational value of wilderness. However, the Eastern Wilderness Act extended, at least for the wilderness areas in the eastern half of the United States, the recreational values to include challenge and inspiration, as well as reinforcing solitude and primitiveness. Allin (1982), in discussing the political pressures during the passage of the 1964 Act, mentions that supporters of the bill strongly argued that, "Wilderness must be valued for recreation, the more so as our daily lives become

more regimented and mechanized, but it must also be valued for history, education and science” (p. 114).

And so, while these Acts are not the fullest articulation and implementation of wilderness ideals, even they recognize wilderness to be more than just solitude, primitive recreation and naturalness. Focusing entirely in our planning, management and research on the ability of wilderness to provide naturalness, privacy, and solitude is only addressing part of the American wilderness story, and is not fully within the spirit of the 1964 and 1975 Acts. The ideas of wilderness, as articulated by the premier wilderness writers, go even deeper. While the federal land agency managers may have tried to embrace these deeper meanings, political and legal pressures led them back to inventory systems like the 1977 RARE II Wilderness Attribute System which continued to focus on solitude, absence of facilities and naturalness (Hendee et al., 1990). Some researchers have begun to look beyond solitude in their search for indicators of the quality of the wilderness experience, including attributes such as challenge, closeness to nature, intimacy, and freedom of choice (Merigliano, 1990).

Perhaps what wilderness offers is the opportunity to live in the most authentic manner possible. The wilderness experience is more than just recreation, it allows us to experience a closer and more natural relationship with nature. Continental philosopher Martin Heidegger suggests that the human world cannot continue to separate itself from other beings. A person who cares for, and allows the fullest blossoming of all beings lives an authentic life, a life true to essential human nature, according to Heidegger. (See Appendix 1 for a discussion of Heidegger’s ideas and their relevance to wilderness.) As Driver and others (1987, p. 302) suggest “wilderness acquires importance as a setting for answering

the deepest questions of human existence, for celebrating the creative power behind life and things, and for understanding the unity of them all.” McDonald and Schreyer (1991) would call this spirituality and suggest that the wilderness experience is one of the most often cited examples of the combination of higher states of consciousness and of leisure.

A focus on the wilderness experience as a lived moment of lucidity mirrors the works of some leisure scholars. Mihaly Csikszentmihalyi (1975) describes ideal leisure as an intense experience of involvement with the moment called “flow”. Stokowski (1994, p. 4) describes the current interest of leisure psychologists as focusing on leisure as “a subjective, internal feeling of sublime experience, freedom, satisfaction and emotion.” The link between wilderness and leisure has been made by several authors (e.g., Swan, 1977; Scott, 1974; Young and Crandall, 1984) perhaps suggesting that wilderness provides the opportunity for ideal leisure. As Pigram (1993, p. 406) writes, “there appears to be substantial anecdotal and empirical evidence that natural environments provide opportunity settings conducive to the kind of satisfactions sought from many leisure pursuits.” Kelly (1987) would suggest that leisure is the opportunity for one to have the freedom to exist in the fullest extent possible, but that leisure must be considered a part of, and contingent upon, our relationship with the lived environment. Rolston (1991, p. 402) suggests that “when free from the demands of work, at leisure we realize an attachment to landscape.” Wilderness is a chance to escape some of the constraints of society and to establish relationships with the natural environment. Perhaps the deeper meanings of wilderness encompass the ideals of leisure. Perhaps the wilderness experience is conducive to ideal leisure as a lived moment in time. As Olson (1966, p. 216) says, “companionship with the Gods and true leisure - this is perhaps what modern man seeks when he goes to the wilderness.”

Further, time has always been a component of conceptions of wilderness. In order to truly escape from the effects and constraints of modern society, the wilderness visitor required time to distance him or herself. A sense of escape also entailed spaciousness, which might entail long vistas and large areas of wilderness. The wilderness experience consists of magic moments, of highs and lows, of loosening the grasp of the outside world, and of readying for the return to it. The experience changes from moment to moment, and from day to day.

Indeed, just as there are anticipatory and recollection phases of a recreational experience, so too might there be phases of a on-site wilderness experience. Perhaps during the first part of the trip, everything is so foreign, so new, that all of the visitor's attention is taken up by it. Maybe as familiarity is gained the visitor becomes more at-ease, and begins to notice different aspects of the experience. The visitor might notice more, and smaller details of the environment. Perhaps, attention might shift internally. As the mundane tasks of visiting the wilderness (hiking, paddling, cooking, etc.) become second nature, the mind is freed to think of other concerns. As the outside world fades from influence, perhaps a new perspective on life is gained. Some visitors may not feel the urge to rush back to society. But, as the end of the trip draws near, visitors may begin to mentally and physically prepare for their exit. Perhaps, again, cognitive energies towards the end of the trip concentrate on the task and its outcomes, and less on the processes of wilderness. Just as Nash (1982) wrote, "because wilderness is a state of mind, the conditions under which one enters it are vital to the overall wilderness experience" (p. 340), so does the influences and successes of phases of the trip affect the next round of expectations and experiences. The internal dynamics of the lived experience in wilderness as much determine the processes

and outcomes as does the anticipation and preparatory stages of a visit. Thus, an investigation of the wilderness experience should include some consideration of the effects of time.

While the meanings and values of the wilderness experience appear to be time-dependent, there is a trend among wilderness users towards shorter lengths of stay in wilderness (Marion et al., 1993; Roggenbuck & Lucas, 1987). Many explanations could be made for this, including growing workplace commitments, decreasing options for co-ordinating leave time among friends and family, and increasing regulation of wilderness use. But perhaps more interesting is the possible explanation that visitors are getting what they seek in shorter periods of time. Equally, what they are seeking may be changing. Perhaps the actual on-site experience is only symbolic of a greater meaning. The particular visit may be one in a life-course of wilderness experiences, and so triggers already established schemas, skills, and relations with wild nature. Each brief visit may be refreshing or reinforcing attitudes and joys of prior wilderness encounters. Or perhaps the crucial aspects of the wilderness experience occurs relatively quickly. It may simply be the contrast effect from the outside-of-wilderness world that is particularly potent. Finally, today's wilderness visitor may not be obtaining such values as timelessness and oneness with the earth, which Sigurd Olson, the wilderness bard of the Boundary Waters Canoe Area, suggested only occurs after long passages of time in wilderness (Olson, 1976).

Problem statement

The problem statement for this study, therefore, is that our current investigations of the wilderness experience are incomplete. The meaning of wilderness, and of the quality of the wilderness experience, as operationalized by most researchers and land management

agencies, have not sufficiently included the deep and spiritual values that were part of the inspiration of wilderness. Wilderness and the wilderness experience apparently contains more dimensions than solitude, primitive recreation and naturalness, and little research work has been done to investigate other dimensions.

It has been suggested that wilderness provides the conditions for ideal leisure, that the wilderness experience is the epitome of leisure. And yet, that link has seen little empirical examination. The theoretical discussion of leisure and of leisure experiences is complementary to much of the influential writing about wilderness. Perhaps there is a shared philosophical foundation to the ideas of wilderness and of leisure, such as the work of Heidegger. Our understanding of the wilderness experience might be enhanced by incorporating some of the conceptual perspectives and methodologies of the leisure theorists.

Both the leisure experience and the wilderness experience are processes. While Schreyer, Knopf and Williams (1985) called for a re-conceptualization of recreation resource research toward the process of recreation behavior, little empirical work has examined the process of recreation experiences. It would appear that the time dimension of the lived wilderness experience has received little attention, and has not been measured in the American wilderness context.

Part of the reason for failing to examine the wilderness experience as it is lived is the predominance of a deterministic model of wilderness recreation based on predictable and desired outcomes or benefits (Patterson, Williams and Scherl, 1994). In contrast, one might view the wilderness experience at a particular moment of time, as a state that can be

reported to researchers. This would allow a closer look at the wilderness experience as it unfolds across time.

But, this would require different research approaches than have typically been applied in wilderness. The ability of visitors to accurately remember their experiences in a post-hoc interview or questionnaire is limited, the more so the longer the period of time between the experience and the recollection and report. Leisure researchers faced with a similar dilemma developed a methodology called the Experience Sampling Method (ESM), that allowed a sampling of moments in peoples' lives. The ESM appears to have potential for studying the lived experiences in wilderness, but problems also exists. The ESM has not been fully tested in wilderness.

Study objectives

The basic objective of this dissertation is to examine the content of wilderness experiences. More specifically, the study objectives are : (1) to investigate the multiple dimensions of the wilderness experience, especially the deeper, spiritual, symbolic and ethical attributes that make it particularly meaningful; (2) to examine the relationship between the wilderness experience and ideal leisure; (3) to study how the wilderness experience ebbs and flows across time; and (4) to apply the Experience Sampling Method to the study of the wilderness experience.

Study overview

The discussion that follows expands what is meant by wilderness, and the value of the wilderness experience as expounded by the greats of the wilderness literature. In particular,

six dimensions of wilderness are discussed : oneness, humility, primitiveness, timelessness, care and solitude (chapter two). This is followed by a discussion of previous research on the wilderness experience, mainly carried out by environmental psychologists. Five modes of environmental (wilderness) experience are discussed : a focus on self, a focus on others, a focus on the environment, a focus on the task, and a focus on emotions and feelings (chapter three). An examination of the meaning of true leisure follows (chapter four), which lays the foundation for a test of whether wilderness is a particularly potent leisure experience.

In seeking to investigate the wilderness experience, attention is paid to the research tools available. In particular, in seeking to get closer to the lived experience and reactions as they occur, post-hoc questionnaires may not be appropriate. The ability of research subjects to verbally report, in an accurate fashion, the state they were in while in wilderness is questioned, and possibly better measurement tools are suggested (chapter five). The Experience Sampling Method is introduced (chapter six), and the methods used in applying the ESM to two southeastern wilderness areas is discussed (chapter seven). Juniper Prairie Wilderness of Florida represented the pre-test site of this investigation; Okefenokee Wilderness of Georgia was the main study site.

In the first of three results chapters, the reliability and validity of questionnaire items developed to tap the six aspects, and five modes, of the wilderness experience is examined (chapter eight). The unfolding nature of the wilderness experience, particularly the influence of time, is then examined (chapters nine and ten). And then the relationship of ideal leisure to the dimensions of the wilderness experience is considered (chapter eleven).

In concluding (chapter twelve), the implications of these results are raised, and the question of what is the wilderness experience, how it can be researched and why is it important to society is again raised. In particular, the usefulness and potential of the Experience Sampling Method for the study of the lived wilderness experience will be discussed.

Chapter 2 - The Dimensions of the Wilderness Idea

Introduction

The Wilderness Act of 1964 (PL 88-577) has provided a stable and statutory basis upon which to manage and protect certain wildlands of the United States. The language of the Act and the individuals involved in the writing of the Act were part of what could be called a wilderness literary tradition. Each generation of these writers, conservation and preservation activists, and philosophers built upon the work of those who went before them. The ideas and actions of men like Henry David Thoreau, John Muir, and Aldo Leopold still inspire the writers and activists of today. From these giants of American environmental literature comes a common thread of wilderness thought, a literary and philosophical statement based on the profundity of the wilderness experience itself. This common thread is a history and a philosophy that tries to capture the importance of wilderness and being in wilderness to the modern person. For some, the idea of wilderness provides a metaphor for what is right and wrong in the world. And it is an achievement, in and of itself, that this body of thought was encapsulated in legislation, however imperfectly.

The Wilderness Act (1964) defines wilderness as “an area of undeveloped Federal land retaining its primeval character and influence” that provides “outstanding opportunities for solitude or a primitive and unconfined type of recreation.” This definition reflects the initial need of any wilderness legislation to protect and preserve the roadless and undeveloped land of the nation. But it also enshrines recreation as the primary human use of the land so set aside. However, as Sigurd Olson (1966) was soon thereafter to write :

One of the great challenges confronting those who believe in the preservation of wilderness is to build a broader base of values than physical recreation, a base of sufficient depth and solidity to counter the charge that it exists for only a privileged and hardy few.

(p. 215)

Indeed, it is one of the fundamental theses of this dissertation that there already existed such a solid ethic of wilderness, and that our investigations of the wilderness experience should expand to include it.

Experiencing wilderness is more than “recreating.” While the Wilderness Act of 1964 focused primarily on the types of recreation experiences that should be provided for by management, there is indication of deeper concerns than the provision of opportunities for hiking, camping, fishing and so on. Two main criteria distinguish areas defined as wilderness under the 1964 Act; degree of naturalness and the potential for solitude (Hendee, Stankey and Lucas, 1990). However, the so-called Eastern Wilderness Act of 1975 (PL 93-622) allowed that areas of previous human activity could still be classified as wilderness. This undermined any arguments of strict purity, and acknowledges that the criterion of naturalness is largely one of perception and interpretation. Rather, the Act seemed to encourage an emphasis that wilderness should be seen as an opportunity to experience lands where natural processes are allowed to operate as freely as possible. This approach emphasizes the importance of wilderness as an intuitive, direct and free way of knowing nature. The Eastern Wilderness Act was also the first time that ‘inspiration’, or reflection, was mentioned as a specific value of wilderness.

The stillness of wilderness provides the time and space for reflection on our relationship with the natural world. According to a variety of philosophers (Spinoza, Heidegger, etc.)

there is no such thing as an independent existence (Oelschlaeger, 1991). Natural beings, humans included, only exist in relation to the whole. Aldo Leopold describes a similar notion, as Fritzell (1987) explains :

Of first importance to the methods and meanings of Part I (of Sand County Almanac) are the perceptual raw materials that form the substance of the man's surroundings. Without meadow mice, old boards, and chickadees, the man would amount to very little. Meadow mice, grouse, and deer tracks substantiate the man's experience, not to say his identity. Pine trees, high waters, and woodcock corroborate the existence of the land community. But the man and his reflections are also central to the environment, as they are to the primary argument of the book as a whole. Without the man and his reflections, neither meadow mice, nor old boards, nor chickadees would amount to much. (p. 131)

Wilderness legislation, and subsequent government agency definitions of wilderness (such as the attributes used in the RARE II study) showed a glimpse of this deeper stance by defining wilderness to provide for primitive recreation opportunities, perhaps because as Olson (1938) suggests, "in some men, the need of unbroken country, primitive conditions and intimate contact with the earth is a deeply rooted concern gnawing forever at the illusion of contentment with things as they are" (p. 49). Wilderness provides the opportunity to make mistakes and deal with the consequences. This is in direct contrast to the constraints and pressure of our lives outside of the wilderness. Often we are shielded from the rewards and penalties of our acts, but in wilderness things are simpler and more direct. Feedback is more immediate and less ambiguous (Reser and Scherl, 1988). Olson (1972) aptly sums up the attraction of primitiveness by saying :

No-one is naive enough to believe we should abandon our scientific achievements and return to a primitive culture with its brutalities, hazards and hardships, but we are

wondering if we can experience some of the basic rewards of living closer to nature, know again some small sense of oneness and belonging, of silence, open country, and the timelessness our forebears took for granted. (p. 232)

Some more subtle themes of wilderness can be seen not only enshrined in legislation, but also in the accumulating body of wilderness thought. Notions of humility and oneness bespeak a closer, more respectful and actively caring relationship with the natural world. The attractions of primitiveness, timelessness and the silence of solitude, are also well documented. Although these labels and distinction can be applied, it will be apparent that such separations are often difficult. The idea of wilderness is surprisingly coherent, and the examination that follows of the various component of wilderness thought serves only to more clearly expound the subtleties of that body of thought.

The six aspects of wilderness that follow are an attempt to group and categorize some of the disparate ideas of wilderness. They were primarily inspired by the works of Henry David Thoreau, John Muir, Aldo Leopold, Sigurd Olson, and other wilderness writers. Any categorization attempt is necessarily artificial if, as is the case here, the categories are not previously accepted. These six aspects do summarize aspects of the wilderness idea common to many writings on wilderness. The six aspects are not definitive, but rather they serve to highlight ideas of wilderness that have not received as much explicit attention as they might. (It would be possible to develop other categories such as savagery or harmony, but these were folded into the six aspects, in this case into primitiveness and oneness, respectively.) The following discussion expounds and demonstrates these six aspects of the idea of wilderness : humility, oneness, primitiveness, timelessness, solitude, and care.

Humility

I am lost-absorbed-captivated with the divine and unfathomable loveliness and grandeur of Nature.

(Muir, quoted in Fox (1980, p. 7))

The beauty of the wilderness experience is one of the simple attractions that draws us to the woods and open spaces. Wilderness amazes us with its many forms and colors, its myriad shapes and tones. There is an escape from the ordinary implicit in the unexpected delights of the wild environment. Mystery and a sense of the unknown are part and parcel of a wilderness experience since even in the most familiar location we rarely know what is around the next corner. But it is more than just pretty, the range and abundance of beauty is almost overwhelming. There is something humbling about all this natural beauty and surprise. We must take wilderness very much on its terms. It is difficult to exactly predict, and the very scale is somewhat intimidating. Wilderness is a great leveler, reminding us, perhaps, of our rightful place within the natural world, engendering an intellectual humility.

Perhaps the first aspect of humility that wilderness fosters is awe and wonder. Going beyond mere admiration of the natural beauty, come expressions of feelings of insignificance, as Fox (1981) describes :

In reading his Sierran landscape Muir was overwhelmed by a sense of human insignificance. For all his puffing and striving, man was dwarfed by the mountains and valleys around Yosemite. His power seemed puny compared with a glacier's. His entire history on earth was a blink in the eye in geological time. (p. 7)

Not only the sheer size of the Sierras, but their incredible diversity and complexity astounded Muir.

Awe is part of the concept of the sublime, an aesthetic that takes delight in the expression of power in the natural landscape. It was a significant idea of the Romantic writers and artists, such as the Hudson Valley painters. Nature was portrayed overly large and intimidating, implying an expression of strength and force. From the exultation, amazement, and fear came respect and humility. The notion of the sublime often had connotations of the ultimate power and grandeur of God's work. A tendency to feel humbled by the hand of the creator was a desired emotional response. The sense of the unknown and bewilderment, perhaps powerlessness, in the face of nature's complexity, reinforced the notion that God was omnipotent, and that it was not for mere mortals to question his work. As Nash (1982) describes, wilderness was accorded "special importance as the clearest medium through which God showed his power and excellence. Spiritual truths emerged most forcefully from the uninhabited landscape" (p. 46).

Although early Pilgrims to the United States viewed wilderness as evil, and devoid of God, they still considered their toil within wilderness as a means of transcendence, a way to greater holiness. This is part of long standing religious tradition of viewing wild country as an opportunity to draw closer to God, a means of purification and deliverance (Nash, 1982). In the deep solace and retreat of wilderness away from the traditions and distraction of society, spiritual truths are most forcefully met. As Olson (1986) put it, "life in the wilderness, particularly when one is alone, is a continual contemplation and communion with God and Spirit regarding eternal values" (p. 149). Olson, in particular sees awe and wonder as the initial ties that bind people emotionally and spiritually to the wilderness, and ultimately to higher values (Marovitz, 1992).

Wilderness also provides an escape from the excesses of society, and of our 'unholy' existence. Both Muir and Thoreau talk about the importance of balancing a civilized life with the simplicity and fundamental values found in wilderness. Similarly, Sax (1980) writes :

Engagement with [wild] nature provides an opportunity for detachment from the submissiveness, conformity, and mass behavior that dog us in our daily lives, it offers a chance to express distinctiveness and to explore our deeper longings. At the same time the setting - by exposing us to the awesomeness of the natural world in the context of 'ethical' recreation - moderates the urge to prevail without destroying the vitality that gives rise to it : to face what is wild in us and yet not revert to savagery. (p. 42)

Humility is also one step towards questioning the superiority of the human race. Nearly a century ago John Muir confronted this issue of human dominance: "Why should man value himself as more than a small part of the one great union of creation" (1916, p. xxvii). His humble realization was that all creatures, no matter how seemingly insignificant, had a role to play in nature. Muir found that we could no longer accept the ranking of some species, humans especially, as of greater importance than others. Indeed, in his witty style he said, "If a war of races should occur between the wild beasts and Lord Man, I would be tempted to sympathize with the bears" (1916, p. 122). Fox (1980) goes on to say that "this was the central insight of Muir's life, the philosophical basis of his subsequent career in conservation. The world did not spin at man's whim. ... creation belonged not to a manlike Christian God, but to the impartial force of Nature" (p. 53). This is one example of how wilderness is the great teacher of modesty. Howard Zahniser, the primary author of the 1964 Wilderness Act, said that our deepest need for wilderness is as an aid in, "forsaking

human arrogance and courting humility in a respect for the community and with regard for the environment” (Nash, 1982, p. 26).

In many of the writings that highlight the value of humility there is an explicit egalitarianism. Rather than bringing everything back to human values, there is a humble recognition that other creatures and components of the ecosystem have value in and of themselves. This elemental biocentrism extends the notion of human responsibility beyond our own needs and concerns. If other beings have value, and are important components of the planet, then there is a duty of care towards their fate. As Leopold (1949) wrote, “a land ethic changes the role of Homo Sapiens from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow members, and also respect for the community as such” (p. 204). Our sense of identity, and of survival, must extend beyond the needs of just one species. We can begin to see the breakdown of our separation from nature. Rather, we are a part, an important part, of the overall community on this planet.

Oneness

But let children walk with Nature, let them see the beautiful blendings and communions of death and life, their joyous inseparable unity, as taught in woods and meadow, plains and mountains. (Muir, 1916, p. 71)

Going into wilderness can be an overwhelming experience. Not only are there feelings of insignificance and wonder, but initially it is not unusual to feel an ‘otherness’ to everything that is out there. But as one begins to feel more comfortable in this seemingly foreign environment, this feeling of separation often diminishes. Feelings of harmony, acceptance and comfort arise. Many writers speak of feeling at-ease and at-home within the wilderness. Muir (1916), for instance writes :

To lovers of the wild, these mountains are not hundreds of miles away. Their spiritual power and the gods of the sky make them near, as a circle of friends. They rise as a portion of the hilled walls of the Hollow. You cannot feel yourself out of doors: plain, sky and mountains ray beauty which you feel. You bathe in these spirit-beams, turning round and round, as if warming at a camp-fire. Presently you lose consciousness of your own separate existence : you blend with the landscape, and become part and parcel of nature. (p. 212)

This notion of merging with nature stems from the thoughts of the Transcendentalists, who believed that in wilderness one can escape into a higher place of being, in oneness with the Divine Truth. The contrast between society (that drives people apart from their essential nature) and wilderness (which offers harmony with our natural being) is particularly poignant. Thoreau, sometimes classified as a Transcendentalist, once wrote, “I wish to speak a word for Nature, for absolute freedom and wildness, as contrasted with a freedom and culture merely civil, - to regard man as an inhabitant, or a part and parcel of Nature, rather than a member of society” (1862, p. 49). Similarly, Oelschlaeger (1991) writes that Muir recognized :

Whatever humankind might be, one’s essential human beingness could be known only in relation to the nonhuman other. Thus Muir’s mature idea of wilderness eradicated the ontological boundaries drawn between wilderness and civilization. The flowing whole of nature was the ultimate reality, the process in which life and death (and all other human conceptualizations) were merely part of everything else. (p. 178)

Muir came to see that the natural world was far more than an isolated ecological machine. Instead he understood nature to be far more interrelated with human experience than

previously thought. Wild nature was the reminder and the clearest example, for Muir, of the interdependence of all of the component parts.

The science of ecology provided one way of encompassing the oneness of nature that the transcendentalists intuited. For example, the unity of the ecosystem was an idea convincingly described by Aldo Leopold. For him, “all ethics rest upon a single premise : that the individual is a member of a community of interdependent parts. ... The land ethic simply enlarges the boundaries of the community to include soils, water, plants and animals, or collectively: the land” (Leopold, 1949, p. 203). Wilderness was the location to observe and care for all the natural components of life. In wilderness, not only were all the components still present, but the various beings, objects and inter-relationships had the freedom to exist as they would naturally exist. The wholeness of the universe is most notable in wilderness. As Howard Zahniser pointed out, “we sense ourselves to be dependent members of an interdependent community of living creatures that together derive their existence from the sun” (Nash, 1982, p. 255).

In wilderness one can see the harmony of life, the natural way of being. For Muir, “from his years in wilderness, he knew, with a certainty beyond the reach of books or professor, that single, orderly harmony embraced all nature” (Fox, 1980, p21). Similarly, Olson (1976) wrote :

In wilderness harmony is the natural way of life as it has always been, but we must not destroy it by overcrowding or by any exploitative use that might change it. The most important function of the wilderness for modern man is the opportunity of glimpsing for a moment what harmony really means. (p. 62)

Olson (1976) would go on to write that oneness and harmony are the same and that they are both vital to our psychological well being and survival.

In wilderness as our awareness of the unity and harmony of the natural world is raised, one is apt to question whether we aren't all psychologically and spiritually linked. Griffin (1979) describes an example of this :

I love this bird, when I see the arc of her flight, I fly with her, enter her with my mind, leave myself, die for an instant, live in the body of this bird whom I cannot live without, as part of the body of the bird will enter my daughter's body, because I know I am made from this earth, as my mother's hands were made from this earth. ... All that I know speaks to me through this earth and I long to tell you, you who are earth, too, and listen as we speak to each other of what we know: the light is in us.

With feelings of oneness and belonging comes feelings of completeness and spirituality, according to de Chardin :

As he awakens to a sense of universal unification, a wave of new life penetrates to the fiber and marrow of the least of his undertakings and the least of his desires. Everything glows as if impregnated with the essential flavor of the absolute, showing our accession beyond all ideologies and systems to a different and higher sphere, a new spiritual dimension. (Olson, 1966, p. 218).

Perhaps this joining of the community of life with human spirituality, and with the cosmos in general, is a natural way of being. Perhaps it is instinctual and a deep part of our being, as Olson (1969) suggests :

Each person is therefore physiologically and spiritually part of a primeval past, still attuned to nature and never quite happy or content removed from its influences. ... Deep

down in his subconscious, a part of his pool of racial memories is an abiding sense of oneness with life he cannot deny. (p. 125)

In the silence and space of wilderness the sense of oneness is possible, an immediate reminder of the genetic and social heritage that make us who we are. A reminder that we are part of the ancient cycle. Wilderness is a chance to rediscover our essential past.

Primitiveness

You would like to emulate the pioneer explorers, ... you would like independently to raft down the wild Colorado as John Wesley Powell did a century ago. You would like to go it alone in the mountain wilderness as John Muir did. (Sax, 1980, p. 15)

The desire to experience a simpler way of life, and to escape the artificial complexities of our working lives is a fundamental component of many wilderness experiences. Within the Spartan conditions, the straightforward challenges, and the instinctual bonding with wild nature can be found a way of life for which perhaps we are better suited. Our admiration of the frontier farmer and of the proud pioneer reflect an acknowledgment of how far we have strayed from the humble origins of the American people. It is a romanticism that encourages people to seek and identify with the wildness and freedom of both the frontier and today's wilderness. It is perhaps instinctual, a fundamental part of the American character.

There are many intertwined values that might fall under the categorization of primitiveness. Nash (1982) paraphrases Sigurd Olson as saying that :

Millions of years of wilderness living left a mark on the human psyche that the relatively short history of civilization had not erased. Psychologically, man is "still attuned to

woods and fields and waters". He has come "a long way from the primitive, but not far enough to forget. As a consequence of this background of racial experiences, civilized man actually misses contact with the wild world." ... In wild country they slip back into the ancient grooves and regain perspectives, which Olson defined as simplicity, serenity and "the longtime point of view so often lost in the town." (p. 265)

Olson (1966) himself wrote :

In the light of his primitive conditioning, man is still part of the past, responsive to and dependent upon the type of environment from which he came. Adaptations come slowly in all creatures and man is no exception. When weary and confused by the life he is now leading, it is no wonder he longs to escape from the barriers he has built around himself. It is natural for him to dream of freedom and to look backward to a time when life was simpler, to old familiar trails where the terrain is known. There seems to be an almost universal urge, no matter what the stage of man's sophistication or removal from the natural, to align himself somehow with those forces and influences that were dominant for ages. (p. 214)

Olson, as well as other writers, also believed that wilderness areas were valuable for allowing people to experience the country the forebears know and which shaped the national character (Nash, 1982). For Thoreau, the wilderness was also a source of vigor, inspiration, and strength (Nash, 1982). At the turn of the century, historian Frederick Jackson Turner argued that the primitive and wild character of this country was the essential influence on American character. Independence, an ethic of "do-it-yourself" and self-confidence were all natural benefits of a life, or an experience, within wilderness. Theodore Roosevelt also felt that pioneering was an important source of American

excellence and pride, and that vigorous outdoor pursuits should be encouraged as an antidote to mediocrity.

A part of this attraction to the primitive and character forming nature of life on the wilderness frontier was a romanticism of life away from civilization. Throughout our history many heroic figures have become wild-men, returning to a more basic and instinctual lifestyle, to find themselves and what it is that is right in the world (Harrison, 1992). Just as the pioneers considered the frontier a challenge, many of our literary heroes sought out challenge and adventure in the wilds. Escaping the misleading and temptation-laden ways of society, a virtuous and innocent life could be found in the wild. Thoreau (1854) sounded a similar note in *Walden* :

I went to the woods because I wanted to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived. I did not wish to live what was not life, living is so dear, nor did I wish to practice resignation, unless it was quite necessary. I wanted to lived deep and suck out all the marrow of life, to live so sturdily and Spartan-like as to put to route all that was not life, to cut a broad swath and shave close, to drive life into a corner, and reduce it to its lowest terms, and if it proved to be mean, why then to get the whole and genuine meanness of it. (p. 81-82)

Thoreau believed that meaning could be found through direct encounters with wild nature, in this case a re-kindling of the primitive within us (Oelschlaeger, 1991). As well as living life purposefully, wilderness provided Thoreau with the chance to live simply. Olson also wrote of the joy of going to the woods to “do primitive things in primitive ways and recapturing simplicity” (1956, p. 208).

In contrast to the mannered confines of society, wilderness provides the freedom to be truly wild. Without wildness wilderness is just pretty scenery and natural beauty. Thoreau writes in *Walden* :

Once or twice, while I lived at the pond, I found myself ranging the woods, like a half-starved hound, with a strange abandonment, seeking some kind of venison which I might devour, and no morsel could have been too savage for me. The wildest scenes had become unaccountably familiar. (p. 260)

The attraction of being wild is not just the freedom to make mistakes and see their natural consequences, as previously discussed, but more the chance to explore the hidden potentials and possibilities of the mind and body. As LaChapelle says, “Wildness is the state of complete awareness. That’s why we need it” (1980, p. 180). All wildness is better than tameness, and wildness is a necessity wrote Muir. Wilderness provided the best chance to be free. We have the chance “to lay around loose for a season, vagabondizing among the wild and savage things of wilderness”, wrote Samuel H. Hammond (Nash, 1982, p. 103).

Thus, the attraction of wilderness includes several aspects of primitiveness, most of them in direct contrast with society’s built environment. Not only the lure of challenge and adventure, but also the freedom to live simply and wildly. Our love of nature perhaps is instinctual, a part of our ancestral heritage, as Olson (1938) comments :

It is surprising how quickly a man sheds the habiliments of civilization and how soon he feels at home in the wilds. Before many days have passed, he feels that the life he has been living was merely an interruption in a long wilderness existence and that now again he is back at the real business of living. And when we think of the comparatively short time that we have been living and working as we do now, when we recall that many of us

are hardly a generation removed from the soil, and that a few scant thousand of years ago our ancestors roamed and hunted the vastness of Europe; it is not strange that the smell of wood smoke and the lure of the primitive is with us yet. (p. 51)

Timelessness

My wilderness world has to do with the calling of loons, northern lights and the great silences of a land lying north and northwest of Lake Superior. It is concerned with the simple joys, timelessness, and perspective found in a way of life close to the past. (Olson, 1972, p. xvii)

Wilderness provides the opportunity to leave behind the frantic pace of modern life, and to experience a far less controlled and perhaps unmeasured pace. Some may find a natural affinity with the ancient rhythms of life, the cycles of the seasons, and the day/night patterns of light, temperature, and activity. Indeed, some may find the stillness and time to stop and contemplate or reflect, an activity otherwise not easily fitted into their lives. New happenings or occurrences may take on different significances, as Olson (1938/1994) suggests, “Things move slowly, majestically in the wilds, and the coming of the full moon in itself becomes of major importance.” Similarly, Thoreau (1862, p. 73) wrote :

We had a remarkable sunset one day last November. ... When we reflected that this was not a solitary phenomenon, never to happen again, but that it would happen forever and ever on an infinite number of evenings, and cheer and reassure the latest child that walked there, it was more glorious still. (p. 73)

The chance to observe and perhaps live by nature’s rhythms is a special freedom provided in most wilderness. Muir (1911) wrote that there, “life seems neither long nor short, and we take no more heed to save time or make haste than do the trees and stars. This is true

freedom, a good practical sort of immortality.” Interestingly, this implies a sort of timelessness that bypasses concepts of past, present, and future, instead focusing only on the current moment. Within this lack of concern for the future, these unhurried days, is the room for contemplation. Sax (1980) notes that for Frederick Law Olmstead, a founder of the modern park concept :

The preservation of scenery is justified precisely because it provides a stimulus to engage the contemplative faculty. ‘In the interest which natural scenery inspires ... the attention is aroused and the mind occupied without purpose, without a continuation of the common process of relating the present action, thought or perception to some future end. There is little else that has this quality so purely’. (p. 20)

Not only does wilderness provide the opportunity for contemplation, but mere knowledge that there are such lands, free from the control of humans, is sufficient to engender hope and comfort (Stegner, 1961). It is said that modern men or women need to know that the ancient rhythms and natural timelessness out of which they came still exists, and that this knowledge helps sustain them (Olson, 1966).

However, it is suggested that even for those who do venture into wilderness, the sense of timelessness may not be immediate. Even though Muir (1901, p. 228) describes experiences such as, “the Kaweah meadow, that golden afternoon, (where) as I gazed every color seemed to deepen and glow as if the progress of the fresh sun-work were visible from hour to hour ... As a free man revels in a scene like this and time goes by unmeasured,” he was a man who frequently spent weeks at a time in the Sierran wilderness. Olson (1976) suggests that, “during a trip into the wilds, it often takes men a week or more to forget the frenetic lives they led, but inevitably the feeling of timelessness

does come, often without warning” (p. 27). Olson remained convinced that given sufficient time all visitors to wilderness could experience timelessness, and that as they :

Accept the time clock of wilderness, their lives become entirely different. It is one of the great compensations of primitive experience, and when one finally reaches the point where days are governed by daylight and dark, rather than schedules, where one eats if hungry and sleeps when tired, and becomes completely immersed in the ancient rhythms, then one begins to live (1976, p. 28).

As mentioned above, part of the attraction of timelessness is the stillness and silence that it might provide. While nature is continually active, “chasing everything in endless song”, as Muir (1901, p. 73) said, it is the freedom from human activity that is liberating, and it is to this that we now wish to turn.

Solitude

My runes have come from wilderness, for in its solitude, silence and freedom, I can see more clearly those values and influences that over the long centuries has molded us as a race. (Olson, 1963, p. 3)

Only by going alone in silence without baggage, can one truly get into the heart of wilderness.

(Muir, 1954, p. 314)

The association of the concept of wilderness with the notion of solitude is particularly noticeable in the writers of this century. Bob Marshall, who helped draft the Forest Service roadless area regulations that predated federal legislation, saw wilderness as a sanctuary of solitude and silence. Oelschlaeger (1991) believes that through a life of solitude at Walden Pond, Thoreau achieved a special experience of unity with nature. And Olson (1976) felt

that wilderness could only be experienced fully when the contrast of solitude could truly be felt. He wrote that, “silence is one of the most important parts of a wilderness experience : without it the land was nothing more than rocks, trees and water” (p. 41).

Nash suggests that part of the Romantic longing for a wild and savage life could be provided for in the solitude of wilderness. If a religious escape, from the persecutions of society was being sought, then “a succession of Christian hermits and monks (literally one who lives alone) found the solitude of the wilderness conducive to meditation, spiritual insight, and moral perfection” (Nash, 1982, p. 18). In the wilderness, people find an escape from the numbers, noise and pressure of too many people. Solitude is the great healer (Nash, 1982). Olson (1976) suggests that it is the impact of solitude on the mind that awakens the ideas and thoughts normally suppressed in the presence of others, that wilderness allows the emergence of thoughts and ideas otherwise lost due to the interruptions and responsibilities of civilization.

The opportunity for solitude is a relatively well accepted component of the idea of wilderness. It is specifically enshrined in the Wilderness Act of 1964, and has received significant research attention (e.g., Hammitt, 1982; Hammitt and Madden, 1989; Hammitt, 1994).

Care

Without love of the land, conservation lacks meaning or purpose. (Olson, 1976, p. 125)

Perhaps the most recent extension of the idea of wilderness has occurred in the area of individual responsibility and action, or the underlying ethics that drive our beliefs and

behavior. Aldo Leopold stated that a Land Ethic would reflect, “the existence of an ecological conscience and this in turn reflects a conviction of individual responsibility” (1966, p. 258). Some recent environmental philosophers, who might label themselves Deep Ecologists, have focused on the extension of moral responsibility or attention to include the natural world. King (1991, p. 75) has written that also, “ecofeminists have assumed that feminist environmental ethics can draw straightforwardly on the language of some version of an ethics of care.” The ethics of care extends from an injunction not to hurt others to an ideal of responsibility to those to whom you are tied in relationship, according to Gilligan (1982). Thus, Larrabee (1993, p. 5) suggests that, “many ecofeminists propose a theory of moral concern grounded in responsiveness to others that dictates providing care, preventing harm and maintaining relationship.” Kheel (1985, p. 44), also suggested that, “we cannot even begin to talk about the issue of ethics unless we admit we care”. Deveaux (1995) writes that “the underlying message of the care perspective is as powerful as it is succinct: put briefly, it states that human relatedness and the practices that support it shape us in powerful ways” (p. 115).

The development of an ecological conscience, as a natural result of the possibilities of the wilderness experience, would produce genuine respect and care for all forms of life. Karen Warren (1990), a central figure in the development of ecofeminist thought, writes of a lived experience that she had in wild country :

I closed my eyes and began to feel the rock with my hands. ... At that moment I was bathed in serenity. ... I felt an overwhelming sense of gratitude for what (the rock) offered me - a chance to know myself and the rock differently ... to come to know a sense of being in relationship with the natural environment. It felt as if the rock and I were silent

conversational partners in a longstanding friendship. I realized then that I had come to care about this cliff which was so different from me ... I felt myself caring for this rock.

(pp. 134-135)

Aldo Leopold wrote that human beings must develop a better relationship with the natural world, one based on “love, respect and admiration of the land” (1966, p. 261). The ideal location for building such a relationship, creating a bond of care, is wilderness. As Pigram (1993) says, “focusing on the human experiential opportunities inherent in wilderness should enhance respect for the environments which make this experiential diversity and complexity possible” (p. 418).

The extension of care beyond self is similar to the Buddhist dictate of compassion for all beings. This is based on a belief that all beings, humans included, are one, the expansion of oneself to include a natural community. In the various versions of Deep Ecology, there is talk of wilderness encouraging a larger sense of self : an expanded or transpersonal self (Plumwood, 1993). Just as it is instinctual to nurture and protect the individual self, so it is natural to actively care for the larger self, the community of life. An ethic of care is a natural extension of oneness and humility. Fisher and Tronto (1990) defined care as “a species activity that includes everything we do to maintain, continue, and repair our ‘world’ so that we can live in it as well as possible. That would include our bodies, our selves, and our environment, all of which we seek to interweave in complex life sustaining web” (p. 40).

Wilderness is a very intimate setting for most people, the chance to get closer and re-establish better relations with the natural world. (Hence, the importance of solitude, for a loss of privacy would, for example, break the possibilities of intimacy.) Blustein (1991) argues quite thoroughly of the natural link between oneness (or integrity, as he calls it),

intimacy and an ethic of care. Wilderness would seem an apt setting, therefore, for the development of an environmental ethic of care.

Conclusion

Throughout this discussion, then, various aspects of the wilderness experience have been identified from the writings of influential wilderness philosophers and scholars. The concepts of oneness, humility, primitiveness, timelessness, solitude, and care have been highlighted. While these concepts are not all encompassing of the wilderness idea, and not all are to be directly found within wilderness legislation, they clearly suggest that the wilderness experience is more than a simple recreation visit. This is not to say that all wilderness recreationists will seek or receive these feelings. Rather, the six constructs discussed above provide more insight into the meaning and value of wilderness - they represent some of the beliefs that were influential in preserving and protecting wilderness areas.

Chapter 3 - The Wilderness Experience as a Human / Environment Transaction.

Introduction.

The qualities of the wilderness experience might be seen as the unique combination of a leisure experience and an experience of nature. While leisure researchers have tended to focus only on the individual or social milieu, environmental psychologists have looked mainly at reactions to the physical and symbolic aspects of the environment. Neither completely explains why people travel to wilderness, nor how it is that people experience wilderness. By extending the context of the leisure experience to include the environment we may come closer to understanding the wilderness experience. As Pigram (1993) suggests “the benefits from a wilderness experience flow from the meshing of individuals’ perceptions of the environment, the manner in which these perceptions impinge on the transaction with that environment, and the way in which the effects of these transaction evoke consciousness of self and response” (p. 418).

The wilderness environment that people experience is more than a collection of physical attributes, it is an event created by the interaction of the person with the setting (Knopf, 1983). The inseparability of the person from the environment is reflected variously in transactional (Altman & Rogoff, 1987), contextual (Stokols, 1987) or phenomenological (Seamon, 1991) approaches to the environmental experience. In each case the focus of the approach is on the subjective and experiential aspects of the person-environment relationship. Rather than defining the characteristics preferred or required for an environmental experience, the research instead focuses on the modes or manner in which the person experiences the environment (Ittelson, 1978). Since our aim is to understand the

wilderness experience, it is appropriate to likewise consider the modes in which people experience that environment.

Table 1 summarizes the attributes or domains that various researchers have found to typify or define the leisure experience. The five modes of environmental experience suggested by Ittelson et al. (1978) have been used as a basis to categorize these domains. For each of these five modes, the components that other leisure and wilderness researchers described are listed. Slightly different terminology is used by these authors, but the overlap and similarity is noteworthy. It would appear that the five modes provide a useful organization of past research. The five modes are based on an examination of the phenomenology, or the varieties, of the environmental experience.

The five suggested primary modes are: the environment as an object or place, as experienced through self, as a source or embodiment of emotion, as a social system, and as a setting for action. These modes represent defining or dominant aspects of any environmental experience, including the wilderness experience. At one particular point or stage in the wilderness experience, the person may be focusing on or absorbed in primarily one of these modes of experiencing the wilderness. For each of the different modes, a respondent, if asked, would describe the environmental experience primarily in terms of that mode. The environment primarily has meaning in those terms, and the person - environment transaction centers around those particular aspects of the experience. For example, experiencing the environment as a setting for action entails a focus upon the mechanics, challenge and task-related details of the physical activity. The activity becomes the primary means of interacting with the environment.

Two prior studies of the wilderness experience have found that the visitor's perceptual, cognitive and emotional focus changed across the stay in wilderness. Scherl (1989, 1990) examined the salient experiential domains of an Australian Outward Bound course as reported nightly by adult participants in regular journal entries. Various methodological theories and techniques (Repertory Grid Analysis, principal components analysis, Fuzzy Sets Theory, etc.) were used to develop categories of experiential response. Of these, description of activities and statements about self were most numerous, amounting to 25% and 22% of all coded experiences, respectively. Next most frequent were references to social setting (19%) and to the physical environment (13%). Eleven percent were associated with emotional responses to the person-environment transaction. The salience of these categories changed across the wilderness experience with self and social modes being predominant early on in the experience, emotional responses peaking around high adventure activities, and awareness and focus on the physical environment concentrating in times of reflection and solitude.

Kaplan and Talbot (1983) likewise made use of journal entries, in this case of adolescent participants of an Outdoor Challenge program conducted in the Upper Peninsula of Michigan. Content analysis of the journal entries indicated that across time participants began to experience the environment differently. With time, perceptual responses tended to more detail, and emotional responses tended to become more intense. Familiarity and degree of comfort with the physical environment also increased with time. The perceptual and emotional response to the wilderness environment seemed naturally to flow to cognition about self.

This dissertation builds upon the prior application of the Experience Sampling Method in the study of the leisure experience. The ESM was used by Samdahl (1992) to explore the situational factors conducive to informal leisure experiences. By examining the domains that characterized those times which respondents called leisure, Samdahl was able to highlight the contexts and conditions likely to promote leisure. Likewise, Unger & Kernan (1983), using projective, hypothetical leisure scenarios, found that some determinants of the subjective leisure experience are situation and activity specific. Graef and others (1983) also used ESM techniques to find that conditions of perceived freedom and intrinsic motivation strongly characterized leisure. It would appear, then, that ESM is a useful technique for identifying the salient domains of the wilderness or leisure experience as it unfolds. It also appears well suited to identify the physical and managerial setting conditions that impact upon that experience. Using the common domains of the leisure and environmental experiences as summarized in Table 1, the following section describes the five modes of experiencing the wilderness environment, which are developed from the categories of Ittelson et al. (1978).

Modes of experiencing the wilderness environment.

Focus on self

Here the individual is concentrating on internal thoughts and processes. It is the degree to which the components of the experience are internalized. The environment ceases to be separate, and at its logical extent becomes part of the self (Ittelson, 1978). In this mode, there is a deep sense of belonging or constitutive identity with the environment (Sixsmith, 1986). The experience of the environment is a largely personal one, and consists of reflective thought and introspection. Much attention is paid to the significance for the self of the events and surroundings that constitute the experience. Self identity is under

Table 1

The Leisure / Environment Transaction
**MODES OF ENVIRONMENTAL
 EXPERIENCE**

ATTRIBUTES OF THE LEISURE EXPERIENCE

	Ittelson (78) / Ittelson et. al. (78)	Scherl (90)	Samdahl (92) / Samdahl & Kleiber (89)	Unger & Kernan (83)	Shaw (85)	Tinsley, et. al. (93)	Tinsley & Tinsley (86)
FOCUS OF ATTENTION							
NATURE	•Envir. as object / place	Physical environment				•Aesthetic appreciation	•Enriched perception of objects
SELF	•Envir. as self	•Self •Physical state	•True self •Self-awareness		•Lack of self- evaluation		•Lack of focus on self •Increased bodily sensitivity
EMOTION	•Envir. as emotion / affect		•Pleasure / affect		•Enjoyment	•Enjoyment (Intrinsic satisfaction)	•Increased sensitivity to feelings and emotions •Increased intensity of emotions
Intensity		•Effort		•Involvement	•Relaxation	•Relaxation	
SOCIAL	•Envir. as social system	•Social setting	•Social interaction		•Lack of self /other comparison	•Companionship & Intimacy	•Freedom / Lack of constraint
Freedom			•Perceived freedom •Intrinsic motivation •Self determination	•Perceived freedom •Intrinsic satisfaction	•Freedom of choice •Intrinsic motivation		
TASK / ACTIVITY	•Envir. as setting for action	•Description of activities	•Serious leisure •Task related social interaction				•Concentration / absorption on task •Decreased awareness of time
Timelessness							

consideration and construction, and can extend outward to include a sense of 'environmental self'.

Focus on others

For some the experience in wilderness is primarily a social one. Interactions with friends and / or family, even strangers and the general public, may vary from distant and task oriented to close, intimate, and casual. In a social wilderness experience it is the presence (or absence) of other people that dictates the meaning of the moment. In particular, the freedom to choose may or may not be inhibited by those around you or those who have gone before. This chance to do things the way you want for their own sake, uninhibited by the pressures or motivations of others, is a central feature of leisure (Shaw, 1985).

Focus on task

When a participant's actions or activity within the wilderness become the dominant feature, often times goals and behaviors are the only way to describe the experience. Other concerns become peripheral because of the intense concentration, struggle or involvement. For some, the intense focus on performance of an activity leads to a decreased awareness of time (Tinsley and Tinsley, 1986). Others find the task orientation to limit their ability to escape an awareness of time.

Focus on nature

This is the degree to which people pay attention to the physical aspects of the environment. It is the degree to which people are focusing on the natural world out there rather than the world within. It may well be as people are able to pay attention to much more minute details of the environment that they are able to gain a sense of familiarity and orientation,

following which perhaps the focus of attention moves to other aspects (Ittelson, et al. 1978).

Focus on affect

The environmental experience is primarily influenced and dominated by strong feelings and emotions. Sensations of enjoyment (fun), satisfaction and relaxation or comfort are all affective modes. Several leisure researchers have identified affect, particularly positive moods, as a dimension of the experience of leisure (Mannell, Zuzanek and Larson, 1988). Tinsley and Tinsley (1986) identified increased sensitivity and intensity of emotions as components of leisure. Csikszentmihalyi (1975) also identified a raised state of pleasure or aroused positive affect as an indication of the flow experience. However, Samdahl (1991) found that affect was not a significant determinant (as compared to being an indicator) of leisure. It would appear therefore that degree or intensity of emotional involvement is a significant component of the leisure state. Its relevance to the leisure experience in wilderness is heightened as one mode of experiencing the environment. Hull (1990) argues that mood is a prevalent and a relevant part of leisure, and Hull et al. (1992) found feelings of satisfaction, dominance, and relaxation (for example) to vary across the course of a wilderness visit, demonstrating the relevance of emotions to the overall wilderness experience pattern.

Conclusion

The five modes of environmental experience just described provide a different way of describing the wilderness experience. They will be used alongside the six aspects (oneness, humility, etc.) described by the wilderness philosophers and writers. The five modes of environmental experience extend the previous research on the wilderness experience and

will be used to gain insight into the processes and multi-dimensional nature of the wilderness experience (objective one), as it unfolds across time (objective three).

Chapter 4 - The Leisure Experience

Introduction

Wilderness experiences are typically considered to be recreational experiences. They are carried out in the visitors' own unobligated time and under their own volition. Not only have visitors chosen to visit the wilderness, but they have also chosen the manner in which they would visit. The visitors have expectations of the events and processes that will make up their visit, and of the personal benefits that may accrue. Some would say they do it for its own sake. Others would say it epitomizes who they see themselves to be. And others would simply say that wilderness is fun, or challenging, or a great place to be with friends. Each of these are themes of leisure, themes that run through the many writings that have attempted to grapple with this important part of our lives. Tracing the development of these ideas of what constitutes leisure will help us understand part of what constitutes the wilderness experience, and help us address the notion of whether the wilderness experience represents true or ideal leisure.

But the concept of leisure is not universally defined. Partly this reflects the evolving nature of research and scholarship, but also partly this reflects the changing society in which leisure is considered. Leisure has always been considered a cultural phenomenon within society, and presumably therefore has lasting value for the society and its inhabitants. Some writers would say that leisure is the best domain for the satisfaction of the full range of human needs (Mannell, 1989).

While there is much diversity of opinion among scholars on the essential conditions of leisure, one theme runs through the history of the thought about leisure. From Aristotle to

modern feminist critiques of leisure, the notion of freedom seems to be a constant characteristic. Freedom is expressed in many different forms, such as freedom from obligation, freedom to choose, and pleasure for its own sake. Throughout it all is the fundamental concept of individuals freely operating within the constraints of their social world. Persons cannot be judged for the correctness or otherwise of their actions, because by definition they are the sole arbiters of their actions. Leisure represents the chance to do and to be what it is that the individuals perceive themselves to be (Kelly, 1987).

However, this notion of leisure is not immediately obvious. Many common usages of the word are anchored in more traditional notions. Often reflecting the values of the time (such as Stoicism, Puritanism, and Existentialism), the influence of these values on the notion of leisure does coalesce in modern definition. It is worthwhile, therefore, to trace the heritage of the received idea that is leisure.

Aristotle and the Greeks

The first discussion within western culture of the meaning and value of leisure is commonly attributed to Aristotle, who saw leisure as the freedom to pursue happiness. He largely rejected the then current paradigm of Stoicism, which believed that everyone should calmly accept the natural or divine order, and therefore be satisfied and happy. Instead, Aristotle believed that only those who had sociopolitic freedom could achieve happiness. As Goodale & Godbey (1988) put it : “The notion of free choice, so fundamental to our notion of leisure, is essential to Aristotle because it makes virtue possible and that makes happiness possible” (p. 23). According to Aristotle, leisure was not idle time, nor time available for employment. Instead, leisure was the freedom from obligation that would

permit a state of contemplation and reflection from which virtuousness would develop. Personal growth and development were anchored in virtue, as an experiential accumulation of thought and action. Leisure was the ideal state of being, without any perceived end other than itself.

Thus we can trace three important facets of the idea of leisure back to Aristotle : the notion of being free from obligation; the concept of intrinsic rather than instrumental goals, and the view that leisure was a state of being rather than any particular activity. (One further core aspect was that leisure could only be found in worthwhile, moral conduct.) However, Aristotle's concept of leisure was built on the backs of slaves, a condition that is of questionable relevance today. Instead most of us must continue gainful employment. Thus, more recent concepts of leisure are more closely tied to the conditions of work.

Leisure as free time

The most common definition of leisure, therefore, is that of free time, time free from work and other obligations. De Grazia (1962) defines leisure as the "state of being free from the necessity of labor" (p. 13-14). This carried with it connotations of leisure being leftover after the primary responsibilities of work. Leisure as freedom, an ideal state, thus gave way to the notion of leisure as free or discretionary time. Leisure had to be earned, and was seen as empty time to be filled. Gone was the virtuousness of leisure, for work and other social responsibilities were the true avenues for good. Indeed, leisure was almost seen as an indulgence or frivolity, perhaps only of the wealthy. The only saving grace was that leisure could provide re-creation, or the recuperation and renewal necessary to return to work. (However, there are connotations of tranquillity, peacefulness, and an opposition to materialism and action in this notion of leisure (Goodale & Godbey, 1988). Indeed, escape

from everyday problems, troubles and routines remains an important motivation for leisure (Iso-Ahola, 1980). Further, recreation and leisure programs continue to be seen as tools for furthering social, intellectual and moral development, as well as other socially useful ends or benefits.)

However, the dichotomy of work/leisure has been well criticized. While perhaps applicable in earlier industrial times, it does not seem as relevant for modern society. Work and leisure can no longer be treated as opposites (Rojek, 1989). Simultaneously, for some work is becoming comfortable and fulfilling, leisure is often more disciplined, hard and planned. Further, it is questionable whether we can ever be free from work and other obligations. Bella suggests that “the concept of leisure has been built on bourgeois men’s experience of family and employment in an industrial age. This concept incorporates an artificial dichotomy between work and leisure and is often assumed to require a level of freedom from obligation rarely available to women (or to men with ongoing responsibility for others)” (p. 151).

The question of who has free time or who has leisure is most problematic. Those who are unemployed clearly are not completely at leisure. Equally, those on duty twenty-four hours a day may well find leisure within their work. States of being that are beneficial can occur regardless of the designation of employment. Our lives are not as divisible into work and play as de Grazia would have us believe.

The linking of economic factors to the notion of leisure was most profoundly put by Veblen (1899) in his text ‘The Theory of the Leisure Class’. As a result of more free time becoming available, according to Veblen, leisure became shaped by the chance to

demonstrate worth to others. One could express and achieve status through the display of leisure. Not only could a person demonstrate that he or she could afford the time and idleness, the person could also be a conspicuous consumer of leisure goods. Thus leisure was the privilege of an economic elite. Goodale & Godbey (1988) have suggested that Veblen's 'Leisure Class' is alive and well in many parts of the world. But Rojek (1989) counters that "by privileging the economic base as the key determinant of leisure and recreation, generations of researchers have obscured the many-sided cultural influences which play on our leisure and recreation opportunities, desires and choices" (p. 82).

Veblen's notion of leisure could be classified as functional, where leisure is seen as a means to an end, in this case, conspicuous consumption. Other functions of leisure might include self-improvement, pleasure, socialization, or recovery, for example. Leisure is "the ultimate arena for the demonstration of values since in leisure one chooses from an almost infinite array of alternatives" (Goodale & Godbey, 1988, p. 225). Thus, although the notion of leisure being demarcated from work may no longer be totally applicable, the notion of freedom remains viable.

The notion that leisure was the time where the individual was allowed choice transcends the work/leisure dichotomy, or economic status. Leisure as a state of mind, permitted by the possibilities of choice, also remained a theme. Since leisure is discretionary, it is not only freedom from, but also freedom to (Brightbill 1960). As Neulinger (1981) puts it : "Leisure, then has one and only one essential criterion, and that is the condition of perceived freedom" (p. 16).

Freedom to choose / intrinsic motivation

Neulinger (1981) would go on to say that : “pure leisure requires freedom in the sense of absence of external control but implies the condition of being able to enjoy satisfaction derived from intrinsic rewards without having to pay attention to potential extrinsic ones” (p. 16). It is the freedom from outside pressures that allows a free choice and therefore the choice can be made for personal, internalized reasons. As Iso-Ahola (1989) describes : “undoubtedly, intrinsically motivated or self-determined behavior constitute the core of what is called leisure. ... In fact, research has shown that freedom of choice at the initiation of the behavior, and such intrinsic rewards as feelings of competence expected to result from the behavior, are two main determinants of people’s defining that behavior as leisure.”

Leisure is a process of expressing freedom, the ability to feel in control of part of what happens. Leisure provides the opportunity to define the boundaries in which events may or may not occur. Bregha (1989) suggests that : “Leisure, to express freedom, requires choice; choice in turn requires awareness of preferences ... leisure, like freedom, is an end in itself” (p. 31). Leisure represents a part of what the world has come to be for that person : “While done for its own sake, the leisure experience comes to serve as a symbol, a sign, a clue that the world is meaningful. It is a sample of the joy that life can bring” (Goodale & Godbey, 1988, p. 260).

However, intrinsic motivation and the freedom to choose are not sufficient to have leisure. One must also experience enjoyment as part of leisure (Iso-Ahola, 1989, p. 256). (Play represents an ideal of this type of enjoyment.) But also, one must want to and be capable of choosing (Bregha, 1989). If there is such a thing as sub-optimal leisure, then the lack of a

desire to actively choose is an important precursor. Similarly, one also has to have the means and ability to carry out one's choice. Questions of access, wealth, legality, skills and knowledge impact upon one's opportunity to freely execute one's choice in leisure. Thus, leisure is only relative freedom from the pressures of one's culture and environment. It is a state of mind. Feelings of freedom, and the opportunity to do things for their own sake are utmost. Thus, again it is not just freedom from, but freedom to.

Play

As mentioned above, all the perceived freedom in the world cannot solely define leisure. Leisure must be carried out partly for its own sake, for its own rewards of process. For many, it is the chance to escape into a fantasy world, where they feel free to express themselves. Much of what has been written about play parallels these ideas, and at least one writer has been bold enough to say that : "it would appear that play is the experience attributed to recreation and sought through leisure" (Arnold, 1991, p. 17).

Some of the basic ingredients of play are the elements of freedom and spontaneity, where the activity emerges through the creative nature of the play. It typically has a non-serious element, and no immediately apparent results. It is usually totally immersing, with a component of pleasure. Frederick Schiller has been quoted as saying that : "a man only plays when he is human in the fullest sense of the word and he is only human in the fullest sense of the word when he plays." (Gerson et al., 1988)

Play is characteristic of the young and has an important role in growth and development. The urge and control of play behavior is neurologically linked to the parts of the brain responsible for feelings and emotions (Gerson et al., 1988). Play stimulates physiological

activity in the brain, and represents a state of optimal arousal. As Goodale & Godbey (1988) describe : “it seems also that at the optimal level of brain activity, the individual feels best, perhaps in part because of the positive feelings, indicated in the theory of competence-effectance, derived from optimal performance” (p. 173).

In this way, the subjective experience of play is close to that of the state of flow. Indeed, playfulness helps encourage suitable conditions for flow such as a relaxed sense of self, and a narrow focus of attention on the task or activity at hand (Michaelis, 1991).

Csikszentmihalyi (1974) describes some of the following attributes of flow : feelings of self-control, intense concentration, a dreamlike sense of the passage of time, a margin of awareness and action, and an intense feeling of free involvement.

Thus, the ideas surrounding play can help identify further components of the leisure experience : not only a significant element of pleasure, but also a mix of internal fantasies with freely chosen external reality that permit concentration on the activity at hand. The goal-lessness of play is also reminiscent of intrinsically motivated leisure, as is the focus on personal development and creative self-expression. However, perhaps play is, like flow, only an ideal state of leisure. It is hard to imagine that all forms of leisure could be characterized in this way. Many of our leisure time activities are chosen for more social rather than personal commitments.

Social leisure

Social interaction is an important and enjoyable reward of leisure participation (Iso-Ahola, 1980). Just as people may choose to escape a certain type of social interaction, equally may they seek a certain type. Social contact, whether informal or formal, shapes the outcome of

most events and must therefore enter into the choice which leisure participants make. As Kelly (1983) describes, “Leisure is a social space in which the social bonding of intimates, family and friends is developed. As such, leisure not only has a social function, but is in turn shaped by that purpose” (p. 6).

Leisure is a cultural product. Our choices and interests are limited by our location within society. Leisure is a learned product, in that the consequence of our leisure choices are reinforced in our growth and development. The choices we make are clear signs and symbols, meaning-laden within the culture and sub-culture in which we exist. Leisure cannot be separated from the culture in which it exists, as Stockdale (1989) argues, “Leisure should be regarded as an integral component of the experience and behavior of individuals who operate in the increasingly complex and changing matrix of personal and social considerations and societal expectations” (p. 131).

Leisure is negotiated. Our freedom and power to act as we would wish is limited by the social setting in which we act (Rojek, 1989). The interaction and significance determine the behavior and meanings that are expected. Although, as Kelly (1983) points out, “The setting, then, predisposes social actors toward particular definitions of the situation, but does not fully determine them” (p. 152). Some social settings are predetermined, others are negotiated through the interaction.

Leisure identity / Serious leisure

Leisure is a social space in which self-identities are created, tried-out, confirmed or modified (Kelly, 1983). The development of role identities in a social, leisure setting is a major element in the choices made and satisfaction gained (Kelly, 1983). The very choice

of the leisure situations we choose to be in determines many of the possibilities for development, expression, or enjoyment (Dustin et al., 1992). Carl Rogers believed that people seek settings which reinforces their self-image. This echoes Jean-Paul Sartre's existentialism where he believed that "each person sought an affirmation or interpretation of his or her identity from the environment because in the absence of all input the individual encounters 'nothingness'" (Gerson et al., 1988). As Burdge (1988) suggests, "Leisure, in the holistic orientation, is seen as a complex of multiple relationships involving certain choices which indicate both societal and individual aspirations as well as lifestyles" (p. 31).

Kelly (1987) bases his sociology of leisure on such an existential notion, "Leisure is the freedom to be. It is an environment for self-determining action, the possibility of situated leisure. ... It is opportunity for creation, identity development or revision, and exploration and building of relationships for their own sake" (p. 238). Thus the elements of leisure that earlier writers have identified are allowing the development and display of essential humanness. Leisure is the ideal social setting to be everything that we wish to conceive of ourselves as being. This is, perhaps, the ultimate freedom allowed within a position in society. Leisure is the opportunity to choose the conditions under which one wants to be active. It is therefore an attitude, a mental or spiritual state of being, which is not the result of external factors, nor the result of spare time, nor idleness (Pieper, 1963).

Perhaps, then, we can conclude this discussion of leisure with Kelly's (1987) summarization :

Leisure experiences are characterized to a relatively high degree by all or most of the following dimensions :

- leisure experience is relatively free, accompanied by a minimum of constraint. However, the chosen environment, social frame, or norm of the activity may be highly structured. In such a case, the freedom is in the choice;
- the satisfactions of leisure are primarily intrinsic. Leisure is, to some degree, enjoyable as an experience;
- Leisure is playful in the sense of being relatively self-contained, having meaning within the occurrence. Its outcomes are, as such, non-serious even when they have significant consequences for personal development. (p. 167)

The wilderness experience as ideal leisure

The similarities between the ideas of wilderness and the concepts and definitions of leisure are understandable. Wilderness is, by American definitions, a place of leisure. Wilderness is a location visited, not a place to remain. It is defined to be devoid of permanent settlement, motorized transportation, roads, and other assumptions of western society. Wilderness is the other, the place out there, the place that may be visited only during extended periods of free time. But, just as leisure has become understood as more important than re-creation for work, so too has wilderness taken on significance greater than just a location for an outdoor recreation activity.

Perhaps the biggest commonality between modern understandings of leisure and of wilderness, is the notion of freedom. Just as Kelly (1987) talks of leisure being the situation in which one can choose how and what to be, so too is wilderness an opportunity for self-determination. As Marshall (1930) wrote, "As long as we prize individuality and competence, it is imperative to provide the opportunity for self-sufficiency. This is inconceivable under the effete super structure of urbanity; it demands the harsh

environment of untrammelled expanses” (p. 32). Just as some scholars consider leisure activities to be complementary or supplementary to the self-development possibilities of work (Parker, 1971), so too does wilderness develop characteristics unknown or inexpressible in normal surroundings (Marshall, 1930).

Some of the defining features of leisure find expression also in the ideals of wilderness. Following Kelly’s (1987) summarization of leisure, leisure is intrinsically satisfying. Leisure is undertaken for its own reason. One could even say that leisure is an easy choice, perhaps a natural choice. Leisure is the choice made for personal, although sometimes socially situated, reasons. Similarly, the decision to experience wilderness is usually a personal one. Certainly, once within wilderness the options are determined less by other people and more by natural circumstance and personal whim and desire. Again, the decisions are relatively straightforward and real. In wilderness, the consequences are chosen for the personal rewards, safeties and comforts provided, and rarely for extrinsic rewards and recognitions.

Leisure is also defined to be playful, with its significance lying just as much, if not more so, in the process as in the outcomes. Similarly, Marshall (1930) describes how wilderness can be overwhelmingly consuming :

Wilderness furnishes perhaps the best opportunity for pure esthetic enjoyment. This requires that beauty be observed as a unity, and that for the brief duration of any pure esthetic experience the cognition of the observed object must completely fill the spectator’s cosmos. There can be no extraneous thoughts - no questions about the creator of the phenomenon, its structure, what it resembles or what vanity in the beholder it gratifies. (p. 34)

This also resembles the intensity and narrow focus of the flow experience, which Csikszentmihalyi (1974, p. 58) describes as “a unified flowing from one moment to the next in which we are in control of our action and in which there is little distinction between self and environment; between stimulus and response; or between past, present and future”. Mitchell (1983) describes the mountain wilderness environment as the only true opportunity for some to fully express their worth, their creativity and their identity, through flow experiences.

The link between wilderness and ideal or beneficial leisure has been hypothesized by a variety of scholars. Swan (1977) takes the humanistic psychological stance that people when “placed in a wilderness environment that is not threatening, they experience joy and can have what the late Abraham Maslow called ‘peak experiences’ or moments of transcendence” (p. 6). Scott (1974), in speculative analysis of the psychological significance of the wilderness experience found that men such as Henry David Thoreau, John Muir, and Aldo Leopold had “peak experiences” in wilderness. Young and Crandall (1984) focused on the self-actualization aspect of Maslow’s work. They found that :

The work developing definitions and theories of self-actualization supports our speculated relationship between self-actualization and wilderness use. In defining self-actualization Maslow (1970) reported that his group of high self-actualizers liked solitude and privacy more than the average person (p. 165) and they reported ‘peak experiences’ (p. 164) which are like those reported by wilderness users. (p. 151)

Young and Crandall (1984) would go on to find empirical, though weak support to link wilderness users with high self-actualization. Young (1983) also found that leisure values

were more important in determining who uses wilderness, in that “those with high leisure ethics are more likely to be wilderness users” (p. 355).

Wilderness can be conceived of as being the ideal setting in which individuals can have peak experiences. Wilderness provides the conditions conducive to experiences which are the epitome of leisure. It could be suggested therefore that in situations within wilderness in which visitors report ideal leisure, that they would also report high feelings of wilderness. This hypothesis will be examined in chapter eleven.

Chapter 5 - Verbal Reports

Introduction

Many past studies of wilderness use and users have been based on the verbal reports of visitors about their experiences. Not only have respondents been asked to recall and quantify conditions they encountered on their trip, but they are often asked to identify the feelings and concerns they had while making the trip. Some studies have asked subjects to project from their experience to hypothetical situations, in order to locate their preferred and ideal conditions for such a recreation experience. Each of these approaches assumes that not only will respondents honestly report their opinions, but that they have access to accurate recall of the on-site experience and their psychological state at the time.

The ability of subjects to accurately remember and report their cognitive and emotional states has come under scrutiny (for example, Nisbett & Wilson, 1977; Stewart & Hull, 1992; Mannell & Iso-Ahola, 1987). The authors question whether subjects can recall or identify significant events or stimuli that may cause a change in cognitive or behavioral states. This has led some writers to question the validity and generalizability of findings based on verbal reports. People may have little awareness or memory of actual events, their own behavior, or the physical components of the environment (Nisbett & Wilson, 1977; Daniel & Ittelson, 1981; Ericsson & Simon, 1980; Bernard et al., 1984). Instead, subjects use easily observed or remembered social or environmental cues to invoke broader cultural or environmental norms upon which any post-hoc judgements are then made (Bradburn et al., 1987). Thus, verbal reports may represent little more than constructed memories or reports. (In some cases the constructed version of events may be the desired report, but rarely is this explicitly acknowledged in the research effort.)

This chapter lays out the critique of the use of verbal reports in the recall of information, situations and experiences. In doing so, it will become apparent how easily manipulated respondents may be in the interview or questionnaire process. Strategies exist for improving the accuracy of verbal reports, thereby circumventing some of the biases of memory and recall. However, the best solution is to avoid reliance on the memory process, and this is one of the reasons the Experience Sampling Method is investigated in this study.

Epistemology

Verbal reports are epistemologically important sources of information because they emanate from the very person who is experiencing the interaction with the wilderness environment. The visitor is the closest to the phenomena of interest. The subject's view, if accurately reported and unmediated retrospectively by the subject, is perhaps the only privileged report. If our aim is to faithfully represent the on-site experience in wilderness, then visitors must be our instrument. Indeed, if our mission as managers and researchers is to better provide for the visitor's experience, then we should be elevating the stature of the visitor. If this is truly the case, then our research process should also aim to empower the visitor. Direct reporting by visitors, rather than external reporting by expert researchers or managers, allows the visitors more influence. Generally, visitors are all too happy to be asked their opinions, in the hope that their responses will help shape future directions of the management of the park or wilderness.

Verbal reports are doubly important if we are most interested in the experience. Whereas some means of measurement and observation, such as post-hoc questionnaires, may be appropriate for more trait-like constructs, it is questionable whether they can accurately

capture state-like constructs. This is particularly so where we are interested in the process of the experience, as compared to the outcomes, or benefits, of the experience. This represents a philosophical shift for researchers interested in psychological processes. As McClure (1983, p. 121) points out : “ ... social psychologists, even when studying cognitive processes, have acted like behaviorists in adopting an S-R approach which obtains retrospective and outcome reports, instead of an S-O-R approach which analyses ongoing processes. ... Cognitive processes would be better understood by studying process over time, and by obtaining concurrent reports from subjects.” By privileging the verbal report of the subject we are moving closer to the phenomenon of interest, the lived experience. This is similar to hermeneutic phenomenological human science, which Van Manen (1990) describes as “the systematic attempt to uncover and describe the structures, the internal meaning structures, of lived experience” (p. 10, my emphasis). He goes onto describe phenomenology as that which “helps those who partake in it to produce action sensitive knowledge” (p. 21, his emphasis).

Thus, the use of verbal reports, particularly if gathered on-site, is epistemologically superior to post-hoc recollections, and especially so for understanding experiential processes. By privileging the subject and their lived experience, we get closer to the processes of interest.

Validity

Causal reports

The validity of self-reports was seriously and influentially questioned by Nisbett & Wilson (1977). They questioned whether respondents have privileged access to their own cognitive processes. Their review of the literature and experimental results led them to the conclusion

that subjects are no better at reporting the causes of their own behavior than external observers. Nisbett & Wilson suggested that subjects gain little assistance from their introspective access to cognitive processes, and rely on the same learned causal relationships as do external observers. Thus, these observers of the situation and the subject's behavior are just as capable at hypothesizing or recalling and acting upon culturally -based theories of behavior. In effect, Nisbett & Wilson (1977) were saying that when asking subjects to recollect the influences or causes of their behavior, the process of reporting itself was generating the response, and not the reported event. That is, the report maps the recollection of the experience, and not the experience itself.

Subsequent work has validated the finding that actors are no better at causal reports than observers (Sprangers et al., 1987; Wilson & Stone, 1985), However, care should be taken to apply this finding to ability to report causes of behavior, and not to the reporting of cognitive states of the subject. As Payne (1994) explains :

A knowledgeable agent's actions and their intended and unintended consequences might best be understood according to the myriad of constraining and enabling social factors influencing the body. The body as site for understanding and explaining experiencing includes actions that are discursive, as well as those that emanate from the pre-conscious through habituation and adherence to various conventions, customs, traditions, and other tacit behaviors. There are then, 'limits to rationality' in explaining embodied action.

(p. 145)

McClure (1983, p. 120) highlighted the differences between the cognitive contents or processes of states, attitudes and feelings from those of intentions, motives or causes of behavior. As he puts it : "positivist models are more successful in explaining states and

emotions than they are in explaining intentions, reasons and perceived causes.” In fact, Sprangers et al. (1987, p308) went on to find that subjects’ ability to report causal relationships actually improves across time : “immediate retrospective probing did not make subjects more accurate than when the probe was delayed.” These authors explain this by suggesting that subjects have had more time to improve their causal judgements after reflecting on the outcomes. As Koriat (1993, p. 611) points out, we have an imperfect memory of memory and that : “the experience of remembering can be manipulated by altering current processing independently of past experience.” Thus, following the recommendation of Adair & Spinner (1981) we must differentiate verbal reports of subject’s introspection from their post-hoc rationalizations.

Asking and interpreting questions

The validity of verbal reports lies in large measure in what we ask, and the manner in which we ask it. Again, as Adair & Spinner (1981) suggest : “to elicit accurate verbal reports of cognitions requires that subjects have been given an appropriate set to truly introspect” (p. 35). What we are asking them to report must be relevant and available in their memory. Sometimes people just don’t know or are unable to explain. This represents a less self-determined and free-willed view of human existence. As McClure explains, “critical theorists (e.g., Habermas, 1971) have emphasized, ... a number of ways in which the actor’s self-explanations or reasons may be inadequate or unsatisfactory. People sometimes simply cannot explain their behavior; they do not know why they do certain things. In other circumstances people do explain their behavior but their explanations include recurring distortions and self-contradictions (Habermas, 1971; Ricoeur, 1974).” However subjects will still answer questions, even if they don’t understand the question or

what it is asking. People don't want to admit their ignorance, and would rather appear socially aware and competent.

Also, not only may the task be too difficult for the respondent, but if it is too easy, then learned causalities may dominate. Along these lines, White (1987, p. 313) points out : "if the stimuli are too complex or too great in quantity, too much information is lost from memory; but if the stimuli are too simple, subjects can work out actual effects from stimulus response contingencies." In the absence of specific memories, or of adequate interest in accurately describing events or experiences, informants can turn to cultural norms for what is perceived to have occurred (Bernard et al., 1984). Subjects may have idiosyncratic theories or limited observations of covariation that can both enhance or impair their reports (Wilson & Stone, 1985).

Indeed, the inability of subjects to know their own cognitive processes is one of the fundamental assumptions of much psychological research (Wallendorf and Brucks, 1993). Respondents may be able to guess the hypothesis that the researcher is testing, but they are typically unaware of the cognitive processes that are driving their own behavior. They are prone to the illusory correlation phenomenon of over-estimating and over-generalizing the degree of association between their own history of unique events, contexts and subsequent behavior (Wallendorf and Brucks, 1993). Implicit theories of behavior are constructed from their past at the time of questioning. An example would be their recall of their own attributes. Respondents know their own state at the time of answering, and often construct an implicit theory to reach their supposed state at the point of time they are being asked to recall. Thus we can question the change, stability and relationship of the attribute between the time of questioning and the point in time they are being asked to recall. Bias in recall

could be expected if, as is likely, respondents are unaware or inaccurate in their estimate of the degree or nature of change of the attribute across time (Pearson et al., 1992).

Our memories of a single event or point in time do not happen in isolation. Rather they occur within a history of life experiences. Therefore, as Strube (1987, p. 87) points out, "... the meaning of an event, or even the boundaries of an event in the continuous stream of experience are, to a considerable extent, determined by what we expect to happen at a given time." Not only is the meaning of an event constructed within the context of our expectations, but so too is the encoding of the event in our memory. In particular, novel experiences quickly get generalized. They form the basis for both interpreting new experiences and for determining how the event is remembered. Frequent, yet similar, events also foster constructed memories and expectations. Indeed, it has been found that generic memories are formed that tend to blur together the specific time, location and context features (Jobe and Mingay, 1991; Jobe et al., 1993; Strube, 1987). Unless specifically probed for, respondents will find it easier to gloss over the specifics of an experience and instead rely upon the generic memory. This is worrisome since the researcher has no control over the boundaries of what is merged into the memory or judgement.

Furthermore, recalling or otherwise cognitively processing an experience in the company of others, such as answering a post-trip questionnaire at home, will give rise to secondary event representations (Strube, 1987). That is, what others say about an event will alter not only the way the event is recalled and reported, but how it is further encoded in memory. Group discussions shortly after the trip will cause the same secondary event representations. Recall and reporting of the event will then reflect more of the memory of

the event as discussed than as actually experienced. Researchers can try to avoid these tendencies by breaking the experience down as much as possible by specifics of the experience, by using timelines, landmark events, specific probes and other decomposition tactics (Jobe and Mingay, 1991).

The validity of verbal reports also depends on the perception by the respondent of what the researcher is asking and his or her perception of what it is the researcher wants in the way of a response. Willis et al. (1991) make the point that the retrieval of information from memory for a survey response is not an automatic process. Instead it entails a number of stages of a cognitive process itself. The stages go from understanding the question, making the decision to respond, and how to respond through to the method of, and actual retrieval of memory, and finally the presentation of the response. For example, based on observations and investigations of actual question interpretation and answering practices, Groves et al. (1992) found that, “the step of comprehension involves the retrieval from semantic memory of relevant facts concerning meanings of words and phrases. It also involves recognition of the implied meanings of combinations of words” (p. 46). Really what the questions represent are the intentions of the researcher, and part of the task the respondent faces is the interpretation and understanding of the idea that the researcher is trying to communicate to the respondent (Clark and Schober, 1992). And the key to this common ground between the researcher and respondent is often mitigated against by the prohibition on interaction, in the name of standardization of research protocol. This is unfortunate since, as Suchman and Jordan (1992) suggest, “stability of meaning, the real basis for standardization and ultimately for validity, in fact requires the full resources of conversational interaction” (p. 28).

Each of the questionnaire processes is subject to manipulation by the researcher and by the respondent. Shrauger & Osberg (1981, p. 329) report that “relevant studies show only that people can predict their academic performance fairly accurately, not that they will.” In describing the response biases identified in much psychometric work, Shrauger & Osberg (1981) also note that there are several ways in which self-reports can be manipulated by the subject. Respondents may feel pressure to respond in what they perceive to be culturally appropriate ways. For example, visitors to national parks might feel it is inappropriate to be too critical of the management of the park for fear that this may be interpreted that they are ungrateful for the opportunity to visit. There may be a strategic self-serving bias to their responses. In the knowledge that their answers may influence the management of the park, they respond in a manner which will preserve their interests.

However the self report is structured, as an interview or as a questionnaire, it is both a scientific endeavor and a social encounter, real or implied. Thus, we can expect the pressure of a social situation to influence both how the questions are interpreted, and which of the response alternatives is chosen (Dijkstra and Zouwen, 1987). The possibility of such response effects will be higher if the topic of the question is not salient to the respondent, if the topic leads to anxiety arousal for the respondent, or if the response alternatives offered differ in terms of social desirability (Dijkstra and Zouwen, 1987). “The use of alternative self-report procedures that may be less familiar to respondents and may obscure socially desirable responses” is suggested by Dovidio and Fazio (1992, p. 217) as a way to reduce bias in report and recall.

Answering questions

Subjects may also be concerned about how they appear to themselves. Their responses may be perceived to be statements about their own identity. Sudman (1987) reports data that “suggest that people prefer to interpret their own behavior in ways that reflect positively on themselves and that they actively seek alternative interpretations only when the more immediately obvious interpretation has negative implications for their self-image” (p. 15). There may also be desires or heuristics to be consistent. Or they may be hoping for a self-fulfilling prophecy, in that what they report is how they would like to be. Subjects may also make attribution errors in their reports, by focusing on situational factors more than their own dispositional tendencies. However, as Shrauger & Osberg conclude, “The motivation to present oneself in a favorable light should invalidate self-assessments only when it is stronger than the desire to be accurate” (1981, p. 347).

Respondents feel the need to respond due to the often implied social pressure to do so. Few people wish to appear stubborn or stupid, and the very asking of a question suggests that the respondent should have an answer or opinion. However, this may be tempered by a lack of motivation to be precise and accurate. Respondents may guess rather than carefully calculate otherwise factual answers (Clark and Schober, 1992). Similarly, a person’s interest or motivation may affect what is remembered, as well as what is reported. His or her own goals will act as a filter to the information recalled, but also as lens through which they consider the information in the first place. For example, when asked to remember information at a later date, subjects will tend to only recall that which was relevant or consistent with the events and settings at which the information was encountered (Sudman, 1992). People also tend to “remember past events so as to be consistent with their present

attitudes” (Strube, 1987, p. 90). Therefore, the context in which recall is undertaken can be easily manipulated by effecting current attitudes.

Earlier questions and answers in the questionnaire may also bias the recall and report of events and experiences (Bishop, 1987). There is social pressure for one to be logical and consistent. Respondent tend to use earlier answers as evidence for later judgements. Because of a quest for structure, many people interpret successive questions as related (Clark and Schober, 1992). Earlier items may prime or refresh ideas, prejudices, or contexts that will affect later questions. Even the order of response alternatives or the number or content of response categories affect response. Early options set the tone for subsequent choices (Hippler and Sudman, 1987). Credibility and equality of each response is implied by a list of response alternatives. Earlier questions and answers may prime other examples than the event in question. They might prime specific features not intended for interpretation, such as normative standards, previous behaviors, consequences, or moods (Strack and Martin, 1987).

Since the process of responding can be perceived to be a social process, we cannot assume a link between the ability and the quality of introspective access and of verbal report accuracy. White (1987) describes that “in social reality it is more important to communicate effectively than to be literally accurate. An inaccurate report that represents a cultural belief cannot be assumed to indicate that information about relevant mental activity was not available” (p. 314). The fact that privileged information is available does not guarantee the accuracy of the report.

The action of giving a seemingly satisfactory but less considered answer is called “satisficing”. And as Krosnick (1991) describes, “Satisficing may lead respondents to employ a variety of response strategies, including choosing the first response alternative that seems to constitute a reasonable answer, agreeing with an assertion made by the question, endorsing the status quo instead of endorsing social changes, failing to differentiate among a set of diverse object in ratings, saying ‘don’t know’ instead of reporting an opinion and randomly choosing among the response alternatives offered” (p. 213). The likelihood of satisficing is increased by the increasing difficulty of the recall task, the respondent’s ability to recall and cognitively process, and by the motivation (personal, social or physiological) to recall and process information (Krosnick, 1991). This is similar to the view of information retrieval that Wyer and Hartwick (1980) suggest :

When a person is asked to report his belief in a target proposition, he typically does not engage in an exhaustive search of memory for information bearing upon it. Rather he searches only until he encounters a piece of information (i.e. another proposition) that he considers relevant and bases his judgement primarily on (a) the implication of its being true and (b) the implications of its being false, without taking into account other information that may also bear on the validity of the target proposition. ... This process implies that the person’s reported belief in a target proposition may be influenced greatly by factors that affect which of several alternative pieces of information he happens to retrieve in his search for memory. (pp. 244-245)

The impact of mood on recall and report

Further complicating the matter of recall and report is the robust effects of mood on cognitions, particularly memory (Singer & Kolligan, 1987). Research examining the effect of mood on self-focus while not conclusive, has raised concerns (Palfai & Salovey, 1992).

Mood has , for example, been demonstrated to have strong effects on a respondent's evaluation of general life satisfaction (Schwartz et al., 1987; Sudman, 1987). Indeed, Laird (1989) has suggested that mood affects memory in much the same way as other cognitions. It has been shown that people recall material that fits their beliefs, attitudes, expectations and self-concept better than that which does not (Laird, 1984; Palfai & Salovey, 1992). Mood can affect, for example, the ease with which we recall events (Torengau, 1987). If we are in a good mood at the time of recall, then we will have better recall of good mood episodes.

One contention is that the more self-aware a person is, the more positive will be the impact of mood on self-report (Gibbons et al., 1985). This is suggested since self-focused attention leads to a greater intensity of affect (Duval & Wicklund, 1972), which in turn may cause people to turn their attention inward, giving more accurate self-report (Palfai & Salovey, 1992; Gibbons, 1983). However, whether self-focused attention induces positive or negative mood states is unclear (e.g., Gibbons et al. (1985) found more negative states, whereas Franzoi & Brewer (1984) found more positive overall effect). Csikszentmihalyi & Figurski (1982) have suggested that emotional experience is related to self-awareness, dependent on the degree of voluntariness.

Mood has been suggested as a heuristic device for the recall and evaluation of information. Davies (1986) suggests that "access to personal memories which are congruent with the subject's prevailing mood is greater than for incongruent material" (p. 160). And Schwartz et al. (1987) have argued that the general mood at time of judgement or opinion will affect general evaluations. More broadly, the credence given to any statement or belief at a

particular point in time depends on the circumstances in which it is considered and expressed (Ostrom, 1987).

This would tend to suggest a more general principle of recall and report : material is more likely to be remembered and reported if the context of recall is similar to the context in which it was first experienced and entered into memory. It is not necessary to physically reconstruct the location, rather to create in the remembrance sufficient details of the external environment that will also trigger remembrance of the affective or emotional response at the time of the event. Thus, the more specific the reconstruction, the greater the likelihood of eliciting specific memories and details (Sudman, 1987). For example, according to the Encoding Specificity Principle (Tulving, 1983) a cue will only activate information if the relationship between cue and information is the same at retrieval as it was at the time of acquisition.

Better self-report

There are strategies available based on the insights discussed above for improving the accuracy of verbal reports. These improvements respond to the pattern criticisms, in that we can achieve better results by considering not only what we ask, but also when and how we ask it. Overall, we need to view the verbal report from the eye of the respondent and the burden which we are placing upon him or her. The task of reporting should be straightforward and relevant, in such a manner that motivates and facilitates accuracy.

Verbal reports are best when the information being sought is normally available in the respondent's memory. Thus, questions seeking report of states such as feelings, attitudes, and significant events will have more success than those about motives, causes or

processes (McClure, 1983), since many subjects may not normally think so much about how things happen as compared to what happens (Willis et al., 1991). This can be mitigated to a point if the subject is informed in advance of later questioning about the way things occur (Sprangers et al., 1982). But even then it is best to stick to descriptive recall rather than interpretations about what happened (Ericsson & Simon, 1972). Questions should be as specific and explicit as possible in time, place and context (Shrauger & Osberg, 1981). They should be of a nature that is significant and interesting to the respondent.

Verbal reports should be made as easy a task as possible. This ranges from making the questions as simple and straightforward as possible, to allowing the respondents to recall events in whichever order they find easiest (Jobe et al., 1990). Attention should be given to ensuring respondents are interpreting questions in the same manner in which they are intended (White, 1980). Subjects should be motivated for accuracy and honesty, and led to the expectation that they are capable of accurate recall. Issues should be worthwhile for the respondent to remember. Relatively short questionnaires lower the burden on the respondent and raise the validity and reliability of verbal reports (Singer & Kolligan, 1987).

Interestingly, Hippler and Schwarz (1987) reports that “increasing question length with the addition of redundant filters was found to result in longer and more detailed answers and in more frequent reports of past behaviors” (p. 106). This is the case possibly because the length of the question indicates the importance of the question, partly because it provides a richer set of cues and partly because it allows and encourages more time to think and report. This demonstrates a more general principle that the characteristics of the recall task

have a profound influence on recall. Minor changes in the wording lead to major changes in response (Hippler and Schwartz, 1987). Respondents assume that the words were carefully chosen and respond as they were written with their interpretations in mind. Clark and Schober (1992) have shown, for instance, that respondents will still answer vaguely worded questions, and will have stable opinions on issues that they know nothing about.

Not only must respondents interpret the meaning and purpose of a question, recall information and / or form an opinion or evaluation, they are also faced with expressing the results of this cognitive activity. That is, the process of choosing an alternative or finding numbers, words or expression to encapsulate their ideas is itself a difficult and manipulable process. For example, closed ended questions facilitate recall and help assure respondents that their responses are valid.

The order of recall of events from memory has also been considered an important factor in accuracy of that recall. In reviewing research on the order of recall, Jobe et al. (1993) found that the effect of forward and backward recall tend to balance each other out. They summarized that backwards recall (beginning from most recent events) was best if recent events were more easily remembered, and that forwards recall was best if earlier recall could encourage and guide recall (i.e. earlier events which are more easily remembered may prompt recall of later events). It is worth considering that “assessing the frequency of repeatedly experienced events, or time dating of events, are probably among the most difficult tasks that we present subjects”, according to Strube (1987, p. 94).

Another example of assisting the process of recall and report is the use of continuous scales or lines, instead of categories for responding. Ostrom (1987) argues that :

People have a problem to solve when given a continuous (or extensive multicategory) rating scale. They find it an awkward and unnatural language through which to express the contents of their cognitive representation. This is because their representation has an all-or-none, categorical structure, while the response scale presumes the existence of a subjective continuum. It is argued that respondents solve this communication problem by decomposing the survey researcher's response scale into a categorical form, one that is congruent with the respondent's own subjective thinking about the stimulus object.

(p. 82)

While it is important to explain what is being sought by the experimenter, it is also important to lessen the desirability of responses that are strategic or self-presentational (Shrauger & Osberg, 1981). Similarly, a balance should be sought between stressing the importance of literal accuracy in responding to the questions and lessening the apprehension of evaluation of the task of remembering (White, 1987).

Perhaps most important of all to accuracy of verbal report is the delay between what is being reported and when it is reported. Memory appears to decay exponentially with time (Bernard et al., 1984). As Nisbett & Wilson (1977) summarize: "perhaps chief among the circumstances that should decrease accuracy in self-report is a separation in time between the report and the actual occurrence of the process." Smith et al. (1991) found that overall memory performance deteriorated as the memory retention interval increased from zero to six weeks. Research has found the effect of retention interval across a variety of target information domains (Jobe et al., 1993). As Wallendorf and Brucks (1993) recommend,

If the conceptual focus is on actual behavior or internal experience and its precursors, data consisting of retrospections cannot be uncritically accepted as accurate recordings. ...

[minimizing] the time lag between actual experience and data recording or giving priority to data recorded shortly after the experience strengthens its position to argue that memory distortions have been minimized. (pp. 343-344)

The Experience Sampling Method (ESM) is particularly suited to the verbal report of states (feelings, opinions, and events). Because it is a 'real-time' methodology, the gap between the actual situation and report is minimal. Indeed, it would seem that there are several reasons for us to seek an alternative approach such as ESM. First, the recall of states or experiences is much more prone to alteration and reliance on hypothesized behavior relationships than is the report of traits and more stable opinions. Second, the manipulation of recall is minimized, as is the tendency for strategic responding since the emphasis is on the 'here and now'. Third, the context of reporting is as close as possible to the event itself. Finally, ESM allows for focused retrieval on specific aspects of the experience. Further discussion of the advantages and disadvantages of the Experience Sampling Method follows a detailed description of the methodology.

Chapter 6 - The Experience Sampling Method

Introduction

An intriguing methodology, called the Experience Sampling Method (ESM) has been developed for investigating moment-by-moment experiences of persons in their normal settings. The development of the ESM came out of the work of Mihaly Csikszentmihalyi at the University of Chicago (Csikszentmihalyi et al., 1977), looking at what would be termed the experience of flow (the state in which people are so involved in an activity that nothing else seems to matter). His dissatisfaction with the vagaries of memory and peoples' ability to accurately report events, as well as the superficiality and general nature of interviews led him to experimenting with more systematic means of recording events and inner experience. The ESM was subsequently developed to study flow in everyday life (Csikszentmihalyi & Csikszentmihalyi, 1988).

ESM has since been widely used as a mean of systematic self-report. It consists of asking individuals to carry electronic beepers which signal pre-programmed random points of time at which subjects report or rate their immediate experiences by filling out a questionnaire. The general purpose is to "study the subjective experience of persons interacting with natural environments" (Csikszentmihalyi & Larson, 1987). Unlike post-hoc questionnaires and reflective journal entries, the answering of the ESM form is designed not to become an experience in itself. By using random scheduling, the participant has less of an opportunity to anticipate and prepare for the self-report. Little cognitive effort or verbal skills are required to adequately tap and report the immediate conscious experience.

Advantages and disadvantages

ESM is anchored in a number of philosophical and methodological approaches that contrast markedly with typical experimental or survey-based approaches to studying the human experience. Fundamentally, the ESM seeks to investigate the psychological space in which people live their everyday lives. The ESM investigates the thoughts, feelings and activities of people in “real time”. Not only is it notable that this is being done in naturalistic settings, rather than in laboratory or clinical locations, but it is also different in its focus on the private segments of the subjects’ lives. It parallels the “*alltagsgeschichte*” (translated as “everyday history”) movement in history, since it looks at the personal lives of people, rather than focusing on the structural components and constraints of the society. ESM has recently become popular in anthropology and other life-study disciplines, because of its non-intrusive nature and its ability to describe the person in context (de Vries, 1992).

ESM has been described as phenomenological because of its emphasis on the states and processes that people live through in their life-space (Csikszentmihalyi & Rathunde, 1993). It is a descriptive methodology of the lived moment. In contrast to observing only behavior, ESM also permits examination of how people think and feel. It provides the subjects with a tool to help monitor and evaluate the immediate experience. ESM allows the researcher to record ‘from the inside’ (Hurlbert, 1993). ESM is also based on a philosophy that believes the present motivates behavior, rather than the past (as in learned behaviors, learned needs etc.) or the future (anticipated benefits or goals, etc.) (Csikszentmihalyi & Rathunde, 1993). The research objective to which ESM is best suited is to identify and analyze how patterns in peoples’ subjective experience relate to the wider condition of their lives (Csikszentmihalyi & Larson, 1987).

ESM attempts to capture a moment, a 'freeze-frame,' of peoples' lives by asking people to report their thoughts and activities at that particular moment, and to describe the conditions of the physical and social environment at that specific time and place. This is in contrast to much survey work which includes questions or statements with qualifiers such as 'often' or 'usually' to describe subjects' behavior and feelings. (Thus, the ESM is particularly good for capturing rare, embarrassing or difficult to report activities, events, or happenings, but only if the signal scheduling is designed to capture those moments.) In addition, ESM goes beyond simply describing the context or other predictive constraints on behavior, to consider the meaning of an action or situation for that person (deVries, 1987). Also, as Larson and Asmussen (1991) suggest "by identifying what events in their experience elicit emotional reaction we gain access to that which is significant and meaningful to them." A person's internal state may influence his or her actions, decisions and chosen situations, and ESM helps examine the internal state and how it affects the internal experience. Although ESM only asks what is accessible in the conscious mind, it reflects equally the unconscious. (Even though we are not asking for causal explanations, we still have access to what would otherwise be retrospectively disregarded processes (Hurlbert, 1993).) Monson & Hurlbert (1993) suggest that introspection cannot "prove or disprove a theoretical position which is based on some a priori analysis of what thinking must be like; the description of an inner experience must come before the explanations."

One of the advantages of the ESM is the high level of situational and temporal details it can generate. Indeed, time budget studies are one of the most direct ancestors to the current approach (Csikszentmihalyi & Larson, 1987). These studies looked at the allocation that different groups of people gave to different activities under particular or general circumstances. ESM also gives consideration, in this tradition, of within-day variations,

and the influence of setting and context. Because the beeps, and subsequent responses, are randomly assigned, ESM can give accurate estimates of behaviors, thoughts, and subjective states. ESM can also be used in clinical and behavior monitoring studies, including psychotherapeutic studies. It is also useful for studying short term dynamics (Robinson, 1987).

Techniques other than ESM that gain this intensity of information have an accompanying intensity of effort (Larson, 1989). ESM is not as time consuming for the researcher as more traditional pen and paper observation methods. Equally, the imposition on the subject is less compared to researcher observation since the presence of others is avoided, and the questionnaires are relatively short. ESM is less intrusive on the privacy of the subject. Not only are subjects given the means to suspend data collection (by turning the beeper off), but the beeper is less of an intrusion than spot visits by the researcher. (The presence of a researcher, for example, would also induce greater attention to public self-interests.) ESM controls for many of the systematic biases in recall that diaries are subject to, by being as close as possible to the experience of interest. And as deVries (1987) points out : “the most important features of experience may exist in the unmeasured ‘space’ between events, archeological in the historical void that lies between discoveries” (p. 512). We seek to be right in the middle, or muddle, of the full complexity of the experience rather than the organized, filtered recall of highlights and lowlights. In addition, the randomness lowers the opportunity for strategic responding.

The validity and reliability of the ESM have been carefully examined by Csikszentmihalyi & Larson (1987). They present evidence of the short- and long- term reliability of ESM, demonstrating and explaining the stability and consistency of the measurements. They also

describe consistency with other time budget studies, as does Robinson (1987). Robinson's comparison also provides evidence on the validity of the ESM, and Csikszentmihalyi & Larson (1987) suggest that :

In general, the data suggest a) that ESM reports of psychological states covary in expected ways with the values for physical conditions and with situation factors such as activity, location, and social context; b) that measures of individual differences based on the ESM correlate with independent measures of similar constructs; and c) that the ESM differentiates between groups expected to be different, e.g., patient and nonpatient groups or gifted and average mathematics students. (p. 529)

However, the ESM does have questions of reliability and validity specific to its application. Four main areas of concern stand out : compliance or non-response bias, subject retention, measurement reactivity, and obtrusiveness (Stone et al., 1991). Compliance entails minimizing delayed or missed responses to beeps. The key assumption is that any response attrition is not related to any key variable such as tiredness or excitement. deVries (1992) suggests that "ESM asks more of the subject than survey instrument, questionnaire, or interview. It demands a look into the private world and experience of the individual over an often prolonged period of time. Creating an environment of trust, required for compliance and accurate reporting, is a crucial and practical part of the Experience Sample process that may not be casually passed over" (p. 317). Indeed, Stone et al. (1991) argued against using an exclusively financial incentive system, since this attracts respondents who lack this element of trust and commitment to honest and accuracy in completing the questionnaires. Instead, it is suggested that intrinsically motivated persons be recruited and that the researcher indicate his or her appreciation, perhaps with token incentives, after the task.

Subject retention is a related problem and is more easily achieved if the ESM questionnaire is short, enjoyable, and easy to complete. When asking the subject to participate in the study, the research technician should indicate that as many responses are sought as possible, even if there is a break in responses because a beep or two is accidentally missed.

Instrument or measurement reactivity is a major problem of many questionnaire-based methodologies, particularly for the ESM. The problem is that the very asking of the questions or the manner in which they are asked changes the experience, the same domain we seek to observe and record. Given the repeated nature of ESM (with the same questions being asked on numerous occasions), asking a particular item may raise the domain to a higher level of awareness in consciousness. That is, now that he or she is being asked the question, the subject looks for that component in the everyday experience, something he or she would not otherwise have done. Indeed, participants in ESM studies often appreciate having their self-awareness raised, sometimes mentioning that this increased their enjoyment of the experience.

In clinical settings it could easily be a desired outcome, according to deVries (1992) :

The effect of actively carrying out the self-evaluations from hour to hour - here, consciousness of behavior and experiences develops. In a motivated individual who is guided by a specific goal this potential increase in self-awareness can be a powerful stimulus for change. ... The therapeutic effect of ESM may be summarized at a number of levels : (1) The effect on the person as he evaluates his own experience and activities in the walk of life. His own shift in consciousness and behavior. (2) The effect of more or less interpretive feedback by the clinician based on the accumulated self-reports. (3) The

effect of ESM information on organization of the mental health worker's care planning, view of the patient, treatment approaches and specific interventions. (p. 257)

Another peculiar aspect of ESM measurement reactivity is the change in the way the questions are answered across the length of the experience. The effects of fatigue or boredom with the task of completing the questionnaire may lower the reliability of the answers. However, in both cases there is evidence that with adequate preparation, the beepers do not unduly affect subjects' daily experiences or disrupt their daily activity (e.g., Franzoi & Brewer, 1984).

The question of unobtrusiveness is related, but is tied to the notion of ecological validity. deVries (1987) indicates that : "ecological validity is not merely conducting investigations in real life settings, but taking the properties of the environment as experienced by the subject into account and making sure that they are included in our scientific analysis" (p. 551). The instrument we use, the ESM, should be far enough 'inside' the experience without obstructing the recording of the experience. The key concept is whether the picture of the experience that is generated by the ESM adequately captures the essence of the moment. Because of the proximity of the ESM to the person, it could be expected to be more ecologically valid than other survey methods.

Applications of the ESM

Since the time that ESM was developed, it has been used to study many facets of our lives. Four concentrations of effort, however, stand out. The initial interest in the state of flow, particularly as found in leisure, has remained. Later work in the leisure field has considered states of perceived freedom and intrinsic motivation as well as flow (for example

Csikszentmihalyi, Larson and Prescott, 1977; Csikszentmihalyi and Rathunde, 1993; Graef, Csikszentmihalyi and Gianinno, 1983; Kleiber, Larson and Csikszentmihalyi, 1986; Mannell, Zuzanek and Larson, 1986; Robinson, 1987; and Samdahl, 1988, 1992).

Reed Larson, of the University of Illinois, Champaign-Urbana has pursued an interest in adolescents' lives using the ESM. He has considered their emotional and subjective states across their daily lives and lifespans, as well as their time allocation to the activities of their lives. (See Larson, 1989; Larson and Asmussen, 1991; Larson and Csikszentmihalyi, 1987; Larson and Lampman-Petratis, 1989; Rathunde and Csikszentmihalyi, 1993). Similarly, others such as Wilson, Hopkins, deVries and Copeland (1992), Voekl and Nicholson, (1992), and Hnativk (1991) have looked at the lives of the elderly using ESM.

Marten deVries, at the University of Limburg in Maastricht, Netherlands, has been influential in applying ESM to clinical and psychotherapeutic settings (deVries, 1987 and 1992), culminating in an influential book which brought together many of the defining articles of the methodology (deVries, 1992). Some of the conditions examined using ESM include schizophrenia (deVries and Delespaul, 1992), agoraphobia (Dijkman-Caes and deVries, 1992), depression (Merrich, 1992 and van Diest, 1992), anxiety disorders (Faye and Massimini, 1992), heroin and alcohol addictions (Kaplan, 1992 and Larson, Csikszentmihalyi and Freeman, 1991), as well as bulimia (Larson and Asmussen, 1992).

A variety of personality and social psychologists have used ESM to study aspects of self. The main focus in these studies has been on the states and traits of self-awareness (such as Csikszentmihalyi and Figurski, 1982; Figurski, 1992; Franzoi and Brewer, 1984; Hurlbert, 1993; Singer and Kolligan, 1987; and Wong and Csikszentmihalyi, 1991), as

well as self-esteem (Wells, 1992). Other psychological work has focused on mood and other affective and emotional states (e.g., Penner, Shiffman, Paty and Fritzsche, 1994; Richards and Larson, 1993).

Thus a wide variety of disciplinary interests, populations of subjects and cultures of application have valued and used the ESM. It would appear not only to have both philosophical and practical advantages over other methods, but also the reliability and validity necessary for its widespread acceptance. It seems to have potential for studying the nature and intensity of the wilderness experience as it unfolds in wilderness.

Chapter 7 - The Application of ESM in Wilderness

Introduction

The application of the ESM in wilderness posed several problems unique to the setting. Many of the problems result from the very nature of the experience some people are seeking. That is, some visitors seek to escape the impacts and pressures of technology and bureaucracy. Distinct attempts were made to mitigate the intrusion of the research upon the experience. Some compromises in sample design were made to encourage both participation and non-reactivity. Wilderness and wilderness visitors may not be ideal places for ESM work, but the method is sufficiently well developed to allow this. This section describes the choices made in subject selection and training, beeper selection, and procedure and the sample frame used.

Study location

The sample used in this study included a pre-test of study methodology among day visitors to the Juniper Prairie Wilderness on the Ocala National Forest, Florida, and the study of the experiences of both day and overnight visitors to the wilderness of the Okefenokee National Wildlife Refuge, Georgia. The respondents were recruited on-site at the put-in point to the wildernesses. Both locations are water-based recreation sites, and only canoeists or kayakers were approached. At both sites there is significant day use that does not enter the wilderness: at Juniper it is mainly swimmers and picnickers; at Okefenokee it is mainly motorized boat tours, picnickers, and campers. However, in both cases wilderness visitors are clearly distinguishable, and only they were included in this study.

The visitor use of the Juniper Prairie Wilderness is almost completely centered on Juniper Creek. This creek originates from the springs within the developed Juniper Springs Recreation Area, soon entering the wilderness area and then flows for the first two and half miles narrow and winding, through subtropical forest. After that it broadens out, continuing slowly for another eight miles through alternating open prairie wetlands and enclosed forest. It leaves the wilderness area just before passing under Highway 19 (where most canoeists take out) one mile before flowing into Lake George. The stream is slow paced, without any rapids or portages. However, many novices find the narrow, tight bends and numerous overhanging tree trunks and branches quite a challenge.

A separate parking lot, unloading area and trail leading to the put-in are provided at the start of the creek. This is within the Juniper Springs Recreation Area, which also has a restroom, changing facilities, and kiosk facilities. The take-out, at Highway 19, is a popular, undeveloped swimming area, with limited parking, restroom and landing facilities. For many years, the Forest Service has managed the float trip as a high quality recreation experience. A concessionaire at Juniper Springs Recreation Area rents and shuttles canoes, under a special use permit. This permit allows up to 60 aluminum rental canoes on the run, as well as up to 35 private, or outside commercial outfitter, canoes. It is not uncommon on the summer weekends for some boats to be rented twice in one day, since early starters may be able to return their boats before noon when the last boats are allowed down the run. All canoeists must obtain a wilderness use permit, which limits use to canoes and kayaks. Bulletin boards at the put-in indicate that the average trip takes between four and four and a half hours, including stops. A dock and rest stop has been developed close to the midway point, but other than the dock, no facilities are provided. A

ban on disposable containers (soda cans, etc.) is in place, but enforcement has proved problematic.

The wilderness use of the Okefenokee National Wildlife Refuge centers on three locations from which to enter the core of the swamp: the Suwanee Canal Recreation Area; Stephen C. Foster State Park; and Kingfisher Landing. The first two of these access points are developed recreation sites with significant day use, some of which crosses into the area of federally designated wilderness. Camping is permitted only at designated spots on overnight canoe routes, or outside the wilderness in Stephen C. Foster State Park. Travel, by canoe or motorboats, is restricted to designated routes during posted hours only. Canoe trails through the Okefenokee wilderness may be traveled by campers holding permits for trips lasting from two to five days. Motorboat use, with motors limited to 10hp or less, and day-use canoeing, is confined to the main travel routes in the refuge, and typically does not extend to the overnight campsites. There are limited facilities, such as primitive toilets, along these major routes.

Overnight wilderness use in Okefenokee is governed by a restrictive permit system. Camping permits (effectively trail reservations) can be obtained no earlier than two months prior to the trip, and a fee of \$6.00 per person per night is charged. There are eighteen possible canoe trails, and each trail is limited to one party daily. (Although it is possible to see another group paddling in the opposite direction, and some trails overlap in some sections.) However, there are only seven designated campsites within the wilderness. It is possible for there to be only nine overnight wilderness visitor groups, while still being fully booked. While overnight visitors are assured of privacy at their campsite, they are limited in their freedom to travel when and where they like. Groups, for instance, are not

permitted to launch later than 10:00 am to ensure that the overnight stop is reached before dark, must remain at the designated overnight area between sunset and sunrise, and may only remain one night per campsite.

The swamp terrain is flat, with very little dry land and no fast running water. Boats and canoes cross through a mixture of cypress forest and open prairies. Some trails are overgrown with lily pads and other vegetation, and in some cases canoes must be pushed through peat bogs or shallow water. There is a short portage for those using the overnight stop at Floyds Island.

Canoes, basic camping equipment and canoe shuttles are provided by concessionaires at Suwanee Canal and Stephen Foster State Park. Day use is reasonably high at both locations, with guided boat tours and day use paddling being popular activities as are nature drives, picnics, and natural trails. The small natural lakes and alligator holes that dot the open prairies offer fine freshwater sport fishing. Other wildlife including otter, bobcats, ducks, and sandhill cranes abound in Okefenokee.

Shafer & Hammitt (1993) surveyed a sample of overnight visitors to Okefenokee and found that the education level of survey respondents was very high, with 64% having completed four or more years of college. Respondents were typically from urban areas, had driven 100 miles or more, and identified themselves as Anglo American (85%). These visitors to Okefenokee had considerable backcountry experience, had often been to Okefenokee before (44%), but only about half had accurate knowledge about the ownership and management of Okefenokee, including its status as wilderness.

Subject recruitment

The recruitment of respondents is a crucial step in the application of the ESM. Not only is the researcher trying to ensure the technical quality of the data gained, but also he or she is trying to protect the experiential quality of the respondent's experience. That is, the respondents must be as fully appraised of the aims and instrumentation of the research as possible, but not at the expense of the data validity. If the subjects are given too many cues as to the study objectives, then the possibility of strategic responding is raised. Similarly, the greater the training and familiarity of the respondent, the greater the focus on the mechanics of reporting the experience, rather than on the experience itself. This is particularly the case where the domain of interest is a leisure experience. Care is needed not only to ensure the study methodology does not detract from the experience, but also to maintain the perception of freedom and escape. Thus, researchers must balance demands of care and attention to the reporting task without changing the experience of interest.

In approaching visitors to these two wilderness areas it was recognized that the respondents' task had to be realistically presented, but in a manner that would not discourage those who might be willing to participate. Because it was not possible to sample all visitors on a particular sample day (due to the logistics of distribution and retrieval of a limited number of beepers), efforts were taken to encourage those who agreed to carry the packet of beeper and questionnaires to faithfully carry out the recording task. For this reason visitors were approached in a relatively casual and friendly manner at a time and place which would not unduly intrude on their preparations to launch their canoes. At both Juniper and Okefenokee there was a clear period of time when some members of the group were casually loading their boats, while others in the group were off either returning the canoe cart (Juniper) or moving their car (Okefenokee). Those remaining with the boats

were, therefore, more likely to be approached. This may be a cause of lack of representativeness in our sample, perhaps particularly so at Juniper where it seemed that dominant members of the group would take responsibility for returning the cart. However, this is balanced by two factors noted during the debriefing of study participants : in some cases the questionnaire was discussed and filled out in conjunction with other group members; and in other cases, primary responsibility for completing the questions was given to other members of the group.

While at Juniper there was essentially only one entry point into the wilderness, at Okefenokee there were three. Because visits into the Okefenokee wilderness required permits, typically applied for at least several weeks in advance, it was possible to know where people would be beginning and ending their trips on any particular day. On average, during peak periods there are two or three groups putting in at each location (Suwanee Canal, Stephen Foster and Kingfisher Landing). During the week or off-peak there would be fewer. In sampling overnight visitors it was usually only possible to be at one location during the morning launching period. (Boats were supposed to be on the water by 10:00 am.) While an effort was made to sample on different days at each of the three entry sites, sample sites were chosen to maximize contacts with overnight visitors. Day-use canoeists at Okefenokee were included in the study and were approached more or less incidentally to the greeting and meeting of overnight paddlers. Sampling at both locations occurred on each day during the sampling period.

In order to legitimize the initial contact, and subsequent requests for cooperation, the research technician presented himself on behalf of the land management agency (U.S. Forest Service at Juniper and the U.S. Fish and Wildlife Service at Okefenokee). The

technician wore a volunteer's cap from the agency, a name tag with both university and management agency identifiers and casual clothes similar to those worn by ranger staff. Visitors were asked if they would mind answering a few questions as part of a visitor survey for the land management agency. As an indication of both the haste with which some visitors wanted to begin their paddle, and of their antagonism to having their recreational experience intruded upon, there was a percentage (estimated at less than 5%) who refused at this stage to cooperate. This was much more noticeable at Juniper, where in some cases visitors did not even stop to read adjacent signs and bulletin boards. In a very small number of peak use periods at Juniper (perhaps four ten minute periods over 19 sample days), the interruption of contacting visitors would have been quite disruptive for a large number of groups, and so was not attempted. At Okefenokee it was possible to ask to see the group's visitor permit, and this allowed a check on length of stay (and hence which preprogrammed beeper to be given), as well as an initial reason to interrupt the group. In many cases, it was not the permit holder who chose or was designated by the group to answer the technician's questions.

The initial on-site contact form consisted of basic socio-economic questions of education, age, group type and size, and gender, as well as recreation specialization questions concerning canoeing and wilderness experience (see Appendix B). These were intended to be non-threatening and of the sort that management agencies would normally seek in trying to build a picture of who it was that was pursuing wilderness recreation experiences. The visitor's name and address was collected at the bottom of the form to build commitment to the research task.

Visitors were then asked if they wouldn't mind answering a series of questions while they were actually out in the wilderness. This was partially justified by our interest in reducing the time spent answering questions at the put-in, but also by our interest in what it was they were thinking, feeling and enjoying while out on the water. It was at this point that those who chose not to participate further would voice their concerns. At Juniper, this occurred every third or fourth group. Occasionally, another group member would indicate his or her interest in helping with the study. But more often the respondents would indicate that answering research question was the sort of task which they were seeking to avoid, or were uncomfortable with, while in the wilderness. At Okefenokee, very few people refused to participate in the study (only 1 person out of the 64 contacted on-site). This may be reflecting a number of factors, including the more relaxed nature of the put-in, the higher percentage of college-educated recreationists, the longer length of stay, and perhaps a greater degree of commitment to wilderness.

After agreeing to participate further in the study, the respondent was introduced to the equipment, procedure, and purpose of the research. Upon hearing that they were being asked to carry an electronic beeper that would interrupt their wilderness experience, a number of Juniper visitors declined their assistance at this stage. Again, at Okefenokee this was rare, although some visitors expressed amusement and suspicion at the use of alarms. At Okefenokee, these fears were allayed by explaining the low frequency and reasonable hours in which the beeping would occur. From a debriefing session at the completion of the trip, most respondents agreed that the intrusion was minimal, and less than what they had first thought. Several expressed the sentiment that they did not mind the inconvenience, since they felt the research interesting and worthwhile, and would be of benefit to the

management agency. This is indicative of the success of building a research alliance between the researcher and the subjects. As Larson and Csikszentmihalyi (1983) point out :

Obtaining these data requires some care and concern. The Experience Sampling Method is a means for communicating with people about their daily lives, a transaction requiring what Offer and Sabolium (1967) have termed a *research alliance* - a mutual understanding about the procedures and ends of the study. (Jokes about our being FBI agents suggest the potential for misunderstanding.) Most participants find the procedure is rewarding in some way, and most are willing to share their experience. However, co-operation depends on their trust and on their belief that the research is worthwhile. (p. 65)

Research procedure and subject training

While the research task was not onerous, caution was used not to overwhelm the respondents with unnecessary details. The purpose of the research was explained as our interest in knowing the hows and whats of their experience while actually in wilderness. It was pointed out that we were interested in recording their observations and reactions at different times and places during their journey. Mention was made that while the questions may appear strange and cumbersome at first, they would find at subsequent beeps the same questions would become more familiar and the task of answering them less onerous and time-consuming. We told the participants that they had the right to turn off, or hide (so they would not hear) the beeper if they really did not wish to be further disturbed, but we also made it clear that we would very much like to have as complete and careful a set of reports as possible.

Respondents carried a packet of research materials that was sufficiently waterproof that the packet could sit in the bottom of the canoe easily accessible and the beeper easily heard.

Each plastic packet contained a sufficient number of 8 1/2 x 11 questionnaires (see Appendix 3) printed on waterproof paper and folded over, two pencils, a plastic backing board on which to write, and the beeper device inside its own plastic bag. The entire package was small in size (6 x 10 inches), brightly colored and individually numbered for identification. The packets tended to float, which was necessary since about one third of Juniper visitors capsized or got considerable amounts of water in their boat.

At Juniper, where the average float through the wilderness is about four and a half hours long, the beepers were scheduled to signal randomly within one and a half hour blocks. That is, on average each participant would be beeped every one and a half hours, or three times in a four and a half hour visit. This frequency was chosen so that every respondent would be beeped at least twice, and that groups that took an extra long time to make the journey would not be disturbed more than four times. Feedback from these day visitors who were beeped four times was that this became disruptive and burdensome. The beepers were preprogrammed each day to sound randomly between 8:00 am, the earliest that most paddlers could begin their trip, through to 5:00 pm, which was the last pick up time for the concessionaire's canoe shuttle, which most visitors (rental and private) made use of. Thus, although extremely unlikely, it was possible that a group could be signaled six times in one day. However, a maximum of five questionnaires was provided. Respondents were instructed that they would probably be beeped three times, with possibly one more or less. It was explained that the form typically took less than five minutes to complete, but that the first time answering might take longer. We suggested that they might like to pull over to the bank while completing the questionnaire.

At Okefenokee, where the average overnight trip is three days long, the beepers were preprogrammed to randomly sound once in the morning (between 8:00 am and 12:30 pm) and once in the afternoon or early evening (between 12:30 pm and 6:30 pm). Thus, an average group on a three day trip would be beeped five times, since many groups finished their trip around lunch time on the third day. Groups that only went out overnight were randomly beeped three times on their first day, and twice on their second day (before 5:00 pm when canoe rentals were due back). Day visitors were scheduled similarly to Juniper, in one and a half hour blocks. When randomly selected beeps were found to be too close together in time (within one half hour on day trips, and within one and a half hours on overnight trips) then another random time was selected. Subjects were instructed that each beep needed to be responded to, by pressing the 'off' button, otherwise it would beep again in ten minutes time.

Finally, participants were briefly shown the two sides of the questionnaire and the groups of questions contained in each section. They were told that a technician would meet them at the end of the trip to hear about their experiences, collect their questionnaires, and the equipment. Alternative arrangements were also made in case the researcher was unexpectedly absent. Meeting people at the conclusion of the trip allowed a debriefing process where a few more of the research objectives could be explained, any misunderstandings or questions cleared up, and feedback on the research process gained. It is also possible that compliance rates were higher because of the knowledge that someone would be taking the effort to greet them and ask about their experiences and reactions.

Signaling device

The beeper device chosen for the study at Okefenokee Wilderness was the Sharp Electronic Organizer model EL-6320. This 'Memo Master Alarm' was chosen for a number of reasons, and proved almost ideal for ESM work. These beepers can be preprogrammed to sound at particular times on different days, several months in advance. It is similar to an electronic appointment book or schedule alarm system, and can hold at least 60 or 70 signals. These beepers are similar in size, but a little thinner than an ordinary music cassette, and are relatively unobtrusive. The alarm sound is similar to a digital watch, with an initial slow beeping sound for up to twenty seconds, followed by a rapid beeping ten minutes later if the first alarm is not stopped by pressing the 'off' key. The only modification made to the beepers was to cut a hole in the cover so that the 'off' key was plainly visible without having to open the cover. This was particularly useful since the beeper was kept in its own little plastic bag to keep it waterproof. (The beepers would fail to function if they got immersed in water, but could tolerate incidental water quite well. They would resume operation once dried out, if they did become inundated.)

These alarms had a special feature that allowed the preprogrammed signal to be kept secret. While normally it is possible for the time of the signals to be verifiable both before and after the beep, it was also possible to protect this information with a password. Thus, while the researcher was able to check the scheduled alarms, the subject did not have access to this information. This was important so that the subject would not be able to predict and prepare for the verbal report. Because the questions were framed in terms of the here and now of when the alarm beeped, it was important that subjects did not know when that would happen. As previously mentioned, the subjects still had control over turning the beeper off altogether, or of hiding the beeper so that they would not hear it. (The alarms were readily

heard from within their plastic bags but would be muffled inside a backpack, cooler or handbag.)

An alternative alarm, the Royal DM75 Personal Organizer, was used at Juniper. While it is in the same price range (\$15 - \$17 per unit), it only allowed up to 10 preprogrammed beeps. This was sufficient for most of our investigations but would not be adequate for longer or more frequent sampling as part of an ESM study.

Conclusion

The wilderness environment and the wilderness visitor is not ideal for the application of ESM. In this study several modifications to ESM procedures have been necessary. For example, lower rates of beeper signals were used so as to minimize the intrusion upon the visitors' experience and help in subject recruitment.

Chapter 8 - Results -- Multiple Dimensions of the Wilderness Experience

Introduction

This chapter describes the development, reliability, and validity of questionnaire items and scales designed to measure the aspects of the wilderness experience as described by writers such as Aldo Leopold and Sigurd Olson, as well as the modes of environmental experience described by environmental psychologists. This analysis begins to address Study Objective 1. The items and experience sampling methods were pre-tested at Juniper Prairie Wilderness, and then applied at the Okefenokee National Wildlife Refuge.

Implementation at Juniper Prairie Wilderness

An initial sample of visitors was carried out during the month of July, 1994 on the the Juniper Prairie Wilderness, Ocala National Forest, Florida. Over a period of 19 sample days, 191 groups of canoeists on Juniper Run were contacted, one representative of each group was interviewed using a contact sheet of questions (see appendix B). (An estimated 500 groups paddled Juniper Run on these days.) Visitors were asked brief demographic information, a series of recreation specialization questions and how they first heard about Juniper Run. Seventy-three percent then agreed to carry a packet containing a preprogrammed electronic beeper, questionnaires and pencils.

It should be noted that the sample at Juniper Run was more of a convenience sample than representative of all the visitors down the Run. Initial analysis suggests that those who refused to participate were more likely to have less canoeing experience, to be paddling with friends rather than family, and to be male. Of the 140 groups who agreed to carry

beepers, 137 completed at least one questionnaire (2 failed to complete a questionnaire on the river, 1 set was lost). Table 2 shows the breakdown of visitors by the number of questionnaires completed. Overall, we collected a database of 280 completed questionnaires at Juniper Prairie, from a total of 137 visitors.

The following characteristics describe the 140 people who agreed to participate in the Juniper Prairie study:

- Average age = 38 years old
- Average group size = 4.3 people
- 49% had paddled Juniper Run before
- 85% had rental canoes in their group
- 59% of visitors who took beepers were women (53% of visitors approached were women).

Table 2
Number of questionnaires completed by visitors at Juniper Prairie Wilderness

# questionnaires completed / respondent	# of visitors	# questionnaires completed
4	7	28
only 3	30	90
only 2	62	124
only 1	38	38
Total	137	280

For the purposes of this dissertation, the research at Juniper Prairie can be considered a pre-test of the equipment and questionnaire items. Reliability and validity analyses helped to identify inferior items, and more robust equipment was found for use at Okefenokee. The results from Juniper were part of a larger study and will be presented in a forthcoming

report. Data and results from Juniper Prairie will not be further discussed in this dissertation.

Implementation at Okefenokee Wilderness

The main study comprised sampling at Okefenokee National Wildlife Refuge during the months of October and November, 1994. On each of 24 sample days (7 weekend days, 16 weekdays), canoeists entering the Okefenokee Wilderness were approached to assist in the study. The main priority was to contact overnight paddlers, but the opportunity to talk with day visitors was also possible. A total of 63 groups were approached, and all but one agreed to participate in the study. (An estimated 80 overnight groups entered Okefenokee Wilderness on these sample days.) After this period of sampling, a small group of visitors were recruited for the study through the mail, sending materials (preprogrammed beeper, questionnaires, return envelope) along with their wilderness permit. An additional seven respondents were gained in this manner. (Several groups approached through the mail canceled their trip plans, misplaced the packet, or refused to participate.) The breakdown of sample days and respondents is shown in Table 3.

Table 3
Sampling days and respondent numbers at Okefenokee Wilderness

	Days	Number of visitors		
		Overnight visitors	Day visitors	Total visitors
Weekend	7	13	9	22
Weekday	16	27	6	33
	24	40	15	55
Mail	6	7		
Total	30	47	15	62

Of the 62 respondents who agreed to carry the packet of beeper and questionnaires, all of them completed at least 1 questionnaire. Table 4 shows the breakdown of respondents by the number of questionnaires completed during their visit to Okefenokee Wilderness.

Thus, a database of 221 completed questionnaires was collected, from a total of 62 visitor groups.

Table 4
Number of questionnaires completed by visitors

# questionnaires completed / respondent	# of visitors	# questionnaires
9	1	9
only 6	5	30
only 5	11	55
only 4	16	64
only 3	13	39
only 2	8	16
only 1	8	8
Total	62	221

The following characteristics describe the 62 people who agreed to participate in the study:

Average age = 43.5 years old

Average group size = 5.0 people (day visitors: 4.4, overnights: 5.25)

Average length of stay = 40 hours

Average length of stay for day visitors = 5 hours and 20 minutes

Average length of stay for overnight visitors = 50 hours and 30 minutes

53% had paddled Okefenokee before

58% had rental canoes in their group

32% of respondents were women

Table 4 shows the type of group with whom the respondent visited Okefenokee, and Table 6 shows the breakdown of education level in years of schooling completed.

Table 5
Type of visitor group of Okefenokee respondents

Type of group	Number	Percent
Alone	4	7
Family	17	30
Friends	20	35
Friends and family	12	21
Club	4	7

Table 6
Education level of Okefenokee respondents

Education level (years)	Number	Percent
12	7	12
13	1	1
14	4	7
15	1	2
16	22	36
18	11	19
19	4	6
20	5	9
21	5	8

Scale development and item analysis

Any investigation of the wilderness experience depends upon the ability of the researcher to obtain an accurate report of the visitor's experience. As has been previously discussed, there are various techniques available to help the respondent accurately report his or her experience. The researcher faces a dilemma in that any report, in whatever form and

format, is but a mere approximation, an abstraction of reality. The researcher can help guide this summarization through cues and prompts. Or in the case of questionnaire-based methodologies, the use of hypothesized constructs and psychometric items designed to tap those areas of interest will help.

Any use of questionnaire items, where the respondent is asked whether the item adequately reflects his or her state of being, is necessarily an indirect measurement of reality. The psychological constructs, the underlying areas of interest to the researcher, are only indirectly tapped by the items we ask. This is because it is not possible to adequately describe the complete complexity of a construct, nor to expect the respondent to have the patience, motivation, and ability to cover the construct's full range. Instead, we attempt to design items that tap the core of a particular construct. Moreover, in preparing a number of items for each significant aspect of a construct, we not only cover slightly different aspects of the construct, but also gain some confidence in the items' accuracy because of a level of consistency among them. That is, we would expect similar but different responses to items that purport to measure similar but different underlying constructs.

The development of an adequate group of questionnaire items is also limited since the researcher can only sample a small selection of the population of interest. Just as it is not possible to include all the wilderness visitors as study subjects, so too is it not possible to completely measure the full range of experiences and behavioral events. Our sampling of the wilderness experience, therefore, should aim to capture most of the range of variability across people, places, and time. Indeed, we would ideally like to be able to discriminate among the range of types and intensities of experiences. Thus, variance of response is

actively sought in item construction. However, this variability of response is not without problems.

While we want on the one hand to adequately capture the variability of the human experience, we want to do so with accuracy and precision. That is, we want to have confidence that what we claim to be measuring is in fact what we are measuring, and that we do so with a level of consistency. Psychometricians label these desired qualities of measurement as validity and reliability. Validity is the degree to which the item responses adequately capture the meanings of the concept being measured. Reliability is the degree to which those responses are consistent or reproducible across repeated measurements. Although it is not possible to completely replicate the implementation of questionnaire items, it is hoped that similar situations would yield similar responses. Unfortunately, the desired characteristics of reliability and validity run somewhat counter to one another. Very specific, reliable measures of a concept of interest often miss the richness and applicability of meaning, thus losing coverage of the concept and validity.

This study attempted to develop valid and reliable measures of six aspects (i.e. humility, oneness, primitiveness, timelessness, solitude, and care) of a wilderness experience as espoused by some of the leading writers and philosophers of wilderness. In addition, we attempted to measure how visitors experience wilderness, described as five foci of attention or modes of experiencing the wilderness environment. These foci, or modes, were developed based on the prior work of environmental psychologists such as Ittelson and Kaplan, and represent an important approach to understanding the on-site experience of the natural environment. Finally, we attempted to assess whether the wilderness experience represents true or peak leisure.

This chapter describes the manner in which the six aspects of wilderness and five modes of environmental experience were operationalized in the study. Discussion follows on the claims of reliability and to a lesser extent, the validity of the scales. Cronbach's alpha is used as a measure of the reliability of the items combined into a composite scale. It is a statistic of how consistently the items performed in a scale as a measure of the underlying construct. Cronbach's alpha measures both homogeneity and internal consistency among the items. It can be considered the lower bound estimate of the proportion of variation in item scores that can be explained by the construct (Crocker and Algina, 1986). A series of confirmatory factor analyses of each group of mode of environmental experience items and of each group of wilderness aspect items is also presented. These analyses were used to confirm that the grouping of items belong together. If the grouping of items were as a whole measuring two underlying concepts, then one would expect two factors to be elicited. (An overall factor analysis of all 18 'modes of environmental experience' and of all 22 'aspect of wilderness' items is shown and discussed in the chapter eight.)

Modes of environmental experience

Focus on self - Introspection

The items used to measure concentration on awareness of self was drawn from the self-consciousness scale of Fenigstein, Scheir and Buss (1975). This scale distinguishes between private self-consciousness (where the emphasis is on the internal feelings and experiences of the individual) and public self-consciousness (where the self is viewed as a social object). Fenigstein et al. (1975) used 10 items to compute the full range of each aspect. However, we included in the study questionnaire only the two self-consciousness items that factored the highest in the Samdahl and Kleiber (1989) study of the leisure

experience. Additionally, one question directly asking how much the respondent was focusing on self was included (Table 7).

Table 7
Reliability analysis of Focus on self : introspection items

Focus on self : introspection (3 items) ALPHA = 0.74 Variance = 38.8		Mean	SD	Inter-item correlation	
				Q2A	Q401
Q2A	Focussing on your own thoughts	3.0	2.6		
Q401	I was reflecting about myself a lot	2.5	2.4	.56	
Q406	I was thinking about my place in the world	2.6	2.8	.37	.55
		Item-total correlation	Variance if deleted	Alpha if deleted	
Q2A	Focussing on your own thoughts	.52	20.3	.71	
Q401	I was reflecting about myself a lot	.67	19.3	.54	
Q406	I was thinking about my place in the world	.52	18.8	.71	

Table 7 also reports a series of item analyses of the focus on self (or introspection) scale that show their reliability, as well as some basic summary statistics for each of the scale's items. Each of the three items have similar mean values, and have standard deviations which are in the range of 2.5 to 3, the average shown for all mode of experience items on the questionnaire. Although mean values are somewhat low, there is still adequate variability of response (although the distribution of response is centered on low values, the distribution is not unduly skewed or biased). The correlation between the three items is high, indicating that there is a common underlying construct being tapped by these three items.

The observed alpha of 0.74 is satisfactory, and indicates good reliability for the introspection scale. Another indicator of the goodness of the scale is the fact that removing

any of the three items decreases the reported alpha, indicating that all three items contribute to the overall reliability of our measurement of introspection. Also, there would be a significant drop in the variance if any of the three were removed. Therefore, all three items were used to create a composite measure of introspection, which has an observed mean of 8.27 (since this mean is calculated by adding 3 scores on a 0-9 scale, the mean value for introspection is calculated to be 2.76 on a 0-9 scale) across all Okfenokee respondents.

From Table 8 it can be seen that these three items are considered to be measuring only one underlying construct, and that a linear combination of these items (found using a principle components analysis) accounts for 66% of the total variance of these three items. It can also be seen that each of the items has roughly equivalent weighting in this linear combination, having similar principal component weights. Also shown are the communalities, a measure of the degree of linear association between the items. (The communality is the squared multiple correlation coefficient between that item and all the other items included in the particular factor analysis.) In this case, each of the communalities is greater than 0.6, which is also satisfactory. We conclude, therefore, that a composite scale comprising items Q2A, Q401 and Q406 on the study questionnaire is a reliable measure of the degree of private self-consciousness, or introspection.

Table 8
Confirmatory factor analysis of Focus on self : introspection items

Focus on self : introspection		Prin. Comp.	Communality
(3 items) Lambda = 1.98, % variance = 66.2		Weights	
Q2A	Focussing on your own thoughts	.79	.62
Q401	I was reflecting about myself a lot	.87	.76
Q406	I was thinking about my place in the world	.78	.61

Focus on others - Degree of socialness.

The four items selected to assess degree of social focus of the wilderness experience were also derived from the work of Fenigstein et al. (1973), and from Samdahl and Kleiber (1989). Their items were reworded to more closely reflect the immediate state of the experience rather than the respondent's inclination or overall tendency. Thus, these items represent an untested scale, and the study analysis demonstrated some negative consequences of using new scales.

A series of analyses were tried in the hope of obtaining a subset of the four items that were both related because of a common underlying construct, and provided adequate coverage of the construct. Table 9 shows the steps taken through the reliability analysis. Initial examination of the four socialness items shows that Q421 did not have the range of response expected, with a very low mean of 1.1 on a 0 to 9 scale, and a low standard deviation of 1.6. It would appear that this item is not very relevant to the survey of small and intimate groups that characterize the wilderness experience. This may be because those people with whom an individual interacts in wilderness are chosen to a much greater degree than in other leisure and work settings, and he or she is less concerned with the social pressures of this chosen company. Further evidence for the separateness of item Q421 from the domain of interest is found in the low inter-item correlations (.30, .13, and .02), and the low item-total correlation of .20. Removing item Q421, as shown in the second iteration, marginally improves the reliability and has only a small effect on total variance explained.

Table 9

Reliability analysis for Focus on others : degree of social acceptance items

Focus on others : degree of social acceptance		Mean	SD	Inter-item correlation		
(4 items) ALPHA = 0.54				Q2B	Q402	Q421
Variance = 38.0						
Q2B	Focusing on other people around you	3.7	2.6			
Q402	I feel a special closeness with others in my group	5.3	2.6	.35		
Q421	I was interested in making a good impression on others	1.1	1.6	.30	.13	
Q416	Other group members were accepting me for who I am	6.9	2.6	.07	.46	.02
		Item-total correlation	Variance if deleted	Alpha w/o		
Q2B	Focusing on other people around you	.33	23.4	.47		
Q402	I feel a special closeness with others in my group	.52	19.3	.27		
Q421	I was interested in making a good impression on others	.20	31.7	.56		
Q416	Other group members were accepting me for who I am	.29	24.1	.51		

Focus on others : degree of social acceptance		Mean	SD	Inter-item correlation	
(3 items) ALPHA = 0.56				Q402	Q2B
Variance = 31.6					
Q402	I feel a special closeness with others in my group	5.3	2.6		
Q2B	Focusing on other people around you	3.7	2.6	.34	
Q416	Other group members were accepting me for who I am	6.9	2.6	.45	.07
		Item-total correlation	Variance if deleted	Alpha if deleted	
Q402	I feel a special closeness with others in my group	.54	14.0	.13	
Q2B	Focusing on other people around you	.25	19.6	.63	
Q416	Other group members were accepting me for who I am	.31	18.0	.51	

Table 9 (continued)

Reliability analysis for Focus on others : Degree of social acceptance items

Focus on others : Degree of social acceptance		Mean	SD	Inter-item correlation
(2 items) ALPHA = 0.63				
Variance = 19.9		Q402		
Q402	I feel a special closeness with others in my group	5.3	2.6	
Q416	Other group members were accepting me for who I am	6.9	2.6	.46
		Item-total correlation	Variance if deleted	
Q402	I feel a special closeness with others in my group	.46	6.7	
Q416	Other group members were accepting me for who I am	.46	7.0	

The reliability of the scale can be improved to .63 by further removing item Q2B, the focus of attention on others question. This item may have been ambiguously interpreted as to whether ‘other people around you’ included the family and friends with whom the respondent travels. There is further evidence for removing item Q2B in the confirmatory factor analyses reported in Table 10. Here we see that Q2B has a low communality value (.33) and a lower principle component weight than the other two items. Deleting this item however, seems to have changed the nature of the underlying concept being measured.

Both remaining items, Q402 and Q416, seem more concerned with social acceptability than on focus or mode of experience. It is interesting to note that the confirmatory factor analysis of all four socialness items identifies two factors, of which Q402 and Q416 are in different factors. This would tend to indicate that they represent two slightly different facets of social acceptance, that can be exaggerated in the context of the discarded items. The final configuration of the two items has a relatively low reliability (0.63), but does appear to somewhat capture the variance of the new emphasis, since 73% of the variation in

best two items responses can be described by a linear combination of the two. Therefore, the scale used to measure degree of focus on others will use only these two items, and will be called a scale of social acceptance.

Table 10
Confirmatory factor analysis of social acceptance items

Focus on others : Degree of social acceptance		Prin. Comp. Weights		Communality
(4 items) Lambda = 1.70, 1.13 for each eigenvector % variance = 42.6, 70.9				
Q2B	Focusing on other people around you	.28	.78	.74
Q402	I feel a special closeness with others in my group	-.05	.81	.66
Q421	I was interested in making a good impression on others	.81	.29	.77
Q416	Other group members were accepting me for who I am	.87	-.09	.66
(3 items) Lambda = 1.6, % variance = 53.5				
Q2B	Focusing on other people around you	.58		.33
Q402	I feel a special closeness with others in my group	.87		.75
Q416	Other group members were accepting me for who I am	.72		.52
(2 items) Lambda = 1.45, % variance = 72.7				
Q402	I feel a special closeness with others in my group	.85		.72
Q416	Other group members were accepting me for who I am	.85		.72

Focus on task - Task orientation

It has been suggested that any true leisure experience, absorbing and captivating as it is, can be described as a flow (Csikszentmihalyi, 1975) or peak (Maslow, 1968) experience (Tinsley and Tinsley, 1986). Thus, an appropriate way to measure task orientation may be through the level of absorption or concentration on the activity at hand. Goal attainment is another metaphor for a focus on task. With task orientation it is suggested that a sort of tunnel vision occurs whereby other concerns become peripheral. Tinsley and Tinsley

(1986) suggest that a focus on task would be accompanied by a decreased sense of passage of time.

Three new items were constructed to investigate focus on task. Item Q2E was part of the series of five looking at focus of attention (Table 10). Items Q408 and Q414 were attempts to capture the concentration and goal orientation of the activity. Item Q403 was adapted from the work of Baldwin and Tinsley (1988), who attempted to measure the total absorption of leisure. Converted to a 10 pt. scale they reported a mean of 5.6 for a similar item to Q403, which itself showed a mean of 6.0 on a nine-point scale.

However, as is shown in Table 11, the correlation of item Q403 to the other three items is low (.32), and deleting this item would improve the reliability of the composite and have the least impact on variance. Further support for deleting this item is found in the confirmatory factor analysis where item Q403 has low communality and principle component weights (Table 11). Removing the item increases the percent of variation explained by the linear combination of the remaining three variables to an acceptable 68.3%. These three remaining items also yield a good Cronbach's alpha value of 0.77.

Focus on nature - Environmental awareness

It was expected that visitors to a wilderness would be sensitized and motivated to pay attention to the wilderness environment around them. It has also been suggested that the greater the attention to environmental detail, the more wilderness-like the experience; and the longer the stay in wilderness, the greater the attention to environmental detail (Kaplan and Talbot, 1983).

Table 11

Reliability analysis of Focus on task : Task orientation items

Focus on task : Task orientation		Mean	SD	Inter-item correlation		
(4 items) ALPHA = 0.73 Variance = 73.2				Q2E	Q403	Q408
Q2E	Focusing on the task you were carrying out	5.4	3.0			
Q403	I found myself getting totally absorbed in what I was doing	6.0	2.3	.28		
Q408	I was focusing on achieving the next goal of my trip	2.9	3.0	.47	.21	
Q414	I was concentrating on doing my activity right	4.6	3.0	.56	.31	.54
		Item-total correlation		Variance if deleted		Alpha w/o
Q2E	Focusing on the task you were carrying out	.59		41.1		.63
Q403	I found myself getting totally absorbed in what I was doing	.32		56.4		.77
Q408	I was focusing on achieving the next goal of my trip	.54		42.7		.66
Q414	I was concentrating on doing my activity right	.65		39.2		.59
(3 items) ALPHA = 0.77 Variance = 56.4		Mean	SD	Inter-item correlation		
				Q2E	Q408	
Q2E	Focusing on the task you were carrying out	5.4	3.0			
Q408	I was focusing on achieving the next goal of my trip	2.9	3.0	.21		
Q414	I was concentrating on doing my activity right	4.6	3.0	.31	.54	
		Item-total correlation		Variance if deleted		Alpha if deleted
Q2E	Focusing on the task you were carrying out	.59		56.4		.71
Q408	I was focusing on achieving the next goal of my trip	.57		28.2		.72
Q414	I was concentrating on doing my activity right	.64		28.9		.64

Table 12

Confirmatory factor analysis of Focus on task : Task orientation items

Focus on task : Task orientation		Prin. Comp.	Communality
(4 Items) Lambda = 2.21, % variance = 55.4		Weights	
Q2E	Focusing on the task you were carrying out	.80	.64
Q403	I found myself getting totally involved in what I was doing	.52	.27
Q408	I was focusing on achieving the next goal of my trip	.77	.60
Q414	I was concentrating on doing my activity right	.84	.71
(3 Items) Lambda = 2.05, % variance = 68.3			
Q2E	Focusing on the task you were carrying out	.82	.67
Q408	I was focusing on achieving the next goal of my trip	.81	.65
Q414	I was concentrating on doing my activity right	.85	.73

Three items, including one of the series of five focus of attention questions, item Q2D, were developed in an attempt to capture the degree to which the respondent was paying attention to the surrounding environment.

Responses to these three items (Q2D, Q410 and N404) indicate a high focus on nature with means of 6.3, 5.3, and 7.7, respectively, on a 0 to 9 scale (Table 13). (Some items on the study questionnaire were stated in a negative fashion such that a high response represents a low level of attention to the underlying construct of interest. Therefore, in presenting and analyzing the results, these items have been reverse coded, such that a 9 now receives a 0 value, and vice versa. These reversed values are designated, for example, as N404 for Q404 in supporting tables. This reverse coding is not entirely satisfactory since respondents may not respond to a positively worded equivalent in such a symmetrical pattern. But, with the reverse coding many comparisons are easier to examine and interpret.)

These are an initial attempt to measure environmental awareness as a state, in retrospect these items were less than ideal. The three items as a group had a rather low reported Cronbach's alpha at 0.44 (see Table 13), and only 48% of their variance is explainable by the linear composite of the three items. It would appear that these items do not hang together well and are not reliable in their application, i.e., the variation in responses across the three items across all the responses do not follow an easily identifiable pattern. The variability of responses suggest the items probably do not tap a single underlying concept of environmental awareness. Item N404 is most problematic with a high mean (and hence skewed distribution of responses) and lower than usual standard deviation (1.9 compared to a typical value of between 2.5 and 3.0). Moreover, the inter-item correlation between item N404 and the other two environmental focus items, Q2D and Q410, are low with values of .18 and .03, respectively. (We would hope for inter-item correlations between .3 and .5, indicating similarity but also difference.) The item-total correlation is therefore also rather low, as is the communality shown in the confirmatory factor analysis (Table 13). Removing item N404 slightly improves the reliability, but it is still somewhat low, at about 0.55. Item N404 was removed from the scale.

Focus on affect - Emotional intensity.

Our measure of a focus on affective experience is based on items used by Baldwin and Tinsley (1988). Item Q405 is similar to their question looking at awareness of feelings. Item Q411 uses the word 'intense' rather than 'vivid' but is otherwise similar to an item used by Baldwin and Tinsley to probe degree of emotional response to a situation. Item Q2C is the last in the series of focus of attention questions. Together these items have a satisfactory reliability (Cronbach's alpha of 0.78), shared variance (69% describable by

linear composition), and linear association (all three communalities above 0.62) (Tables 15 and 16).

Table 13
Reliability analysis of Focus on environment : environmental awareness items

Environmental awareness					
(3 items) ALPHA = 0.44		Mean	SD	Inter-item correlation	
Variance = 23.2					
				<u>Q2D N404</u>	
Q2D	Focusing on the natural environment around you	6.3	2.5		
N404	The trees all look pretty much the same to me	7.7	1.9	.18	
Q410	I notice the little things of nature more than before	5.3	2.5	.37	.03
		Item-total correlation	Variance if deleted	Alpha if deleted	
Q2D	Focusing on the natural environment around you	.40	10.3	.06	
N404	The trees all look pretty much the same to me	.13	17.3	.55	
Q410	I notice the little things of nature more than before	.30	11.9	.30	
(2 items) ALPHA = 0.55		Mean	SD	Inter-item correlation	
Variance = 17.4					
				<u>Q2D</u>	
Q2D	Focusing on the natural environment around you	6.3	2.5		
Q410	I notice the little things of nature more than before	5.3	2.5	.37	
		Item-total correlation	Variance if deleted		
Q2D	Focusing on the natural environment around you	.38	6.2		
Q410	I notice the little things of nature more than before	.38	6.4		

Table 14

Confirmatory factor analysis of Focus on environment : Environmental awareness items

Environmental awareness		Prin. Comp. Weights	Communality
(3 items) Lambda = 1.44, % variance = 47.9			
Q2D	Focusing on the natural environment around you	.83	.69
N404	The trees all look pretty much the same to me	.42	.17
Q410	I notice the little things of nature more than before	.76	.57
(2 items) Lambda = 1.38, % variance = 68.9			
Q2D	Focusing on the natural environment around you	.83	.69
Q410	I notice the little things of nature more than before	.83	.69

Table 15

Reliability analysis for Focus on emotions : Emotional intensity items

Focus on emotions : Emotional intensity		Mean	SD	Inter-item correlation	
(3 items) ALPHA = 0.78 Variance = 46.2				Q2C Q405	
Q2C	Focusing on your feelings and emotions	3.5	2.7		
Q405	I was very aware of my feelings	3.9	2.7	.60	
Q411	The feelings I was experiencing were more intense than usual	4.1	2.7	.46	.54
		Item-total correlation	Variance if deleted	Alpha if deleted	
Q2C	Focusing on your feelings and emotions	.61	22.7	.70	
Q405	I was very aware of my feelings	.67	21.6	.63	
Q411	The feelings I was experiencing were more intense than usual	.56	24.2	.75	

Table 16

Confirmatory factor analysis for Focus on emotions : Emotional intensity items

Focus on emotions : Emotional intensity (3 items) Lambda = 2.06, % variance = 68.6		Prin. Comp. Weights	Communality
Q2C	Focusing on your feelings and emotions	.86	.74
Q405	I was very aware of my feelings	.79	.62
Q411	The feelings I was experiencing were more intense than usual	.83	.69

Aspects of the wilderness experience

In the prior discussion of the themes of wilderness, six dimensions of the idea or concept of wilderness were identified. Oneness, humility, primitiveness, timelessness, solitude, and care more comprehensively describe wilderness than has been attempted previously. These six constructs are an attempt to broaden our investigations of wilderness. The theoretical grounding for these areas of interest is not necessarily embodied in an overall theory of wilderness (although the work of Heidegger (see Appendix A) is suggested as providing a conceptual foundation), but rather is derived from the insights and wisdom of the likes of Muir, Thoreau, Leopold, and Olson. In the previous discussion of these writing we explored the subtleties and depth behind these six constructs. In this section we describe and review the reliabilities of the mostly new items, and the scales developed to measure these wilderness constructs.

These items, and the constructs they represent, were developed through discussion with professional colleagues, reflection on the work of wilderness writers, and attempts to capture the fullness of the wilderness experience. Some 100 possible items were drawn together and then distilled down into apparent categories. In some cases categories were

merged. For example, primitiveness includes our original notions of ancestral heritage (particularly of the pioneers), simplicity of life, and savagery. The wording of some items was changed, other items were combined, and other items were discarded entirely. In addition, some items were found to be unsuccessful in the pre-test at Juniper Prairie Wilderness and were dropped from consideration. The items represent a data source on which to identify and develop categories, by making comparisons for similarities and differences, and as examples of the phenomenon. The final six categories appeared to be well represented in the wilderness writings, and were given more structure by a review of those writings. We hoped that together the six groups of items would describe the wilderness experience that respondents were obtaining.

Oneness

The basic themes of this concept are that wilderness allows a unique opportunity to establish or re-establish close relationships with nature. Perhaps there is an instinctual need to feel at-ease and on an equal footing with nature. In contrast to a conquering, macho approach to nature, wilderness fosters harmony and immersion within nature. Rather than being separate from nature, a sense of oneness entails feeling an inter-related part of nature. For example, Westra (1994) talks about kinship with our fellow beings. Similarly, Ittelson (1978) and Sixsmith (1986) highlight feelings of belonging and home as part of any environmental experience.

Three items were drawn up to measure a sense of oneness in wilderness. These items, Q301, Q306 and Q314 attempt to capture feelings of attachment to, proximity of relationship with, and immersion within nature. Reliability analyses indicate a good level of reported Cronbach's Alpha, 0.83, with high inter-item and item-total correlations (see

Table 17). Removing any of the items does not improve reliability and would result in an important loss of variance. The confirmatory factor analysis shows good levels of communality and weightings for principal components (see Table 18). It therefore appears that these three items provide good coverage of an underlying construct we chose to call oneness.

Table 17
Reliability analysis for oneness items

Oneness (3 items) ALPHA = 0.83 Variance = 41.3		Mean	SD	Inter-item correlation	
				Q306	Q314
Q301	I feel a part of wild nature	4.7	2.6		
Q306	I was feeling a special closeness with nature	6.1	2.5	0.59	
Q314	I was feeling totally immersed in a nature	5.6	2.4	0.54	0.73
		Item-total correlation	Variance if deleted	Alpha if deleted	
Q301	I feel a part of wild nature	0.60	20.3	.84	
Q306	I was feeling a special closeness with nature	0.75	19.2	.70	
Q314	I was feeling totally immersed in a nature	0.71	20.2	.74	

Table 18
Confirmatory factor analysis for oneness items

Oneness (3 items) Lambda = 2.2, % variance = 74.5		Prin. Comp. Weights	Communality
Q301	I feel a part of wild nature	.81	.66
Q306	I was feeling a special closeness with nature	.90	.81
Q314	I was feeling totally immersed in a nature	.88	.77

An indication of the validity of this measure is its ability to show convergence and discrimination. Although technically convergent validity is the degree to which two or more methods used to measure the same concept through maximally different methods are in agreement, the concept can be applied to slightly different concepts as well. For instance, we would expect that as the degree of introspection goes up, so too does the experience of oneness. This is not to suggest a causal relationship, rather that these similar aspects of the wilderness experience often tend to occur under the same conditions. Therefore, our measure of these two constructs should show convergence. Table 19 shows the correlations between the items of oneness and introspection, and that all three items of oneness are significantly correlated to introspection at a .01 level (shown in **Bold**).

Table 19
Correlations between oneness items and modes of environmental experience scales

		Introspect	Social Accept.	Task Orientation	Environ. sensitivity	Emotional intensity
	Oneness	.34	.33	.05	.58	.43
Q301	I feel a part of wild nature	.35	.13	.11	.42	.36
Q306	I was feeling a special closeness with nature	.30	.40	.01	.49	.38
Q314	I was feeling totally immersed in a nature	.24	.29	.01	.58	.40

Discrimination follows a similar logic in that it is the degree to which valid items distinguish between different concepts. For example, as our task orientation (i.e. the focus on the activity at hand) goes up, our level of attention to, and appreciation of unity with nature might decline, or stay the same. Essentially, the two are unrelated, and Table 19 demonstrates such divergence between the measures of the two constructs. The correlations between task orientation and two of the items of oneness are very nearly zero,

and the other is minimal. It would appear that the oneness scale can discriminate between situations with different influences, and this gives some confidence that it is in fact measuring what it claims to be measuring in a useful sense.

Timelessness

This measure proved to be the most problematic of the six aspects of wilderness, as applied to both the Juniper Prairie pre-test and the Okefenokee study. Originally, it was thought that wilderness allowed visitors the opportunity to escape the constraints and pressures of the outside world. In doing so, the wilderness visitor could forget his or her normal pace of life and enter into an experience of unmeasured and uncontrolled time. Within the stillness of wilderness could be found the opportunity, the time, to contemplate and reflect. Within wilderness the demands for action might come more naturally from the organic rhythms of nature. For example, to eat when hungry, to sleep when tired and to calibrate the day by the warmth of the sun. Tinsley and Tinsley (1986) also suggested that leisure experiences are to some extent characterized by a decreased awareness of the passage of time.

Initial analyses examined all four original items, as an isolated group. One of the items, Q333, exhibited a low item-total correlation (see Table 20). This item addressed a behavioral action rather than a feeling or reaction to an event or experience. In this way, it would be more open to the influence of behavioral demands and constraints than the other items. For example, some people just may not ever have the tendency to look up and feel that time had flown by. Removing this item partially alleviates the extremely low communality value and principal component weights for one of the other items (Q318) as can be seen in Table 22. The decision was made to remove item Q333, raising the

reliability to a modest 0.72 for Cronbach's alpha. Item N318 might also be profitably deleted, but it was felt that this would unduly restrict the scope of the construct, and was therefore retained.

Table 21 shows the correlations between the final three timelessness items and the five scales of environmental experience. Interestingly, each of the three items correlates significantly with the task orientation scale.

Table 20
Reliability analysis of timelessness items

Timelessness		Mean	SD	Inter-item correlation		
(4 items) ALPHA = 0.62				Q302	Q310	Q333
Variance = 39.9						
Q302	I care what time it is	1.3	2			
Q310	I was worrying about the time	1.1	2.1	0.76		
Q333	I look up and notice that time has flown by	4.4	2.8	0.18	0.14	
Q318	I care what time it is when I eat	1.5	2.2	0.28	0.37	0.17
		Item-total correlation	Variance if deleted	Alpha w/o		
Q302	I care what time it is	0.55	24.8	.44		
Q310	I was worrying about the time	0.56	23.6	.42		
Q333	I look up and notice that time has flown by	0.2	26.2	.72		
Q318	I care what time it is when I eat	0.35	26.7	.58		
(3 items) ALPHA = 0.72		Mean	SD	Inter-item correlation		
Variance = 26.1				Q302	Q310	
N302	I care what time it is	7.7	2			
N310	I was worrying about the time	7.9	2.1	0.76		
N318	I care what time it is when I eat	7.5	2.2	0.28	0.37	
		Item-total correlation	Variance if deleted	Alpha if deleted		
N302	I care what time it is	0.62	13.1	.53		
N310	I was worrying about the time	0.68	11.6	.44		
N318	I care what time it is when I eat	0.34	15.1	.86		

Table 21

Correlations between final timelessness items and modes of environmental experience scales

		Introspect	Social Accept.	Task Orientation	Environ. sensitivity	Emotional intensity
	Timelessness	-.13	.10	-.37	.06	-.19
N302	I care what time it is	-.05	.07	-.39	.14	.15
N310	I was worrying about the time	-.14	.20	-.35	.09	-.20
N318	I care what time it is when I eat	-.12	.01	-.18	-.06	-.10

Table 22

Confirmatory factor analysis of timelessness items

Timelessness			
(4 Items) Lambda = 2.0, % variance = 51.0		Prin. Comp.	Communality
		Weights	
Q302	I care what time it is	.87	.75
Q310	I was worrying about the time	.89	.79
Q333	I look up and notice that time has flown by	.60	.36
Q318	I care what time it is when I eat	-.37	.14
(3 Items) Lambda = 1.9, % variance = 65.6			
N302	I care what time it is	.88	.78
N310	I was worrying about the time	.91	.83
N318	I care what time it is when I eat	.60	.35

Primitiveness

Wilderness, because it has been preserved in its natural state, is close to being how it was when Europeans came to this country. It is our closest reminder of the state of nature from which we have evolved. In wilderness is a chance to revisit nature as our ancestors would have found it. It is a land of challenge, adventure, and for some, hardship. If the moral character of the American people was forged in the experiences of the frontier, then wilderness provides the opportunity to relive it. A simpler way of life awaits those who leave civilization behind, and set forth into the wilderness. Beyond the constraints and

responsibilities of society lies the freedom to be wild, perhaps more in tune with the ancient rhythms of life. Americans have valued both the pioneering spirit and the simple lifestyles of their forbearers. Wilderness offers the chance to still feel part of the past.

In developing items for the primitiveness construct, attention was given to two main themes: the attractions of a simpler way of life, perhaps like that of the pioneers; and a connection to the earth and our ancestral heritage. It was thought that a more physical life may have been part of the attraction of a primitive situation, but item Q307 which attempts to measure this raised numerous concerns from respondents (Table 23). Furthermore, confirmatory factor analysis separated it out essentially as another factor (see Table 24). Removing item Q307 raised the Cronbach's Alpha to a good level of 0.82, with correspondingly good item-total correlations (see Table 23). In a follow-up factor analysis of the remaining five items, it would appear that the two themes of primitiveness are sufficiently similar that they did not separate out as factors (the second eigenvalue was 0.74, well below the Kaiser criteria (1.0) for including a second factor).

Table 23

Reliability analysis of primitiveness items

Primitiveness (6 items) ALPHA = 0.80 Variance = 123.1		Mean	SD	Inter-item correlation				
				Q303	Q307	Q308	Q312	Q317
Q303	I felt I was living like a pioneer	2.2	2.2					
Q307	I like the way my body feels	4.9	2.7	0.11				
Q308	I feel the simplicity of life on this trip	5.6	2.5	0.31	0.49			
Q312	I felt that life is simple	4.5	2.6	0.44	0.24	0.63		
Q317	I felt connected with times long ago	3.3	2.7	0.50	0.16	0.45	0.50	
Q321	I was feeling the heartbeat of the earth	3.5	2.8	0.41	0.3	0.47	0.45	0.60
		Item-total correlation	Variance if deleted	Alpha if deleted				
Q303	I felt I was living like a pioneer	0.48	97.0	.78				
Q307	I like the way my body feels	0.35	97.0	.82				
Q308	I feel the simplicity of life on this trip	0.67	85.8	.75				
Q312	I felt that life is simple	0.64	85.7	.75				
Q317	I felt connected with times long ago	0.61	84.8	.76				
Q321	I was feeling the heartbeat of the earth	0.63	83.5	.75				

Table 23 (Continued)
Reliability analysis of primitiveness items

Primitiveness (5 items) ALPHA = 0.82 Variance = 96.2		Mean	SD	Inter-item correlation			
				Q303	Q308	Q312	Q317
Q303	I felt I was living like a pioneer	2.2	2.2				
Q308	I feel the simplicity of life on this trip	4.5	2.6	0.31			
Q312	I felt that life is simple	3.3	2.7	0.44	0.63		
Q317	I felt connected with times long ago	3.5	2.8	0.50	0.45	0.60	
Q321	I was feeling the heartbeat of the earth	3.5	2.8	0.41	0.47	0.45	0.60
		Item-total correlation	Variance if deleted	Alpha if deleted			
Q303	I felt I was living like a pioneer	.51	71.7	.81			
Q308	I feel the simplicity of life on this trip	.60	65.8	.78			
Q312	I felt that life is simple	.66	62.4	.77			
Q317	I felt connected with times long ago	.67	60.5	.76			
Q321	I was feeling the heartbeat of the earth	.61	61.6	.78			

Table 24
Confirmatory factor analysis of primitiveness items

Primitiveness (6 items) Lambda = 3.07, 1.02; % variance = 51.3, 68.4		Prin. Comp. Weights		Communality
Q303	I felt I was living like a pioneer	.65	-.43	.61
Q307	I like the way my body feels	.49	.76	.82
Q308	I feel the simplicity of life on this trip	.79	.35	.76
Q312	I felt that life is simple	.78	-.03	.61
Q317	I felt connected with times long ago	.77	-.33	.71
Q321	I was feeling the heartbeat of the earth	.75	-.12	.58
(5 items) Lambda = 2.9, % variance = 58.1		Prin. Comp. Weights		Communality
Q303	I felt I was living like a pioneer	.68		.46
Q308	I feel the simplicity of life on this trip	.75		.57
Q312	I felt that life is simple	.80		.63
Q317	I felt connected with times long ago	.80		.65
Q321	I was feeling the heartbeat of the earth	.76		.58

Table 25 displays the correlations between these five primitiveness items and the modes of experience scales. Strong relationships are shown between the five primitiveness measures and emotional intensity, introspection and environmental sensitivity.

Table 25

Correlations between final primitiveness items and modes of environmental experience scales

		Introspect	Social Accept.	Task Orientation	Environ. sensitivity	Emotional intensity
	Primitiveness	.49	.25	.15	.55	.56
Q303	I felt I was living like a pioneer	.25	-.04	.19	.25	.21
Q308	I feel the simplicity of life on this trip	.28	.29	.01	.47	.42
Q312	I felt that life is simple	.20	.25	.09	.48	.42
Q317	I felt connected with times long ago	.47	.11	.21	.29	.50
Q321	I was feeling the heartbeat of the earth	.46	.25	.10	.47	.54

Humility.

Feelings of humility could be expected in wilderness given the complexity, beauty and often grand scale of essentially undisturbed nature. Feelings of insignificance and lack of superiority are natural given the lack of control visitors have over the wilderness environment. Some might feel intimidated or afraid by the sheer scope of wilderness and the lack of human-made conveniences. It is a powerful message of wilderness that there humans are but a small part of a much larger community of beings, each somewhat sacred in its own right.

The three items drawn up to tap this concept of humility all exhibit good levels of reliability and validity. Satisfactory values of alpha (0.77), communality (all over .60) and item-total correlations (all over 0.5) were obtained, as is shown in Tables 26 and 27. In terms of convergence we would expect that feelings of humility would be accompanied by a more

emotionally intense period and the correlations in Table 27 demonstrate such convergence, as well as relationships with introspection and environmental sensitivity.

Table 26
Reliability analysis of humility items

Humility (3 items) ALPHA = 0.77 Variance = 44.3		Mean	SD	Inter-item correlation	
				Q306	Q314
Q304	I was in awe of nature's creation	5.9	2.5		
Q320	I felt humbled by all of nature around me	5.2	2.7	0.59	
Q315	I was feeling insignificant in the glory of nature	4.0	2.7	0.54	0.73
		Item-total correlation	Variance if deleted	Alpha if deleted	
Q301	I feel a part of wild nature	.53	24.4	.75	
Q306	I was feeling a special closeness with nature	.57	21.9	.56	
Q315	I was feeling insignificant in the glory of nature	.70	19.6	.70	

Table 27
Confirmatory factor analysis of humility items

Humility (3 items) Lambda = 2.0, % variance = 68.2		Prin. Comp. Weights	Communality
Q304	I was in awe of nature's creation	.78	.61
Q320	I felt humbled by all of nature around me	.89	.78
Q315	I was feeling insignificant in the glory of nature	.81	.65

Table 28

Correlations between humility items and modes of environmental experience scales

		Introspect	Social Accept.	Task Orientation	Environ. sensitivity	Emotional intensity
	Humility	.35	.16	.09	.51	.49
Q304	I was in awe of nature's creation	.23	.24	-.07	.51	.33
Q315	I was feeling insignificant in the glory of nature	.31	-.02	.17	.32	.42
Q320	I felt humbled by all of nature around me	.32	.21	.10	.43	.47

Solitude

Solitude in wilderness is an important aspects of people's enjoyment of the tranquility and naturalness of the environment. It is one of the legally defined and required characteristics of wilderness.

According to Hammitt (1982, p482), "privacy, in its many forms, and freedom of choice are what the wilderness user may really be seeking when referring to solitude." Hammitt and Madden (1989) found that "wilderness solitude is much more complex a psychological concept than being alone or even being alone with others. Wilderness privacy and the many realms of freedom of choice that humans seek in remote natural environments provide a better concept of wilderness solitude than 'being alone'" (p. 299). Privacy is defined as an optimal amount of socialness, with too much or too little interaction being unsatisfactory, according to Hammitt. Privacy is best characterized by a temporary withdrawal from the noise and social pressure of interaction. "Items of greatest importance [to the wilderness solitude experience] seemed to involve two issues : (1) freedom of choice in terms of one's actions, thoughts and use of time, and (2) a natural environment free of human influence. The item receiving the highest rating 'the tranquillity and peacefulness of the remote environment,' seems to characterize both of these issues. At the other extreme items

receiving the lowest ratings were those characterizing the isolated, individualistic nature of solitude. ... the most important dimension of wilderness solitude to users involves being in a natural environment that is removed from man-made intrusions and thereby offers a sense of tranquillity and peacefulness” says Hammitt (1982, p. 487). Hammitt and Madden (1989) in later field test efforts to measure privacy, and thereby solitude in wilderness, found that “tranquillity and peacefulness of the remote environment and an environment free of human generated noises to be the two most important privacy items” (p. 296). It is from their work that the three solitude items in this study were developed.

The three measures of wilderness solitude, items Q331, Q316 and Q332 performed satisfactorily in this study. These were an attempt to measure feelings of peace and tranquillity as indicators of privacy (which might or might not result from respondent’s reactions to the presence or absence of other people). Presumably, since these items represent the most important items in Hammitt and Madden’s more comprehensive study, then their relative presence or absence should serve as useful summary of wilderness solitude.

Adequate consistency and validity of response were observed for these three items in reliability and factor analyses, as shown in Table 29 and 30. A Cronbach’s alpha of 0.76 was found, and inter-item correlations were of the order of 0.41 to 0.63. Item-total correlations were between 0.52 and 0.70, and deleting any of the three items would not have improved the scale. Correspondingly, the confirmatory factor analysis shows good levels of communality, and roughly equal principal component weights around 0.8. Our three measures of wilderness solitude appear to yield a reliable scale. Table 31 shows the correlations between these items and modes of environmental experience.

Table 29
Reliability analysis of solitude items

Solitude (3 items) ALPHA = 0.74 Variance = 42.8		Mean	SD	Inter-item correlation	
				Q2A	Q401
Q331	The environment seems free of human-made noises	6.9	2.2		
Q316	I feel the tranquility and peacefulness of this place	5.3	2.8	.53	
Q332	I felt the silence of the environment	5.2	2.9	.41	.63
		Item-total correlation	Variance if deleted	Alpha if deleted	
Q331	The environment seems free of human-made noises	.52	26.5	.77	
Q316	I feel the tranquility and peacefulness of this place	.70	18.2	.56	
Q332	I felt the silence of the environment	.61	19.1	.68	

Table 30
Confirmatory factor analysis of solitude items

Solitude (3 items) Lambda = 2.0, % variance = 68.5		Prin. Comp. Weights	Communality
Q331	The environment seems free of human-made noises	.76	.59
Q316	I feel the tranquility and peacefulness of this place	.88	.78
Q332	I felt the silence of the environment	.82	.69

Table 31
Correlations between solitude items and modes of environmental experience scales

		Introspect	Social Accept.	Task Orientation	Environ. sensitivity	Emotional intensity
Solitude		.21	.23	.01	.35	.18
Q331	The environment seems free of human-made noises	.20	.31	-.06	.45	.19
Q316	I feel the tranquility and peacefulness of this place	.21	.16	-.01	.31	.19
Q332	I felt the silence of the environment	.12	.12	.10	.17	.09

Care

Perhaps the greatest impact any wilderness experience could provide is a questioning, extension, or alteration of an ethical stance. The wilderness visit can induce profound changes in people's relationship to nature, and in their value system. Many of the great wilderness writers saw the logical extension of their admiration and enjoyment of wild places to be an ethical stance that prioritized the preservation of wild nature. Indeed, some called for active stances that took responsibility for the welfare of nature. This may have developed from an onus of care or duty. Leopold, for example, talked of the development of an ecological conscience to guide actions which he believed should follow the dictates of a land ethic. Out of an intimate relationship with the wilderness environment can develop an actively caring response to nature. We developed three items as an initial attempt to measure the development of such a care ethic.

Initial examination of the responses indicate that item Q319 did not perform at all well (Table 32). Most respondents simply answered 0 to the item "I want to hurt this place". While this gives evidence of the seriousness and care with which visitors answered the questionnaire, it otherwise yields little useful data. Its mean was only 0.3, and the standard deviation was also low at about 1.6 (the lowest for any item). These numbers indicate that the item has little relevance and usefulness. For these reasons it was removed from consideration, leaving the remaining two items with a Cronbach's alpha of 0.67 and an inter-item correlation of 0.52 (see Table 32). The confirmatory factor analysis supports the deletion of item Q319 from the scale, since it factors independently of the other two items (see Table 33).

Table 32

Reliability analysis of care items

Care							
(3 items) ALPHA = 0.43, Variance = 15.6		Mean	SD	Inter-item correlation			
				<u>Q319 Q322</u>			
Q319	I want to hurt this place	0.3	1.6				
Q322	I feel I want to care for this place	7.3	2.3	.11			
Q309	I want to behave properly towards this place	8.0	1.8	-.11	.52		
		Item-total correlation	Variance if deleted	Alpha if deleted			
Q319	I want to hurt this place	.01	12.8	.67			
Q322	I feel I want to care for this place	.50	5.2	-.26			
Q309	I want to behave properly towards this place	.35	8.7	.19			
(2 items) ALPHA = 0.67, Variance = 12.8		Mean	SD	Inter-item correlation			
				<u>Q322</u>			
Q322	I feel I want to care for this place	7.3	2.3				
Q309	I want to behave properly towards this place	8.0	1.8	.52			
		Item-total correlation	Variance if deleted	Alpha if deleted			
Q322	I feel I want to care for this place	.52	3.2				
Q309	I want to behave properly towards this place	.52	5.3				

Table 33

Confirmatory factor analysis of care items

Care							
(3 items) Lambda = 1.52, 1.04;				Prin. Comp Weights		Communality	
% variance = 50.8, 85.7							
Q319	I want to hurt this place			-.01	.98	.96	
Q322	I feel I want to care for this place			.87	-.19	.86	
Q309	I want to behave properly towards this place			.87	.20	.80	
(2 items) Lambda = 1.52, % variance = 76.2				Prin. Comp Weights		Communality	
Q322	I feel I want to care for this place			.87		.76	
Q309	I want to behave properly towards this place			.87		.76	

It is interesting to see that these two remaining items correlated with our measures of social acceptance and environmental awareness (Table 34) at a .01 level. This might suggest that as attention to the natural world increased, so too does a desire to care. Perhaps also it suggests a higher level of moral reasoning that is partly co-incidental with a feeling of at-ease among the people around you. That is, as social pressures decrease, feelings of ethical responsibility and desire to act reasonably increase. Whatever the reason, there is an intriguing convergence of feelings here. Likewise, we can see an interesting discrimination in that there are only low levels of correlation between emotional intensity and feelings of care (see Table 34). This might suggest that for some people an ethic of care is only partly emotional, rather it may more result from a rational or logical belief. These results would suggest that more research could profitably be directed to the impact and development of an ethic of care in wilderness.

Table 34

Correlations between care items and modes of environmental experience scales

		Introspect	Social Accept.	Task Orientation	Environ. sensitivity	Emotional intensity
	Care	.11	.36	-.01	.41	.11
Q322	I feel I want to care for this place	.05	.37	-.05	.32	.12
Q309	I want to behave properly towards this place	.15	.26	.06	.39	.05

Scale scores - the multidimensional nature of the wilderness experience

Using the scales developed from the reliability analyses shown above, Table 35 shows the mean scale scores calculated across respondents (i.e. a mean score is calculated for each respondent across all the questionnaires that he or she completed during the visit to Okefenokee Wilderness). Figure 1 shows the distribution of these mean respondent scores for each of the aspect of wilderness, and Figure 2 shows similar distributions for each of the mode of experience scales. Each plot provides a visual check of the normality of each of the scales. The distribution of the care and timelessness scales does appear to be somewhat skewed, but other scales have a roughly normal appearance.

Table 35
Average respondent scores for study scales

Scale	Mean	Std. Dev.	Minimum	Maximum	Valid N
Timelessness	7.70	1.32	2.22	9.00	62
Caring	7.48	1.67	0.00	9.00	61
Solitude	5.75	1.80	0.00	9.00	62
Oneness	5.41	1.91	0.00	8.83	61
Humility	5.06	1.90	0.00	8.89	61
Primitiveness	3.81	1.82	0.00	7.67	60
Environmental Sensitivity	5.78	1.50	2.50	8.50	57
Social Acceptance	5.77	2.29	0.00	9.00	58
Task Orientation	4.37	2.04	0.60	8.58	59
Emotional Intensity	3.92	1.94	0.00	7.00	57
Introspection	2.75	1.71	0.00	6.58	57

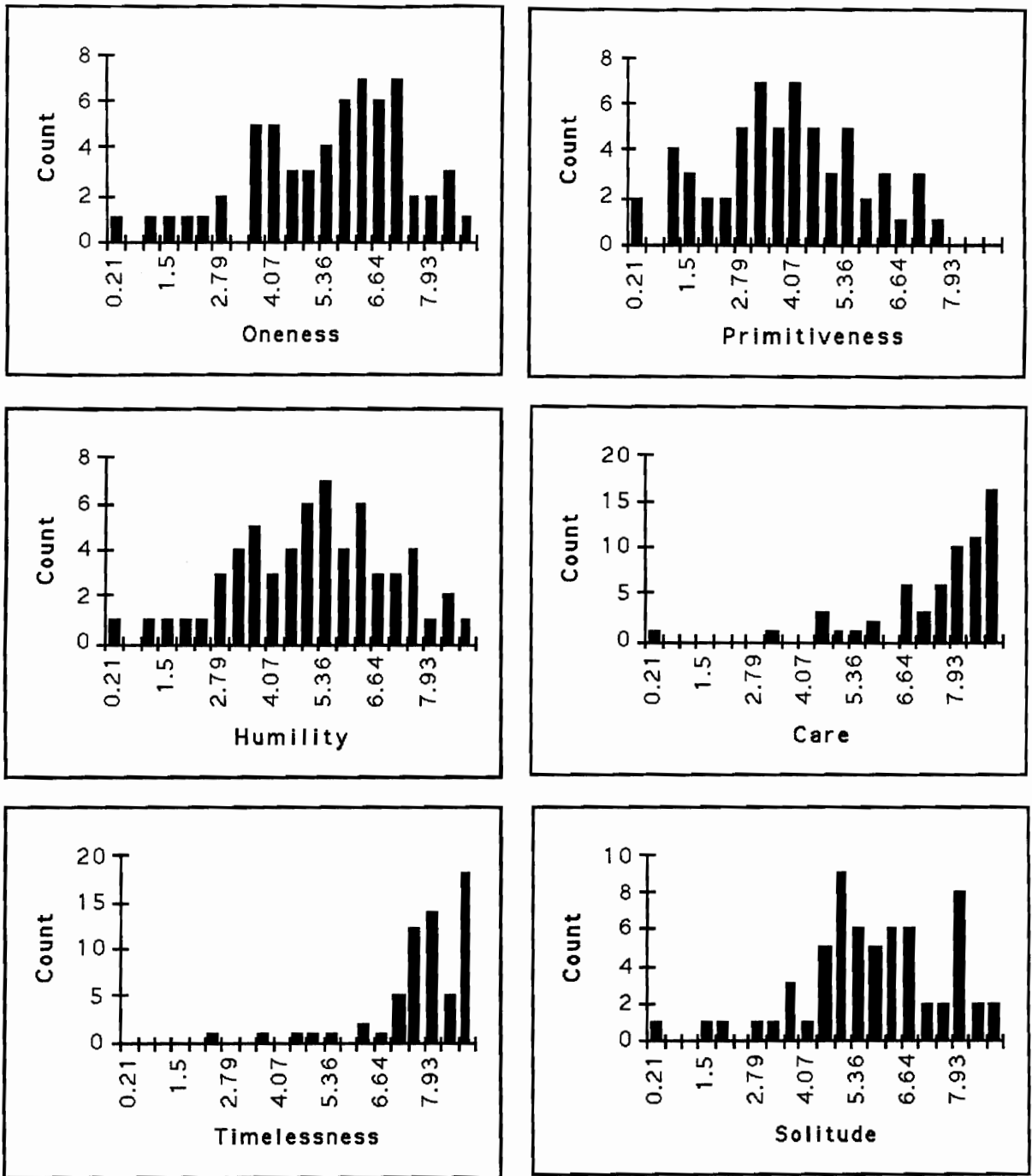


Figure 1. Average respondent scores for aspects of wilderness experience scales

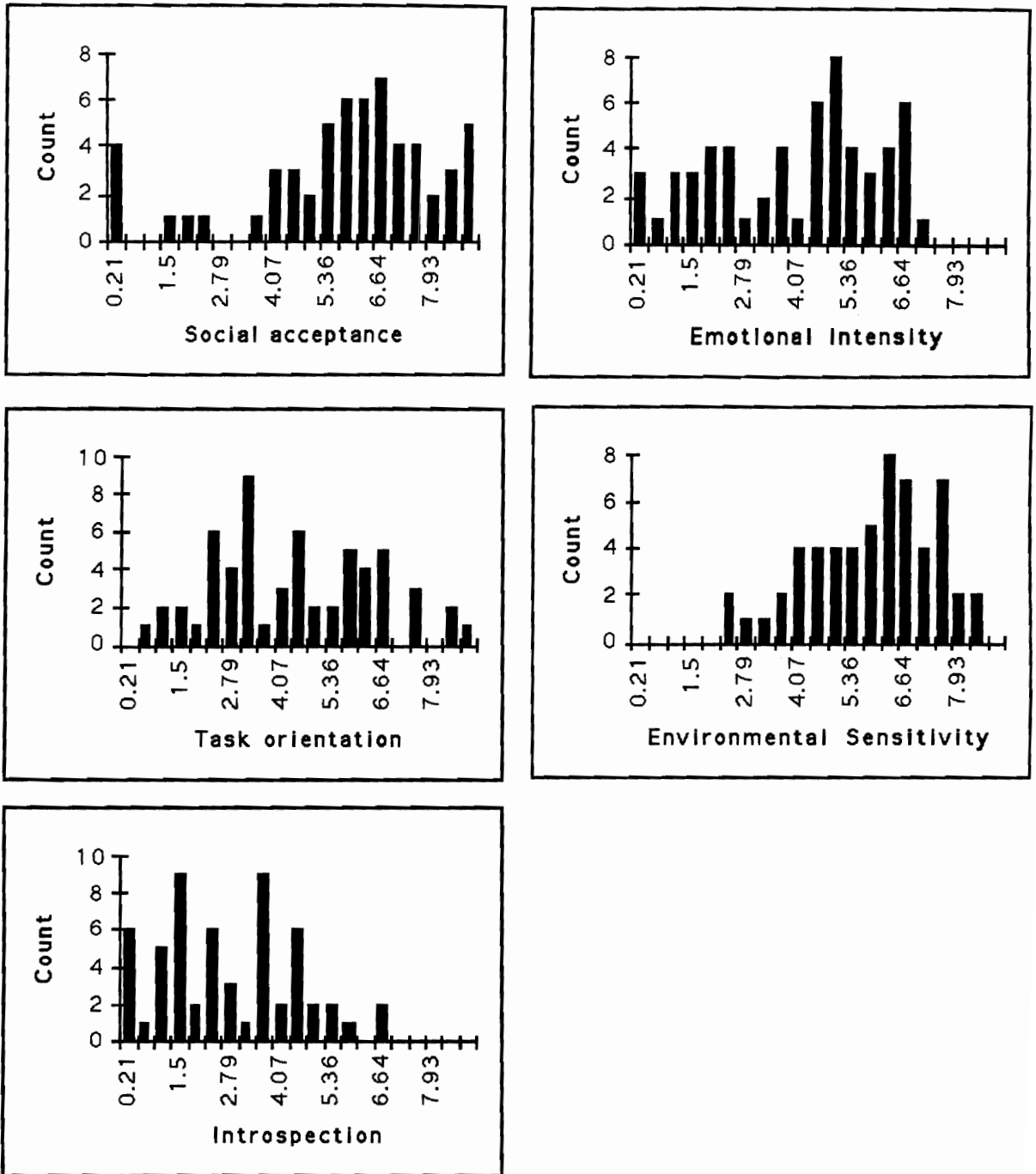


Figure 2. Average respondent scores for modes of environmental experience scales

Overall factor analyses

The overall analysis of all 22 wilderness items also confirms many of the decisions discussed above (Table 36). It is apparent that the three solitude items, the two care items and three timelessness items all factor out as separate dimensions of the wilderness experience. However, oneness, humility and primitiveness all factor together reflecting the interrelated nature of these concepts.

Table 36
Overall factor analysis of aspects of wilderness items

		Factors			
		1	2	3	4
Oneness					
Q301	I feel a part of wild nature	.66	.19	.16	.17
Q306	I was feeling a special closeness with nature	.73	.41	-.01	.15
Q314	I was feeling totally immersed in a nature	.75	.22	-.17	.22
Timelessness					
Q302	I care what time it is	-.10	-.06	.84	-.02
Q310	I was worrying about the time	-.03	-.09	.88	.08
Q318	I care what time it is when I eat	.28	.04	.62	-.02
Primitiveness					
Q303	I felt I was living like a pioneer	.64	-.18	.19	.05
Q308	I feel the simplicity of life on this trip	.61	.37	-.17	.17
Q312	I felt that life is simple	.65	.10	-.11	.12
Q317	I felt connected with times long ago	.69	-.07	.06	.15
Q321	I was feeling the heartbeat of the earth	.73	.12	.05	.03
Humility					
Q304	I was in awe of nature's creation	.78	.23	-.09	.05
Q320	I felt humbled by all of nature around me	.72	.19	.14	.09
Q315	I was feeling insignificant in the glory of nature	.57	.09	.18	.20
Solitude					
Q331	The environment seems free of human-made noises	.56	.42	-.12	.44
Q316	I feel the tranquility and peacefulness of this place	.35	.20	.06	.78
Q332	I felt the silence of the environment	.11	.12	.01	.89
Care					
Q322	I feel I want to care for this place	.22	.73	-.03	.20
Q309	I want to behave properly towards this place	.16	.79	.03	.05
Percentage of variance explained by factor		34.8	10.9	7.1	5.2

Indeed this factoring provides empirical evidence for the theoretical notion that wilderness provides the opportunity to take on a more natural relationship with the earth. However, we assume sufficient theoretical justification to separate out the six aspects for the analyses which follow.

Table 37 shows the overall analysis of the modes of environmental experience items, which were asked as a block on the experience sampling questionnaire. Introspection has factored out as the first factor, with each of the three items carrying significant weight. It is interesting to note that two of the three emotional intensity items also factor heavily with these introspection items, as might be expected given the internal focus of both groups of questions. The remaining emotional intensity item, Q411, factors with the environmental awareness items (factor 3), perhaps indicating the emotional impact of the natural environment. (An alternative explanation is that a shared openness to experience entails attention be given both to the natural environment and to feelings and affect.) This time, Q411 item also factors reasonably highly with the introspection items.

The two environmental awareness items load highly on a unique factor (factor 3), the two social acceptance items represent a reasonably independent factor (factor 4), and the task orientation items also collect in one factor (factor 2). Other than the emotional intensity items mentioned above, the factor structure very closely follows the suggested dimensions of modes of environmental experience.

Overall, these four factors account for 66% of the overall variation across the thirteen items, with each factor contributing between 8 and 30 percent of the variation, as shown in Table 37. It should be noted that here we are not constructing an overall index, but rather

identifying the components that would comprise one. This is satisfactory given the good reduction of 13 items into four underlying constructs, and the somewhat disparate nature of the constructs. The rotated factors (following a varimax approach) have been easily interpreted and have confirmed some of the insights developed in the individual reliability analyses. It would appear that these scales designed to measure different modes of environmental experience have achieved desired quality of reliability.

Table 37
Overall factor analysis of modes of environmental experience items

		Factors			
		1	2	3	4
Introspection					
Q2A	Focusing on your own thoughts	.67	.01	.17	-.14
Q401	I was reflecting about myself a lot	.81	.15	-.01	.01
Q406	I was thinking about my place in the world	.75	.03	.09	.16
Social Acceptance					
Q402	I feel a special closeness with others in my group	.09	.04	.18	.81
Q416	Other group members were accepting me for who I am	-.01	-.01	.07	.83
Task orientation					
Q2E	Focusing on the task you were carrying out	-.17	.83	-.06	-.07
Q408	I was focusing on achieving the next goal of my trip	.21	.79	.03	.01
Q414	I was concentrating on doing my activity right	.06	.84	.07	.11
Environmental awareness					
Q2D	Focusing on the natural environment around you	.12	-.11	.76	-.01
Q410	I notice the little things of nature more than before	.10	.14	.80	.23
Emotional Intensity					
Q2C	Focusing on your feelings and emotions	.76	-.02	.20	-.05
Q405	I was very aware of my feelings	.78	-.02	.14	.19
Q411	The feelings I was experiencing were more intense than usual	.47	.09	.62	.21
Percentage of variance explained by factor		29.7	15.8	12.7	8.0

Chapter 9 - Results of analyses -- Aspects of the wilderness experience.

Introduction.

This chapter is primarily concerned with the examination of how the wilderness experience and its dimensions might change across time, Objective Two of this study. Our aim is to see whether the point of time in the wilderness visit is important in determining the experience as reported by the visitor. Just as leisure scholars have written that the leisure experience is not a static process, neither would we expect the wilderness experience to be unchanging. It is a process, and as such will unfold across time. Each part of the experience will build upon the events that precede it, and will, in turn impact upon the possibilities and situations that will follow it in time.

Wilderness writers have written about the dynamics of the the wilderness experience. Olson (1976), as previously quoted, has said that “during a trip into the wilds, it often takes men a week or more to forget the frenetic lives they led, but inevitably the feeling of timelessness does come, often without warning” (p. 27). And Kaplan and Talbot (1983) found that the journal entries of their wilderness subject changed significantly with time, becoming more emotional, more detailed, and more aware of the environment. Hull et al. (1993) also found significant change in the components of the wilderness experience across the course of a day-long experience.

The following results, therefore, examine whether or not time is a significant determinant of response. Various analyses are presented to examine the pattern of wilderness responses

across time. Although a definitive pattern of response may not be found, time can be shown to be an important factor in the experience patterns observed.

Aspects of the wilderness experience across time.

Table 38 shows the mean scores for each of the six aspects of wilderness for each time that the respondent completed the questionnaire during the wilderness experience. The pattern of responses to these items is difficult to interpret for several reasons. Firstly, there are different numbers of people responding at each point in time. Visitors stayed for varying lengths of time. Some subjects were day visitors and some overnights, and so respondents completed different numbers of questionnaires. Therefore, at each sequence group there is a different group of respondents, the number declining as time went on. Secondly, the grouping of responses has been done by the number in the sequence of questionnaire responses. That is, the second questionnaire completed by a respondent is grouped in sequence number two. But, these groupings contain responses from different points in time. If a respondent misses a beep, his or her second response may occur on day two, while other second responses with which it would be grouped might occur midway through the first day.

In order to counter these concerns, and to attempt to make the patterns of response more observable, a subset of the responses is examined, those who completed four or more questionnaires. Although this limits the sample, and quite possibly biases the sample to those conscientious visitors who had lengthier stays, it does allow a common group of respondents for each sequence group. (The alternative of grouping by the half day component of the trip in which the questionnaire was completed would yield uneven comparisons.)

Table 38

Scale score for all respondents across questionnaire sequence number

Sequence	1	2	3	4	5	6	7	8	9	
No. of responses	60	52	44	32	16	6	1	1	1	
Wilderness dimensions	Mean time elapsed	251	795	1567	2196	3037	3641	4324	4861	5717
Primitiveness	3.83	3.76	4.17	3.85	4.13	2.30	1.80	1.60	2.00	
Humility	4.99	4.92	5.55	5.03	5.21	3.16	3.33	2.33	0.33	
Timelessness	7.80	7.72	7.64	7.57	7.66	7.05	9.00	9.00	9.00	
Oneness	5.37	5.34	5.65	5.73	5.93	4.33	4.66	4.33	4.66	
Solitude	5.66	5.74	6.02	5.87	5.68	5.94	5.66	7.00	6.67	
Care	7.35	7.44	7.79	7.80	8.14	7.83	9.00	9.00	9.00	

Table 39 shows the mean time elapsed for each group of questionnaires, only for those respondents who complete four or more questionnaires. Only one day visitor is included in this sample, since his or her visit was nearly eight hours in length. Figure 3 shows the distribution of times when questionnaires were completed by the number of that questionnaire in the sequence. Only the first four questionnaires are used, since sample sizes dropped to unsatisfactory levels after this. For the subsequent analyses only the first four questionnaires from any respondent are included.

Table 39

Mean time elapsed for all respondents who completed four or more questionnaires across questionnaire sequence number

Sequence	1	2	3	4	5	6	7	8	9
No. of responses	32	32	32	32	16	6	1	1	1
Mean time elapsed	230	892	1691	2196	3037	3641	4324	4861	5717

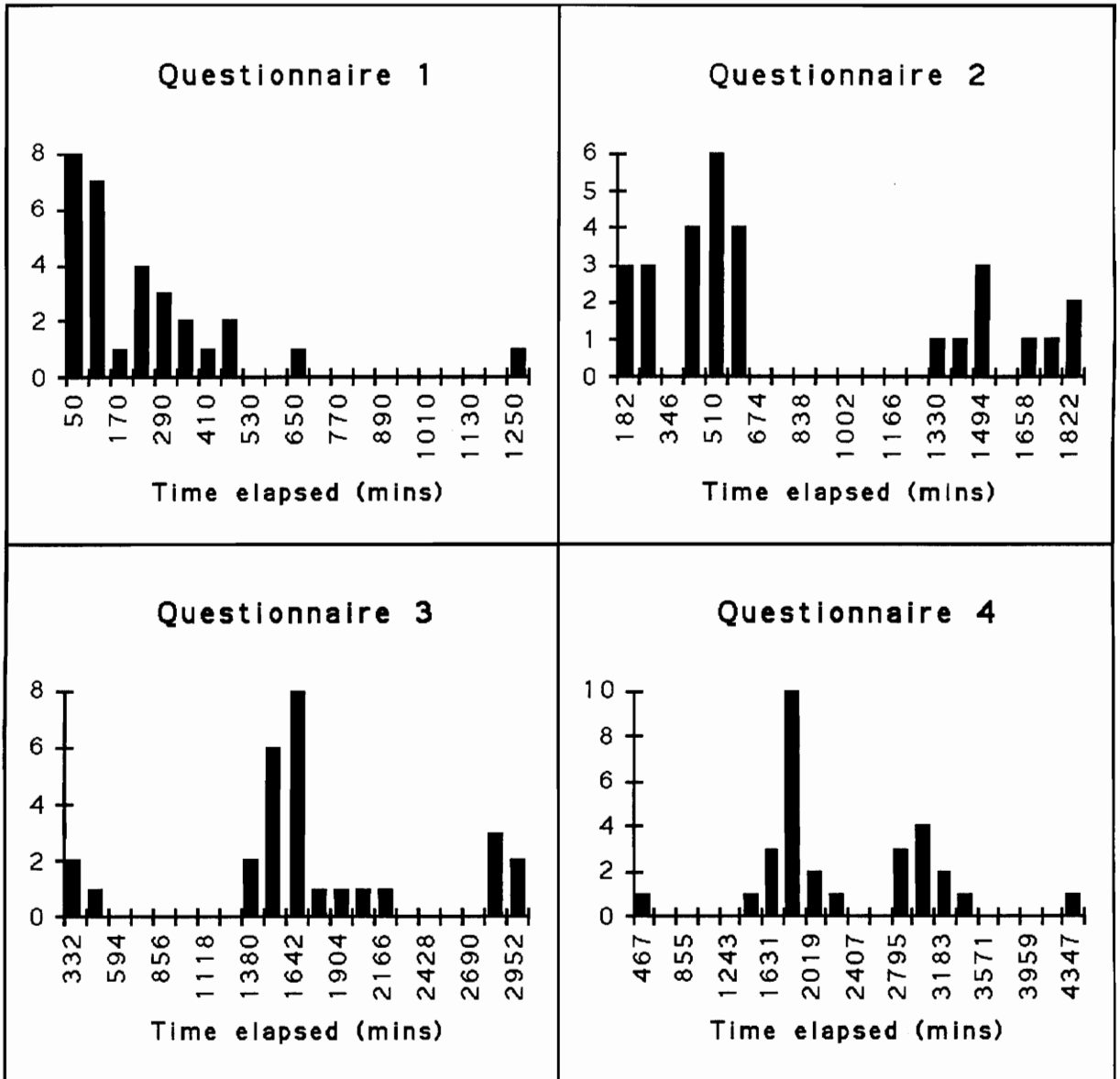


Figure 3. Distribution of time elapsed when questionnaire completed.

Figure 4 shows the mean scores for the six aspects of the wilderness experience across the sequence of four questionnaires. The figure, therefore, shows the change in intensity of the dimensions of the wilderness experience for the same group of respondents at time sequence 1, time sequence 2, etc. Five aspects of wilderness suggest a dip in score at the second questionnaire, and then an increase and plateauing out after that. Timelessness

appears to be slightly different, suggesting a rise at the second questionnaire completed, and then a slight decline after that.

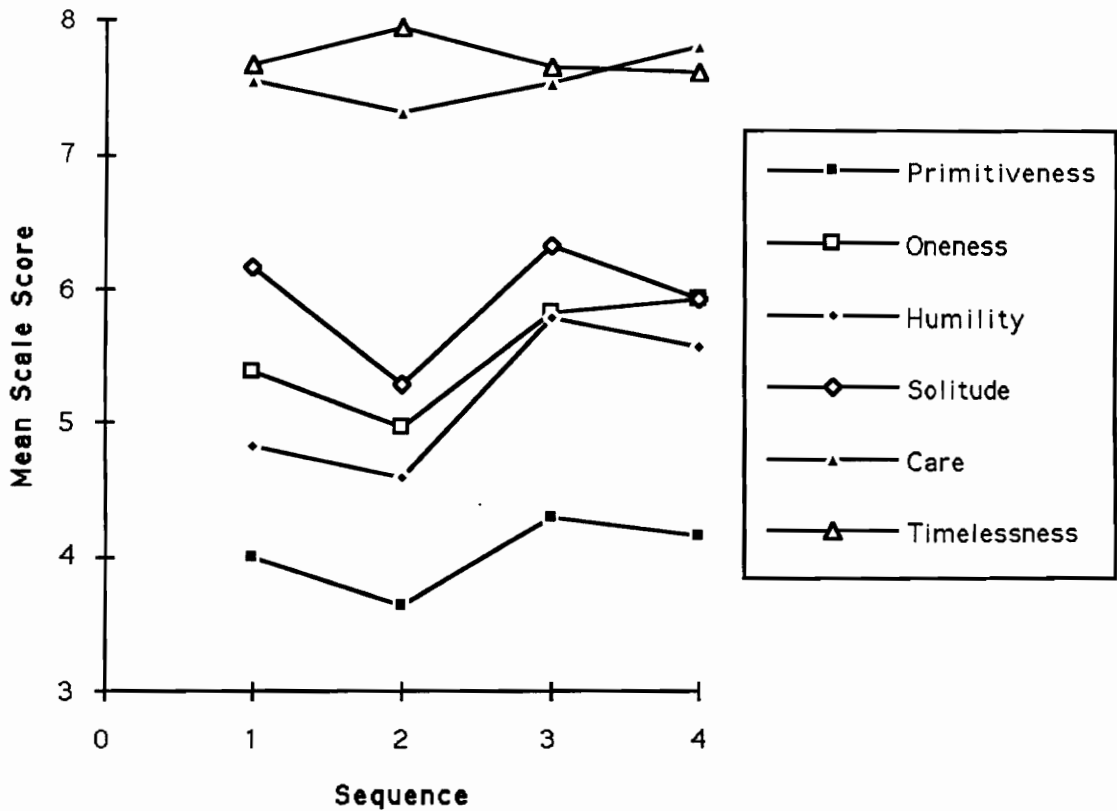


Figure 4. Average wilderness measure scores across sequence of questionnaires.

To determine whether the apparent differences due to sequence are real, repeated measure analysis was used. This is a subset of a multivariate analysis of variance where the same subject is measured repeatedly. Subjects serve as their own control. Repeated measures analysis can be considered a generalization of the univariate t-statistic, with a series of contrasts between adjacent responses from the same subject (Johnson and Wichern, 1992).

Much of the variation in individual response can be explained by the variability of the subject who exhibits the response. In effect, variability among the subjects due to individual difference is removed from the error term. The resulting design is then a randomized within subjects block design. Far fewer subjects are required, and a much more powerful test ensues than for completely randomized block designs (Stevens, 1992).

Two approaches to repeated measures analysis are used in this study, a univariate approach in which only one wilderness scale is considered, and a multivariate approach which takes all six wilderness scales into consideration at the same time. The multivariate approach does not assume the scales to be independent of one another, and takes into account the shared variance in the analysis. Typically, multivariate approaches are preferred in analyses of variances since they have better control of type 1 error rates, and jointly the set of variables may reliably differentiate the groups. However, repeated measures analyses are slightly different in that “in terms of controlling on type 1 error, there is no real basis for preferring the multivariate approach” (Stevens, 1992, p. 454). Further, univariate and multivariate tests will discern different treatment effects, in this case the effect of time. Multivariate tests may mask some of the univariate effects, if two variables in effect cancel one another out.

As is the case for most analyses of variances, if an overall significant difference is found between the groups, then a post-hoc comparison between the groups is undertaken to determine which of the groups differ from one another. Repeated measures analyses using a multivariate approach also allows for planned comparisons such as the Helmert contrasts, which contrast each group against the average of the remaining groups. Planned comparisons control for degrees of freedom in a slightly different fashion than post-hoc comparisons, and so both approaches will be presented.

One of the critical assumptions of the repeated measures analysis of variance is that of sphericity. Since the statistical test comprises a combination of contrasts between time points, an assumption is made that the set of contrasts tested (say, 1 vs. 2, 2 vs. 3, 3 vs. 4) is equivalent to any other set of contrasts (e.g., 1 vs. 3, 2 vs. 4, 3 vs. 2). If the sphericity assumption is not met, then the F ratio is biased. A parameter can be calculated, epsilon, to measure the degree to which the assumption is not met. If the sphericity assumption is perfectly met, then epsilon is one. Two estimators exist, the Greenhouse-Geisser epsilon, which Stevens (1992) considers to underestimate, and the Huynh-Feldt epsilon, which tends to overestimate. Following Stevens (1992) an average of the estimators is used. To adjust for the bias, the degrees of freedom are multiplied by epsilon.

The basic repeated measures analysis of variance for the measure of humility is shown in Table 40. Humility is chosen as an example to help explain the steps in a repeated measures analysis because it has univariate repeated measures significance at a .03 level.

Table 40
Repeated measures analysis of variance for humility scale responses across questionnaire sequence.

Source	SS	DF	MS	F	p
Between (sequence)	23.489.19	3	7.83	3.15	0.03
Within	171.61	69	2.49		

Table 41 shows the adjusted F test for the repeated measure anova after checking for sphericity. (For small sample sizes, such as this study, the adjusted F ratio is a more powerful test than the multivariate T² test statistic (Stevens, 1992).)

Table 41

Correction of univariate repeated measures analysis of variance for humility scale.

Greenhouse-Geisser Epsilon	0.86
Huynh - Feldt Epsilon	0.98
Average Epsilon	0.92
∴ Adjusted df	(2.8, 63.5)
∴ Adjusted F	3.15 (p < .04)

Repeated measures designs also allow univariate comparisons between the treatments (in this case, questionnaire sequence) to distinguish which are responsible for the significance of the above test, again using the example of humility. Table 42 shows these comparisons, including so-called Helmert contrasts, which compare individual groups against the average of the remaining groups.

Table 42

Planned comparisons for repeated measures analysis of variance of humility scale.

Contrast	F	p
Time 2 vs. av. (Time 1, Time 4)	2.24	0.15
Time 2 vs. av. (Time 3, Time 4)	6.43	0.02
Time 1 vs. av. (Time 2, Time 3, Time 4)	2.20	0.15
Time 1 vs. Time 4	5.17	0.03
Time 3 vs. Time 4	0.20	0.65

Post-hoc pairwise comparisons are also possible using the Tukey procedure (providing the sphericity assumption is reasonably met ($\epsilon > .70$), according to Stevens, 1992).

Table 43 and 44 shows these calculations.

Table 43

Mean humility scores for repeated measures analysis of variance.

	Times			
	1	2	3	4
Mean humility score	4.82	4.60	5.78	5.57

Table 44

Post-hoc comparisons for repeated measures analysis of variance of humility scale.

Comparison	(Tukey HSD ($.05$) = 0.704)	F	p
Time 2 vs. Time 1		0.22	ns
Time 3 vs. Time 2		1.18	< .05
Time 3 vs. Time 1		0.96	< .05
Time 4 vs. Time 3		0.21	ns
Time 4 vs. Time 2		0.97	< .05
Time 4 vs. Time 1		0.75	< .05

Thus, the lower intensity of humility scores at the second questionnaire response is significant at a .05 level, when compared against the third and the fourth questionnaires, and against the average of the first and fourth. The fourth questionnaire is also significantly different from the first and second.

Turning now to the multivariate approach, which is considered a doubly multivariate repeated measures design (SPSS Inc., 1988). This approach is multivariate in two ways. Firstly, each subject responds to a particular scale across a series of occasions, i.e. each time the beeper sounds. Second, each subject answers more than one scale at each occasion. Not only are the sequence of responses correlated to one another across time (and hence requiring a repeated measures design), but the different scales are also inter-correlated, sharing a common conceptual meaning (hence requiring a doubly multivariate approach).

Table 45 shows the results of the doubly multivariate analysis for all six aspects of the wilderness experience. There is not one universally accepted test statistic for the multivariate analysis of more than two groups. The most widely known is Wilk's lambda, which compares the generalized variance of the within and total sum of squares and cross product matrices (Stevens, 1992). It is the equivalent form of the F-test in the univariate repeated measures case (Johnson and Wichern, 1992). From Table 43 it can be seen that the value of Wilk's lambda is significant at a .06 level. Thus, there is an overall difference among the six aspects of wilderness measures in this study across time.

It should be noted that while the assumption of sphericity is checked for the univariate approach, it is not necessary for the multivariate (Stevens, 1992). However, since they are capable of discerning different effects across the repeated measures, both multivariate and adjusted univariate should be used (Stevens, 1992). Following this practice, Table 45 shows both tests. The estimates of the sphericity coefficient, epsilon, are all greater than 0.7, suggesting the assumption is reasonable since perfect sphericity has an epsilon value of 1.0. The adjusted significance levels are also shown in Table 45.

Table 45

Repeated measures analysis of variance of six aspects of wilderness across time

Multivariate	Wilks lambda	Degrees of freedom		
Within	10.79	18,6	p < .06	
Univariate	Unadj. F	DF = 3,69	Epsilon	Adj.
Primitive	1.12	p < .35	0.81	p < .34
Oneness	1.90	p < .14	0.91	p < .14
Timeless	0.32	p < .81	0.89	p < .79
Humility	3.15	p < .03	0.92	p < .04
Solitude	1.63	p < .19	0.96	p < .19
Care	0.78	p < .51	0.91	p < .51

Thus, there is evidence that some qualities of the wilderness experience do change significantly across time. This is particularly noticeable with the humility measure. In the following section greater efforts are made to isolate the change across time in the other five aspects of the wilderness experience.

Differentiation of time effects on aspects of the wilderness experience

The analysis of variance design for investigating data relies on comparisons of the variation between treatment groups against the random, or residual, variation within groups. In repeated measures designs, part of the residual variation can be explained by the repeated influence of the individual subjects, thus improving the chance to isolate the effect between groups. Thus, the treatment effect (i.e. the comparison across time points) between groups is more apparent.

The decomposition of variance can be taken a step further by the inclusion of other potential sources of variation within the time groups of subjects. In effect, the measurements (item responses) are recorded at levels for two factors, time and the new grouping variable (such as the level of experience the subject has with wilderness). By including past experience as a factor in the analysis of variance test we can better understand its role. We can also strengthen the test of whether time, the other factor in the design, has a significant impact. Once you account for the variation in response due to differences of experience, for example, then the variance of response due to time may then be significant. There will also be an effect of the interaction between level of experience and time which may be significant (e.g., those with more experience may be more prone to the effects of time on their response). However, interaction effects are often difficult to explain, and are rarely significant in repeated measures analyses.

This section examines the impact of various visitor, visit and group characteristics on measures of the six aspects of the wilderness experience, and on the change across time. Ideally, each of the characteristics would be included as a separate blocking variable in one overall analysis, but small sample sizes prevents this. Instead each characteristics will be considered singly as a block. In the repeated measure analyses that follow, the visitor characteristics will be considered the between group factor, the questionnaire number (representing time) is the within group factor, and an interaction between the two factors will also be present. In a similar fashion to the previous section, both doubly multivariate and univariate test statistics are presented.

Visitor characteristics

Recreation specialization

The first visitor characteristic to be considered as a blocking variable is the subject's level of recreation specialization. Recreation specialization has been used as a measure of a recreationist's commitment or involvement with a specific activity. Specialization, as a construct, is typically computed on the basis of past experience, degree of expertise, and familiarity with the activity and setting. The continuum of specialization would typically extend from novice, someone who does not regularly undertake the activity in wilderness, through to specialist, for whom the activity in specific settings is a central feature of his or her life.

Based upon current research examining recreation specialization (McIntyre and Pigram, 1992; Williams and Huffman, 1985; Watson and Niccolucci, 1992), measures of three aspects of specialization were included on the contact questionnaire (see Appendix B). The first measure was of degree of experience with the wilderness location (Q5b : How many times have you previously paddled Okefenokee ?). The second measure was activity specific, with questions on equipment ownership (Q4 : Are you using your own canoe or a rented one ?), degree of participation (Q6 : How many times have you canoed on any river or lake ?), and of commitment (Q9 : How would you rate canoeing compared with your other outdoor recreation activities ?). The third measure assessed general wildland recreation experience, with a question concerning frequency of use (Q7 : How often would you visit a forest or natural parkland near where you live ?), and of total number of visits to wilderness (Q 8 : How many times have you visited a wilderness area in your entire life ?).

Following the example of Williams and Huffman (1985) each of these three measures was computed by adding the standardized scores of the variables. Watson and Niccolucci (1992) suggest maintaining the multi-dimensionality of the components of a specialization index. For this reason, the three measures were not summatively combined. Rather, a cluster analysis was used to categorize visitors based on all three measures. The results of this cluster analysis are shown in Table 46, with a resultant three groups. The first cluster could be characterized as canoeing specialists with little wildland recreation experience, the second as paddling and Okefenokee novices but with some wildland recreation experience, and the third as Okefenokee regulars, with corresponding wilderness experience.

Table 46
Final standardized values of cluster centers of specialization measures

Cluster	No. of visitors	Okefenokee Specialization	Canoeing Specialization	Wildland Specialization
1	25	-.04	1.69	-.50
2	32	-.32	-1.06	.25
3	3	3.32	-1.32	1.55
Total	60			

Table 47 shows the repeated measure analysis of variances when specialization is included as a between group factor. In the doubly multivariate approach specialization does indeed account for a portion of the overall variance in item response, but the three specialization clusters are not significantly different in terms of response to the six wilderness experience scales (Wilk's lambda of 0.47, $p < .22$). The time effect is no longer significant, with a Wilk's lambda of 0.17, $p < .54$. However, the univariate tests tell a slightly different story. In the test of between specialization group differences, none of the six scales are

significantly different across clusters, but both primitiveness and humility approach significance levels (differences ($p < .18$, and $p < .12$, respectively). Figure 5 shows these differences. The univariate tests of the within group, or time, effects show that only oneness has a significant change across time, at a .02 level.

Table 47

Repeated measures analysis of wilderness scales across specialization cluster and time

Multivariate	Wilks lambda	Degrees of freedom		Sphericity epsilon
Between	0.43	12,32	$p < .22$	
Within (seq.)	0.17	18,4	$p < .54$	0.42
Interaction	0.03	36,8	$p < .51$	

Univariate	Within (seq.) Unadj. F	DF = 3,63	Between Unadj. F	DF = 2,21
Primitive	0.68	$p < .57$	1.87	$p < .18$
Oneness	3.63	$p < .02$	0.77	$p < .48$
Timeless	0.13	$p < .93$	0.22	$p < .80$
Humility	0.44	$p < .72$	2.31	$p < .12$
Solitude	0.28	$p < .84$	1.32	$p < .29$
Care	0.71	$p < .55$	0.33	$p < .72$

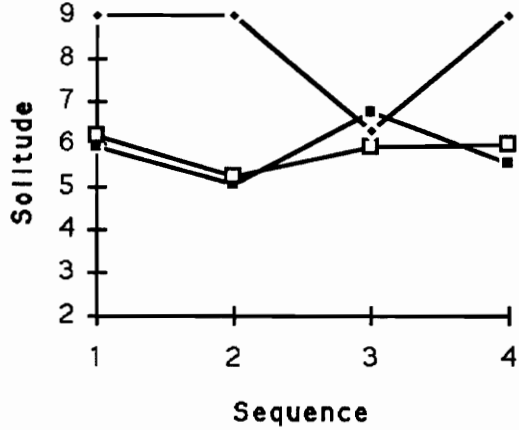
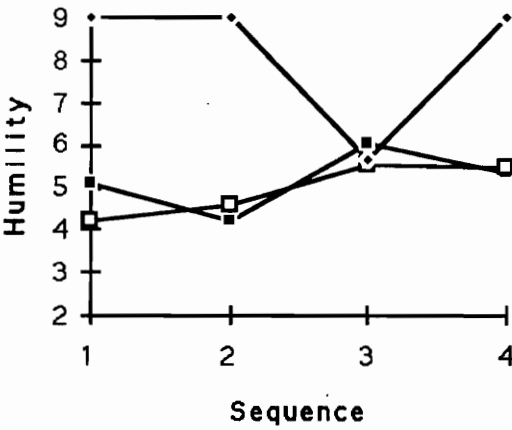
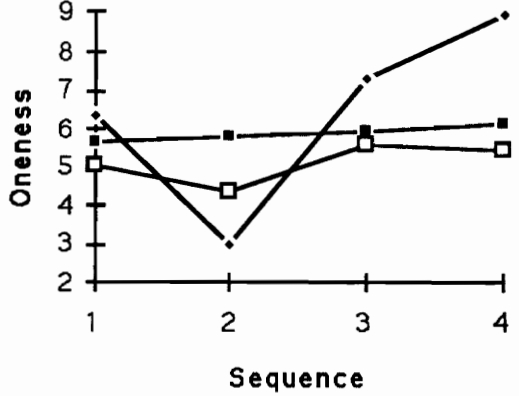
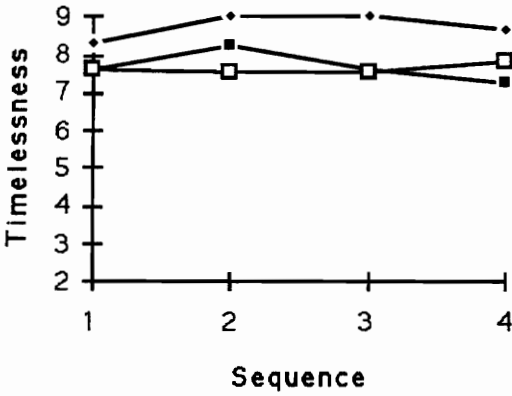
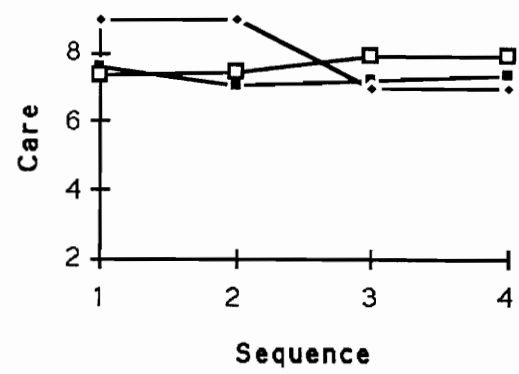
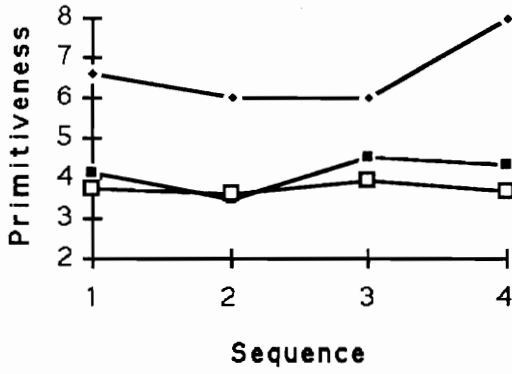


Figure 5. Aspects of wilderness experience by specialization cluster across questionnaire sequence.

Age

In order to use the age of the respondents as a grouping variable, the subjects had to be broken into age categories. Cluster analysis provides a mathematical technique for classifying the respondents into natural groups based on their degree of association on the variable of interest. A histogram of the distribution of ages of the study respondents is shown in Figure 6. The cluster analysis found five clusters of ages, with the centers of these groups shown in Table 48.

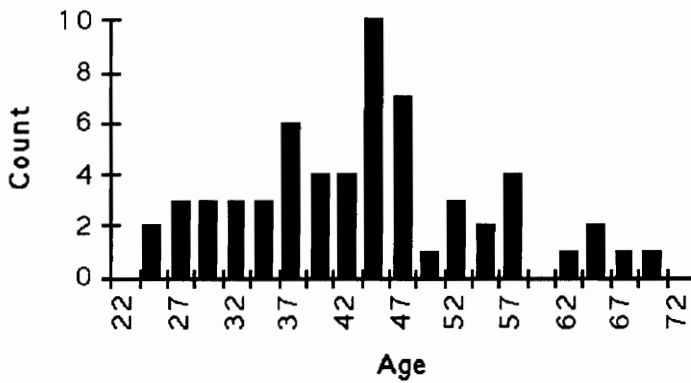


Figure 6. Frequency distribution of ages of respondents.

Table 48

Cluster analysis of age of respondents.

Cluster	Age cluster center (yrs.)	Number of visitors
1	26.6	8
2	36.9	18
3	45.3	19
4	53.6	9
5	65.4	5

The multivariate analysis including age clusters as a between group variable shows no significant difference between the age groups ($p < .42$), but does still show a significant within group (time) effect ($p < .09$) (Table 49). In particular, the univariate analysis shows a significant difference in the primitiveness and solitude scale responses between questionnaires over time. Figure 7 shows the pattern of response for the solitude scale across time and among the age clusters. (Note that subject numbers are lower since not all visitors completed all solitude items on four or more questionnaires.) It would appear that the younger clusters exhibit more pronounced variation in solitude, particularly the drop at the second questionnaire completed.

Table 49

Repeated measures analysis of variance of wilderness scales across age cluster and time

Multivariate	Wilks lambda	Degrees of freedom		
Between	0.23	24,50	$p < .42$	
Within (seq.)	0.010	18,2	$p < .09$	
Interaction	0.0006	72,10	$p < .74$	

Univariate	Within (seq.) Unadj. F	DF = 3,57	Between Unadj. F	DF = 4,19
Primitive	2.16	$p < .10$	1.19	$p < .35$
Care	0.01	$p < .99$	0.64	$p < .64$
Timeless	0.49	$p < .69$	0.52	$p < .72$
Oneness	0.86	$p < .47$	0.04	$p < .99$
Humility	1.77	$p < .16$	1.26	$p < .32$
Solitude	2.42	$p < .07$	0.83	$p < .52$

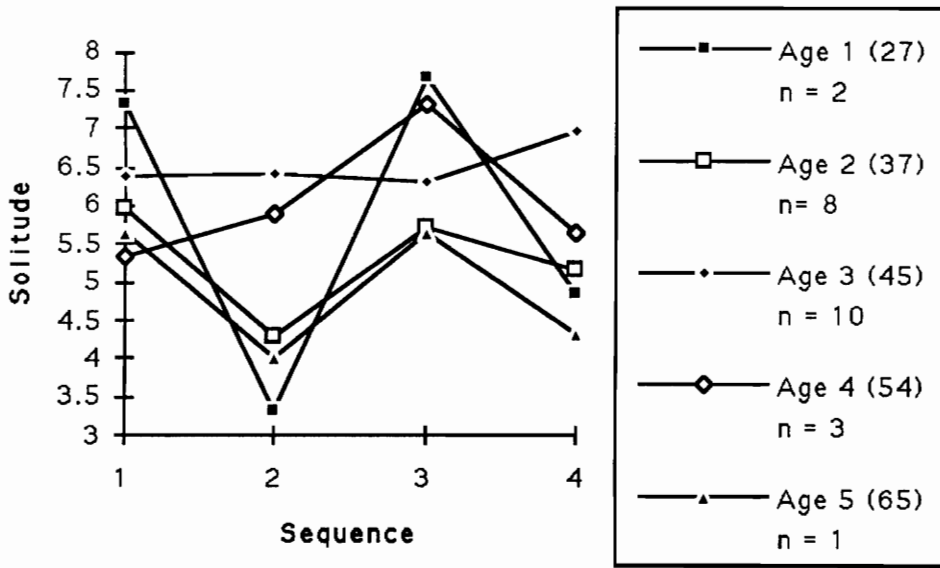


Figure 7. Solitude scale response across sequence of questionnaire by age clusters.

Gender

Gender has been included as a blocking variable in the analysis of variance shown in Table 50. The multivariate test of within groups effects (time) approaches significance at a Wilik's lambda value of 0.084, $p < .11$. The between group factor (gender) is not significant in the multivariate analysis nor in any of the individual scale univariate analyses. However, in the univariate tests of within group differences humility shows significant differences across the times of the questionnaires sequence, and oneness approaches significance.

Table 50

Repeated measures analysis of variance of wilderness scales across gender and time

Multivariate	Wilks lambda	Degrees of freedom		
Between	0.841	6,17	p < .77	
Within (seq.)	0.084	18,5	p < .11	
Interaction	0.195	18,5	p < .48	

Univariate	Within (seq.)		Between	
	Unadj. F	DF = 3,66	Unadj. F	DF = 1,22
Primitive	1.10	p < .36	0.03	p < .87
Care	0.75	p < .52	0.79	p < .39
Timeless	0.31	p < .82	0.31	p < .58
Oneness	1.93	p < .13	0.51	p < .48
Humility	3.03	p < .04	1.42	p < .25
Solitude	1.60	p < .20	0.03	p < .88

Education

The analysis of variance including education as a blocking variable also required clustering of education levels, and is shown in Table 51. None of the test statistics are significant, and so it would appear that education is not a significant determinant in the response of visitors to the wilderness experience items.

Table 51

Repeated measures analysis of variance of wilderness scales across education level cluster and time

Multivariate	Wilks lambda	Degrees of freedom		
Between	0.315	24,50	p < .58	
Within (seq.)	0.105	18,2	p < .63	
Interaction	0.002	72,10	p < .96	

Univariate	Within (seq.) Unadj. F	DF = 3,57	Between Unadj. F	DF = 4,19
Primitive	0.55	p < .65	1.11	p < .38
Care	0.69	p < .56	1.07	p < .40
Timeless	0.26	p < .86	0.57	p < .70
Oneness	1.93	p < .13	1.29	p < .30
Humility	1.60	p < .20	0.42	p < .79
Solitude	0.526	p < .66	0.62	p < .66

Visitor group characteristics

Two characteristics of the group with which the visitor was travelling in the wilderness were recorded in this study : the size of the group and the type of the group (friends, family, club or organization, etc.). Each of these characteristics can be included in the analysis of variance, allowing us to examine the effect that visitor group characteristics can have on the wilderness experience across time, as measured by the scales of the six aspects of wilderness.

Group size

Figure 8 illustrates the distribution in group sizes across study respondents. Table 52 describes the five group size categories identified by the clustering routine used. Although this clustering is not entirely successful, having little differentiation among the smaller

group sizes, for consistency with the above analyses it is used in the repeated measures analysis shown in Table 53. From here it can be seen that there is a significant difference in response to the wilderness experience items across time among group size clusters (Wilk's lambda =.028, $p < .09$). The multivariate analysis shows a Wilk's lambda for between group size groups of 0.27, $p < .18$.

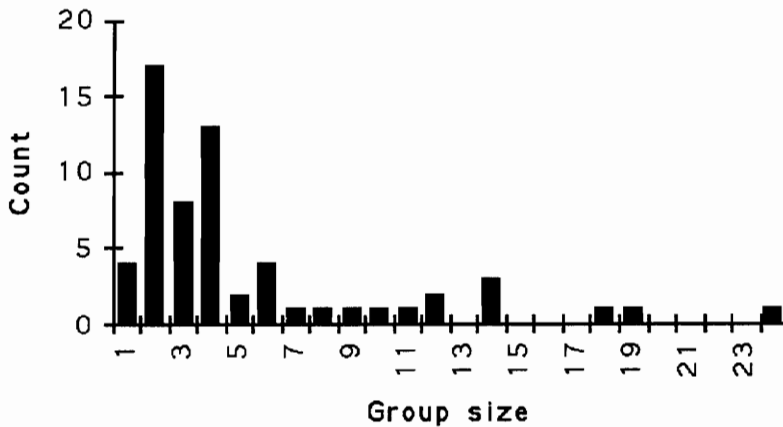


Figure 8. Frequency distribution for group size of Okefenokee respondents.

Table 52

Cluster analysis of group size of respondents.

Cluster	Group size cluster center	Number of visitors
1	2.7	41
2	6.9	10
3	13.0	6
4	18.0	1
5	24	1

However, the between groups effect is more noticeable in the univariate analyses where both the care and oneness scales show significant differences. Those differences can be

seen in Table 54, which shows a decline in degree of care and oneness reported, on average, as group size increases. The univariate analysis of variance also shows a significant difference between the time groups for the humility and solitude responses. Interestingly, there is also a significant interaction between the time effect and the group size effect for solitude. That is, the influence of time on degree of solitude is affected by group size. This effect can also be seen in Figure 9.

Table 53

Repeated measures analysis of variance of wilderness scales across group size cluster and time

Multivariate	Wilks lambda	Degrees of freedom		
Between	0.27	18,42	p < .18	
Within (seq.)	0.028	18,3	p < .09	
Interaction	1.167	54,10	p < .42	

Univariate	Within (seq.)		Between	
	Unadj. F	DF = 3,69	Unadj. F	DF = 3,20
Primitive	0.77	p < .51	1.14	p < .35
Care	0.32	p < .81	3.11	p < .05
Timeless	0.39	p < .77	0.53	p < .67
Oneness	0.79	p < .50	2.77	p < .07
Humility	2.35	p < .08	0.73	p < .54
Solitude *	2.76	p < .05	2.14	p < .13
			* (Interaction	p < .02)
			F = 2.43	

Table 54

Mean response scores for care and oneness scales by group size cluster

Cluster	Av. group size	Care	Oneness
1	2.7	7.91	5.79
2	6.9	7.52	5.47
3	13.0	7.45	4.58
4	18.0	3.25	1.75

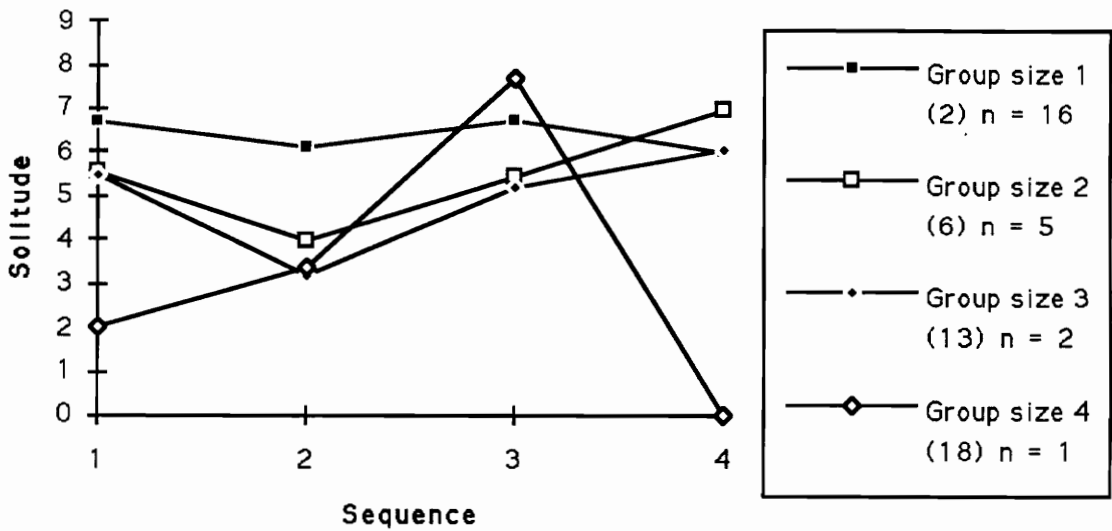


Figure 9. Mean response scores for solitude scale across questionnaire sequence by group size cluster.

Group type

Table 55 shows the analysis of variance when group type is entered as the between group variable. In the multivariate analysis the between group effect is clearly not significant (Wilk's lambda of 0.385, $p < .59$), nor are there any significant between group effects in any of the univariate analyses. However, at the multivariate level, the effect of time (within group) approaches significance ($p < .12$). Moreover, at the univariate level including group

type in the analysis has allowed the time effects on oneness, humility and solitude to become apparent. These results are shown in Figures 10, 11, and 12.

Table 55
Repeated measures analysis of variance of wilderness scales across group type and time

Multivariate		Wilks lambda	Degrees of freedom	
Between		0.385	18,40	p < .59
Within (seq.)		0.013	18,2	p < .12
Interaction		0.002	54,7	p < .67

Univariate	Within (seq.)		Between	
	Unadj. F	DF = 3,57	Unadj. F	DF = 3,19
Primitive	1.43	p < .24	0.07	p < .98
Care	0.85	p < .47	0.45	p < .72
Timeless	0.76	p < .52	0.74	p < .54
Oneness	2.48	p < .07	0.67	p < .58
Humility	3.01	p < .04	1.06	p < .39
Solitude	2.39	p < .08	0.67	p < .56

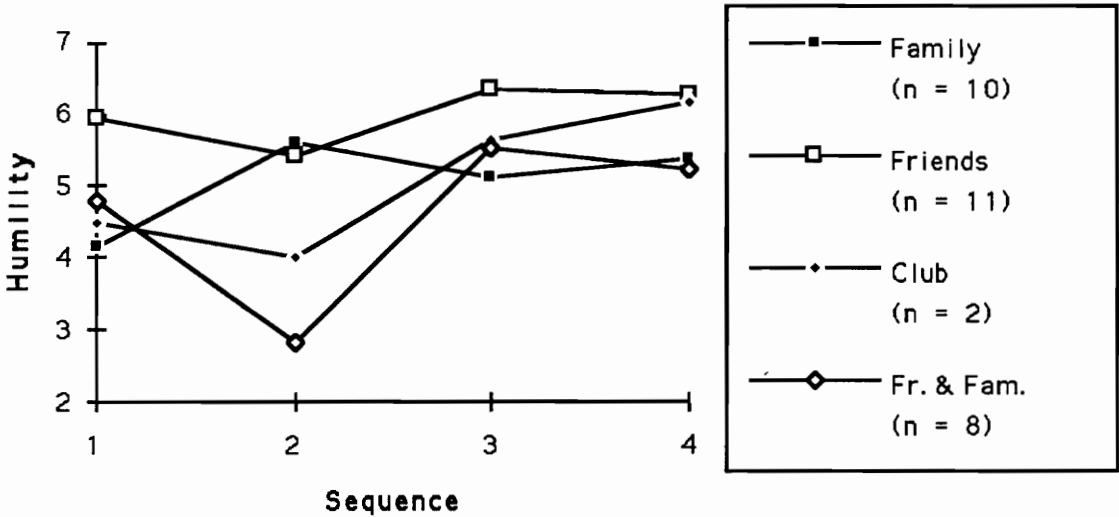


Figure 10. Mean response scores for humility scale across questionnaire sequence by group type.

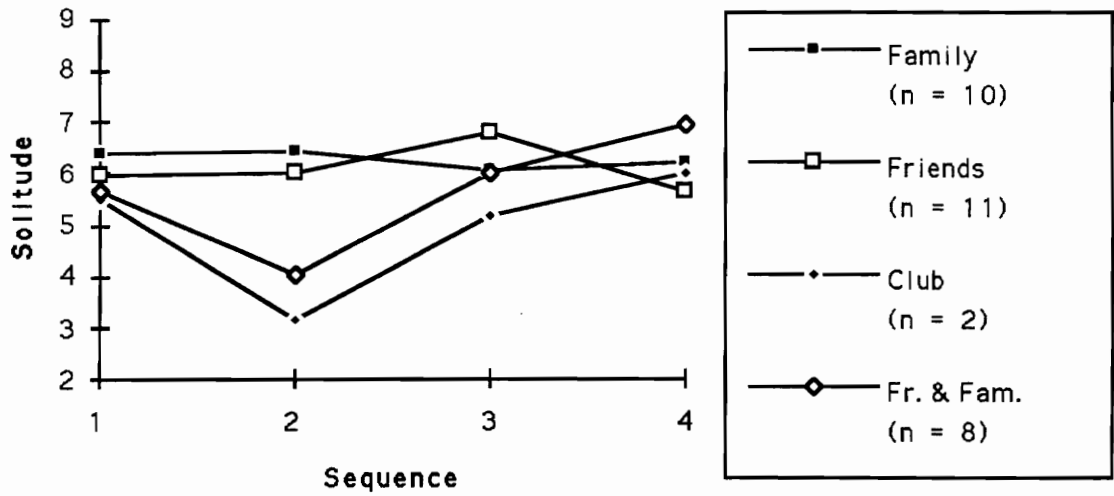


Figure 11. Mean response scores for solitude scale across questionnaire sequence by group type.

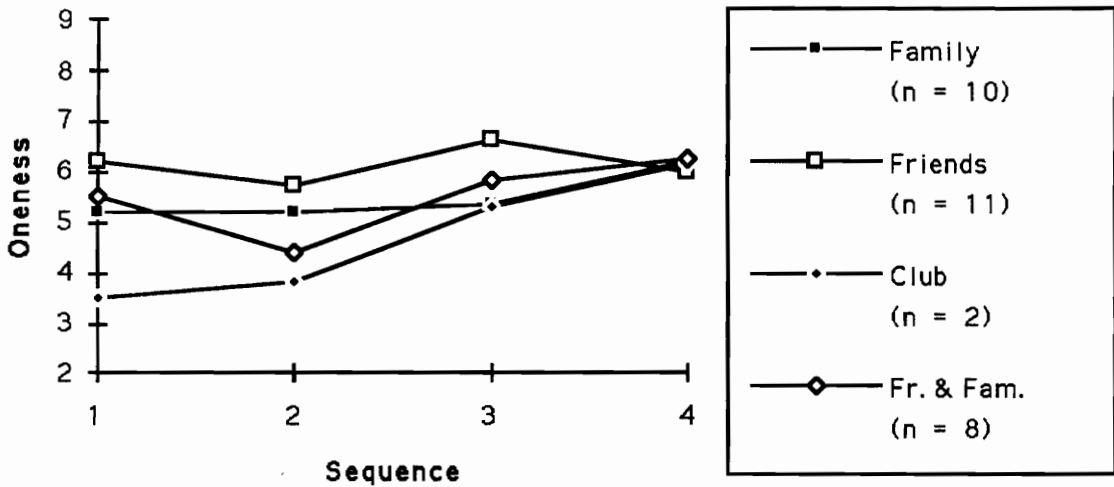


Figure 12. Mean response scores for oneness scale across questionnaire sequence by group type.

Visit characteristics

Length of stay

The final characteristic measured for each of the respondents is the length of stay in the wilderness. These ranged from two hours for one of the day visitors, to four days and two hours for an overnight visitor. A clustering procedure similar to the ones described above was used to break the visitors into length of stay groups. The frequency distribution and cluster analysis are shown in Figure 13 and Table 56, respectively.

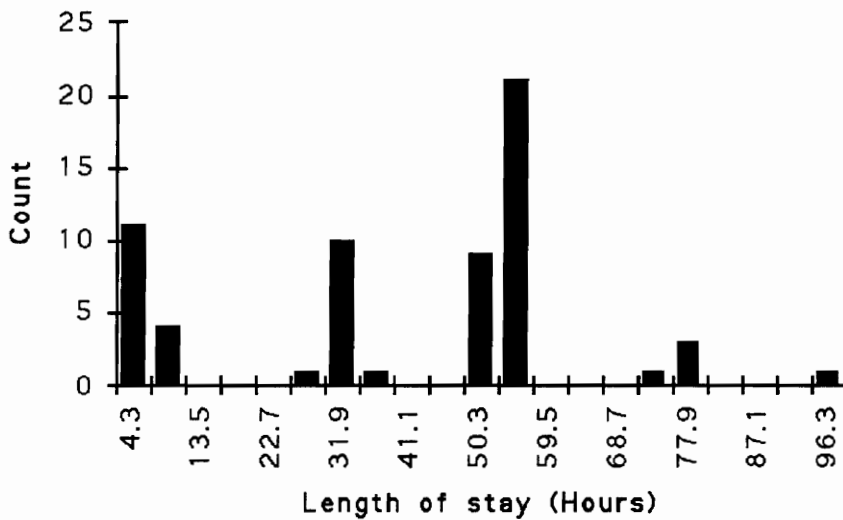


Figure 13. Frequency distribution of length of stay of Okefenokee respondents

Table 56

Cluster analysis of length of stay of respondents.

Cluster	Length of stay cluster center (Hrs.)	Number of visitors
1	6	30
2	30.5	12
3	53.5	30
4	78.5	4
5	98.5	1

The analysis of variance for the inclusion of trip length is shown in Table 57. The table shows that by taking a multivariate approach both the questionnaire number and length of stay effects are significant, at least at a .05 level. The univariate results indicate that timelessness is significantly different across the length of stay clusters, although there is not a clear pattern to describe this effect. The univariate results also show significant differences among the questionnaire sequences, and hence time, for solitude and primitiveness. These effects are shown in Figure 14, 15, 16.

Conclusion.

Throughout this chapter both a doubly multivariate and univariate repeated measures design of analysis of variance has been applied to the six aspect measures of the wilderness experience. Each of these aspects, primitiveness, oneness, humility, care, timelessness and solitude have been found to differ across the sequence of questionnaires completed by visitors. There has also been results presented that show some of the visitor, visit and group characteristics that help explain some of the variation in scale responses.

These results should, however, be read with caution since sample sizes are low. In some cases, only one respondent falls into some of the visitor characteristic groups. However, even with the small sample size, the results still often show statistical significance. In most cases time (questionnaire sequence number) was more important than the effect of visitor or visit characteristics. The only analyses in which other variables were important was for group size and length of stay. We have often managed for group size in wilderness, but there has been little attempt to shape length of stay except for maximum stay limits of 10 or 14 days.

Table 57

Repeated measures analysis of variance of wilderness scales across length of stay cluster and time

Multivariate	Wilks lambda	Degrees of freedom	
Between	0.12	24,50	p < .05
Within (seq.)	0.004	18,2	p < .04
Interaction	0.00002	72,10	p < .10

Univariate	Within (seq.) Unadj. F	DF = 3,57	Between Unadj. F	DF = 4,19
Primitive	2.63	p < .06	0.41	p < .80
Care	0.21	p < .89	0.63	p < .64
Timeless	1.18	p < .32	2.78	p < .06
Oneness	2.13	p < .11	0.05	p < .99
Humility	1.21	p < .31	0.81	p < .53
Solitude	2.41	p < .08	0.32	p < .86

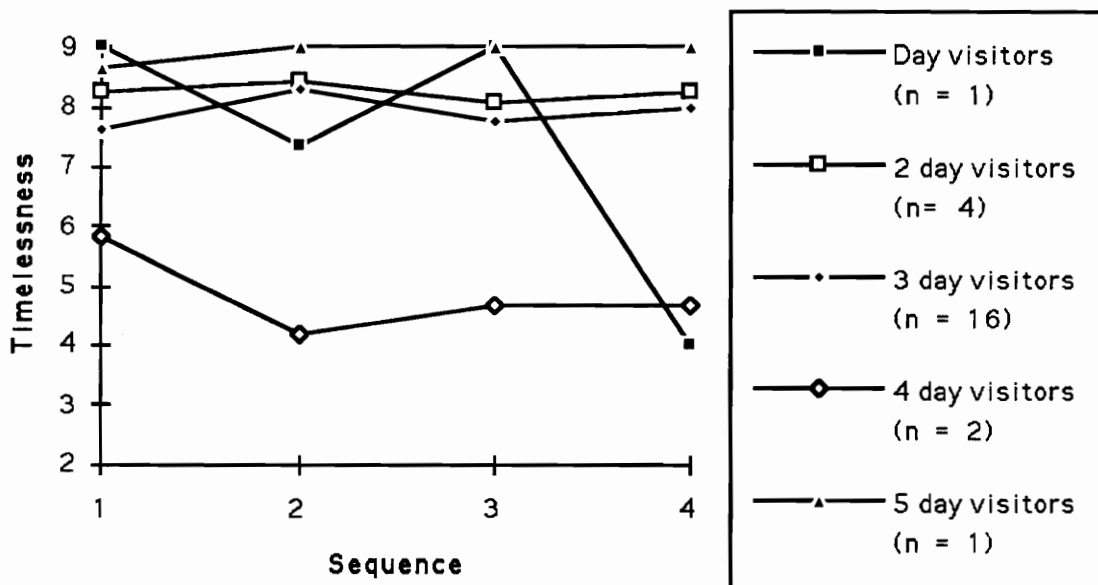


Figure 14. Plot of timelessness scale across time by length of stay.

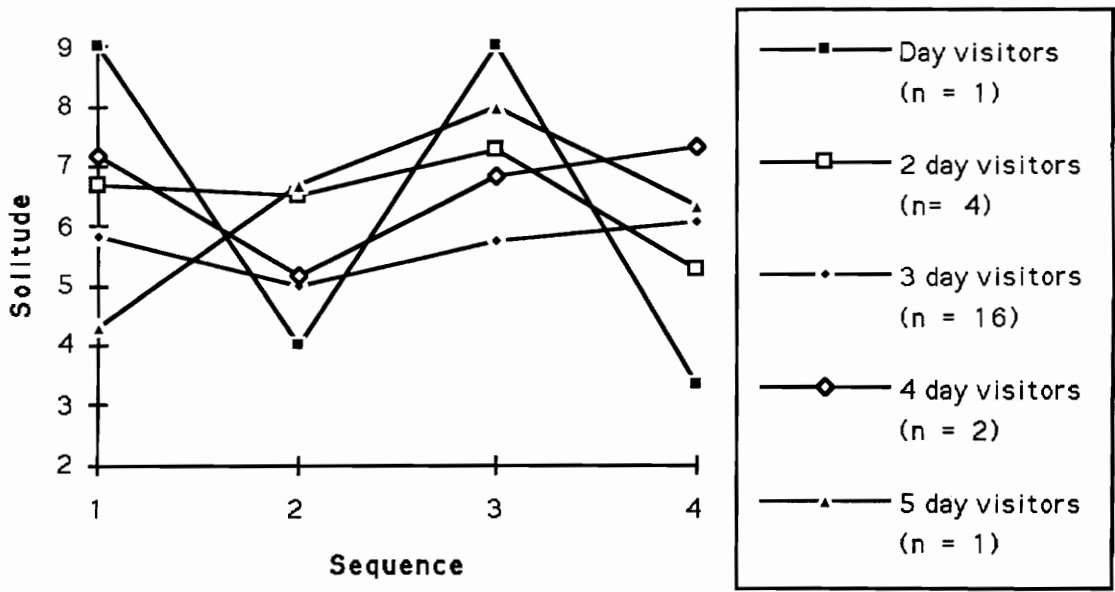


Figure 15. Plot of solitude scale across time by length of stay.

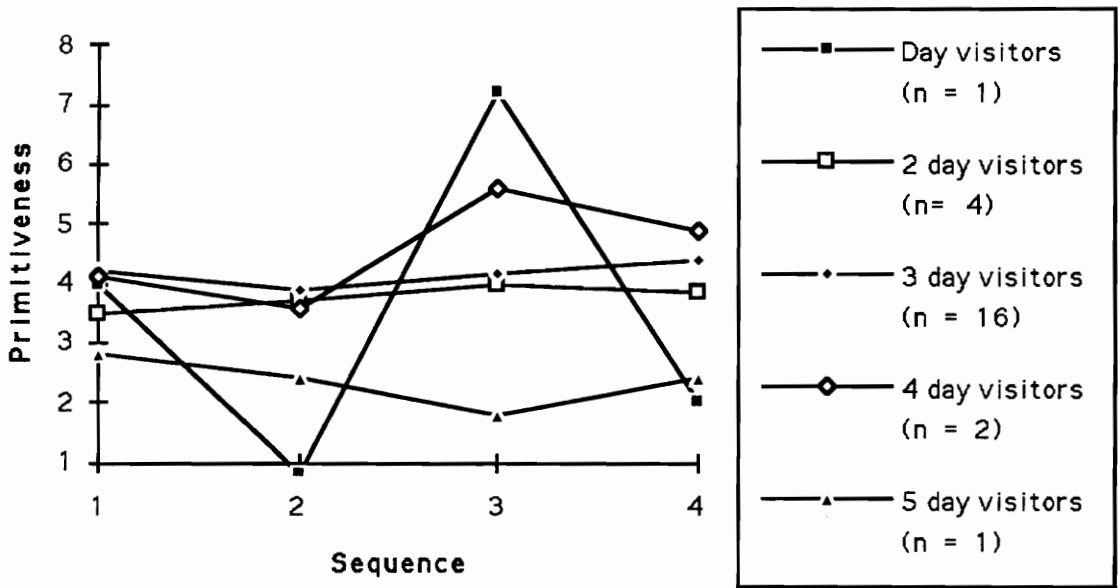


Figure 16. Plot of primitiveness scale across time by length of stay.

Time (questionnaire sequence) seems to have the most robust effect on humility out of the six scales of the wilderness experience, although oneness and solitude approach significant levels of change across time. Other scales saw significant effects of time when other visitor characteristics were taken into account. Primitiveness, for example, showed significant patterns across time when either age or length of stay was taken into account. It does indeed appear that the wilderness experience, as measured by these six scales, is dynamic and changes across time.

Chapter 10 - Results of analyses -- Modes of experiencing the wilderness environment.

Introduction

This chapter represents an additional examination of the wilderness experience and how it unfolds across time. It reports the analyses carried out on the five measures of mode of environmental experience which were constructed based on the work of environmental psychologists, and as such it assists in addressing Study Objective 1. These five modes include focus of attention on self, others, the environment, the task and on emotions. In chapter eight, groups of items developed to measure each of these five constructs were examined for reliability properties. In this chapter the resulting five scales are used to investigate the process of experiencing the wilderness, and the effect of time on that process.

The analyses follow a similar pattern to that used to investigate the effect of time on the multiple aspects of the wilderness experience. Initial analyses show an examination of the change in mode of environmental experience across time. In this analysis, the primary concern is whether time is a significant factor in determining the degree to which visitors experience the environment in a particular mode. Finally, the analysis of variation of the five mode measures is compared across various characteristics of the visitor, such as level of education, degree of recreation specialization, and length of stay in the wilderness. It is a check of the usefulness of the five measures of environmental experience to assess if they are able to discriminate between different sub-groups of visitors. These subgroups have different characteristics which may determine significantly different modes of experiencing

the wilderness. (For instance, novice visitors may experience the environment in quite a different manner than veteran visitors)

Focus of attention or mode of experience across time.

If the wilderness experience changes across time, then it can be expected that the focus of attention would change with it. As previously suggested, perhaps visitors become more selective as the trip goes on. Whereas initially everything is overwhelmingly captivating, perhaps as familiarity is built with the activity, environment, and others around you, then at any one point in time focus is concentrated on just one or two areas of interest. Equally, with familiarity might come the space to introspect, or more closely observe the wilderness environment. Therefore, an examination of the responses to the five modes of environmental experience (introspection, social acceptance, task orientation, environmental sensitivity, and emotional intensity) is warranted.

Table 58 shows the mean scores for each of the five scales of environmental experience for each questionnaire in the sequence of responses. Similarly to the analysis in chapter nine, these are difficult to interpret. The same tactic is taken to improve our analysis, in that only those visitors who completed four or more questionnaires are included in the sample to be used.

Table 59 and Figure 17 shows the means of the first four responses only. Table 59 also includes the results of the univariate repeated measures analysis of variance comparing the four time groups for each scale. Figure 17 suggests that both environmental sensitivity and socialness decline sharply after the first questionnaire completed. Both then climb over the course of the third and fourth questionnaires. Task seems to slowly increase across the

course of the experience. Emotional intensity and introspection appear to remain relatively stable across time.

Table 58

Scale score for all respondents across questionnaire sequence number

	Sequence	1	2	3	4	5	6	7	8	9
	No. of responses	52	50	42	32	16	6	1	1	1
Mode of exper.	Mean time elapsed	251	795	1567	2196	3037	3641	4324	4861	5717
Introspection		2.64	2.79	2.85	3.01	2.64	2.66	0.00	0.00	2.66
Social acceptance		6.17	5.65	6.00	5.83	6.91	7.50	9.00	9.00	9.00
Emotional intensity		3.46	4.24	3.69	4.12	4.02	3.72	1.00	1.33	3.33
Environmental sens.		5.81	5.41	5.96	6.15	6.55	5.08	6.00	5.00	5.00
Task orientation		4.32	4.21	4.51	4.36	4.90	3.61	3.33	0.00	0.66

Table 59

Mean mode of experience scale scores for respondents answering 4 or more questionnaires across questionnaire sequence number

	Sequence	1	2	3	4	Anova	
Mode of exper.	No. of responses	29	30	31	31	F	Signif. (p <)
Introspection		2.85	2.62	2.85	3.01	0.38	0.75
Social acceptance		6.79	5.51	5.94	5.88	3.01	0.04
Emotional intensity		3.55	3.82	3.44	4.12	1.11	0.35
Environmental sens.		6.10	4.93	5.64	6.15	0.67	0.56
Task orientation		3.72	4.03	4.39	4.90	1.07	0.36

General inspection of these plots suggests that the wilderness experience, in terms of mode of environmental experience, does change across time. However, in all cases except for

social acceptance these changes are overwhelmed by the variability of response and are therefore not statistically significant.

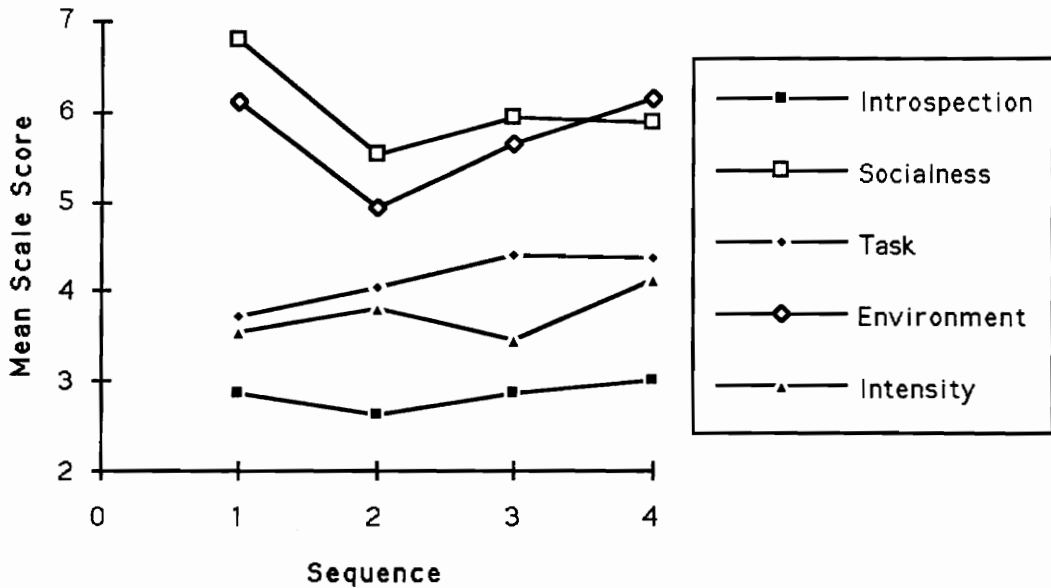


Figure 17. Mean mode of experience scale scores for respondents answering 4 or more questionnaires across questionnaire number.

As has already been stated, the use of repeated measure analysis of variance allows a robust statistical test of the influence of change across time. Similar to the last chapter, a doubly multivariate approach can be used to consider the effect of the combination of all five modes of environmental experience. The results of these two analyses are shown in Table 60.

Table 60

Repeated measures analysis of variance test for effect of time for modes of environment experience scales.

Multivariate	Wilks lambda	Degrees of freedom		Sphericity
Within	0.131	15,4	p < .31	.55
Univariate	Unadj. F	DF = 3,75	Epsilon	Adj.
Introspection	0.38	p < .77	0.93	p < .75
Socialness	3.01	p < .04	0.97	p < .04
Task	1.07	p < .37	0.73	p < .36
Environment	0.67	p < .57	0.92	p < .56
Emotions	1.11	p < .35	0.91	p < .35

Examining first the multivariate results, it can be seen that over all of the five modes, the influence of time is not significant (Wilks lambda value of 0.131). It should also be noted that the assumption of sphericity is not upheld in this doubly multivariate analysis.

Correcting the degrees of freedom would only lower the significance of the doubly multivariate result. However, considering the univariate repeated measures results, where each scale is analyzed independent of the other four, it can be seen that social acceptance does significantly change over time at a .05 level. The assumption of sphericity is upheld for this scale, and little adjustment is made to the degrees of freedom for this statistical test.

Thus, one might conclude that focus of attention varies little across time in wilderness. Or in contrast, it may be that the limitations (e.g., small sample size both in terms of respondents and number of responses per participant) and variability of our sample set have restricted our ability to find statistically significant effects over time. The results of the doubly multivariate test, in taking all five scales together as dependent variables, is well below the .05 level, perhaps indicating the interdependency of the five scales. (This might

support the hypotheses that foci of attention, or modes of environmental experience, are somewhat complementary, or mutually exclusive. As one rises over time, another will fall, and vice versa.) The univariate repeated measures analysis, by assuming each of the five scales to be independent of one another is more appropriate analytically, since the sphericity assumption is clearly not met.

Visitor characteristics

As part of our investigation of the applicability of the five measures of mode of environmental experience to understand the wilderness experience, and understanding the effect of time in wilderness, this section seeks to investigate the main and interaction effects of various visitor and visit characteristics on modes of experience scales. For example, the size of group with which the respondent is traveling might be a clear influence on the degree of introspection experienced. By including group size as a block in the statistical analysis, we might also highlight the effects of time. That is, in the analysis above the variability due to group size, for example, maybe masking the trends across time.

Recreation specialization

The first breakdown in respondents is by recreation specialization clustering. As discussed in the previous chapter, these clusters incorporate measures of the degree to which visitors have previous canoeing and wildland experience, as well as the level of familiarity with the Okefenokee wilderness. Table 61 shows a summary of a series of repeated measures analysis of variance, where specialization cluster is included as a between groups factor, or independent variable. The multivariate analysis (across all five modes) indicates that overall, neither the specialization cluster nor the effect of time are significant factors in explaining the overall variance in response to the five focus of attention scales.

Table 61

Repeated measures analysis of variance for modes of environment experience scales by specialization cluster

Multivariate	Wilks lambda	Degrees of freedom		Sphericity epsilon
Between	0.54	10,24	p < .60	
Within (seq.)	0.06	15,2	p < .39	0.58
Interaction	0.26	30,178	p < .43	

Univariate	Within (seq.) Unadj. F	DF = 3,48	Between Unadj. F	DF = 2,16
Socialness	2.28	p < .05	0.17	p < .85
Task	1.82	p < .11	0.44	p < .65
Environment	0.49	p < .81	1.17	p < .34
Emotions	2.32	p < .05	1.22	p < .32
Introspection	4.00	p < .002	1.37	p < .28

The univariate results however do indicate that the influence of time on each of three scales is more apparent when the different specialization clusters are taken into account. Taken individually, the socialness, emotional intensity and introspection scales now show significant change across time. However, the different specialization groups are not statistically different themselves, as shown by the F test of between group effects. (This should not preclude them from being included in the analysis, however.) Figure 18 shows the variation in response for each scale, for each specialization cluster, across the sequence of questionnaires.

Age

Three basic demographic characteristics of the respondent were measured during the on-site contact interview : age, education, and gender. Each of these have been used as a between grouping of visitors. Table 62 shows the analysis with age as a differentiating variable. It

indicates no multivariate effect, although main effect of age is close. In this analysis there is significant difference in response between different age groups for the measures of introspection and emotional intensity (Table 62). It would appear that younger groups are more likely to report feelings of introspection and emotional intensity (see Table 63 and Figure 19). Including age as a between group factor allows for the time change in social acceptance to become statistically significant at a .08 level.

Table 62

Repeated measures analysis of variance for modes of environment experience scales by age cluster

Multivariate	Wilks lambda	Degrees of freedom		Sphericity epsilon
Between	0.12	20,34	p < .12	
Within (seq.)	0.74	15,105	p < .69	0.56
Interaction	0.22	60,182	p < .20	

Univariate	Within (seq.) Unadj. F	DF = 3,42	Between Unadj. F	DF = 4,14
Socialness	2.36	p < .08	1.63	p < .22
Task	0.59	p < .62	0.67	p < .63
Environment	0.61	p < .61	0.66	p < .63
Intensity	0.73	p < .54	4.27	p < .02
Introspection	0.55	p < .65	5.35	p < .01

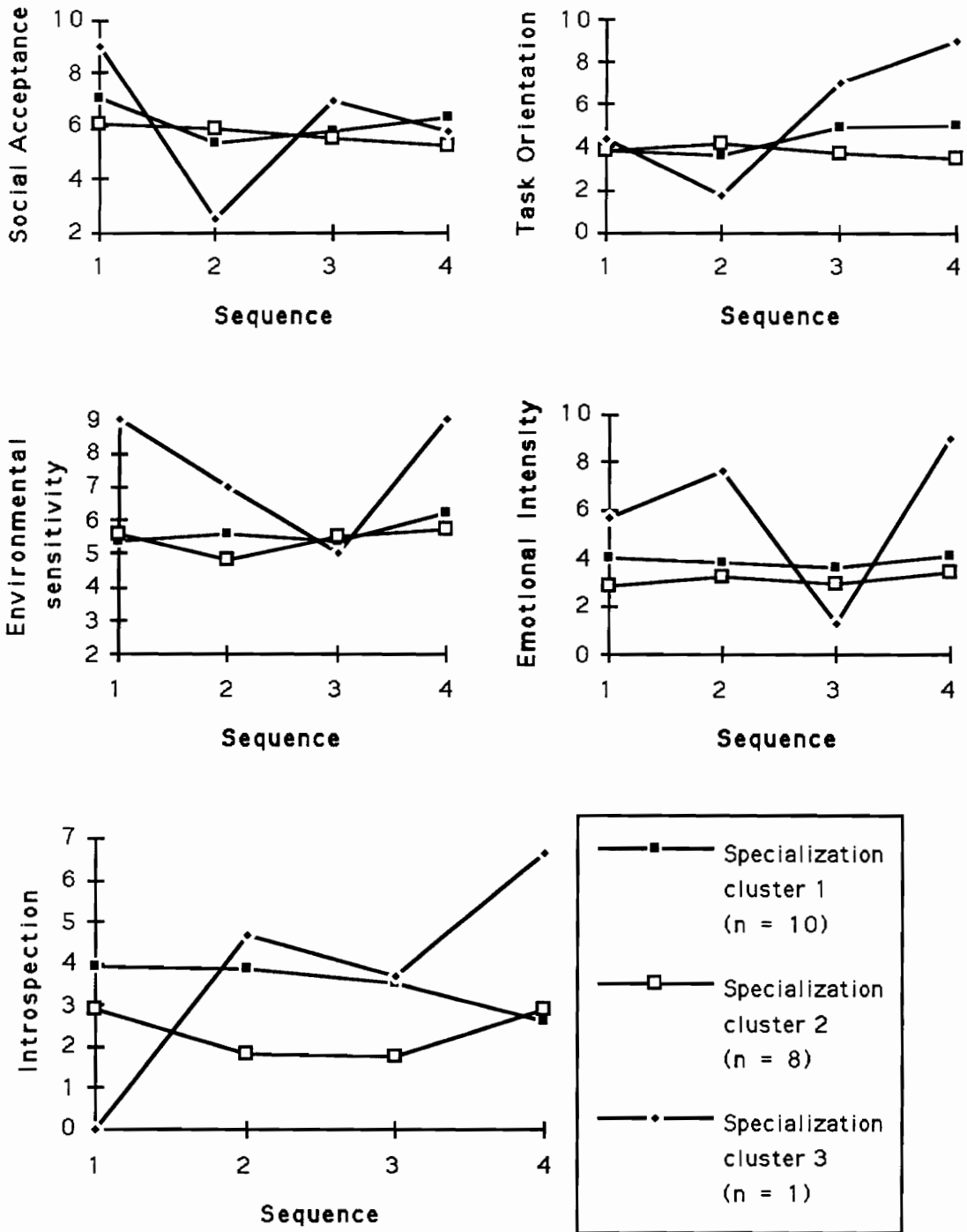


Figure 18. Mean scores for mode of experience scales by recreation specialization and by questionnaire sequence.

Table 63

Mean scores for environmental experience scales by age cluster

		Age cluster				
		1	2	3	4	5
	Av. age	26	36	45	53	65
	No.	3	8	14	5	2
Emotions	Mean	5.95	3.67	3.90	2.57	2.83
	Std. Dev.	1.0	1.9	1.5	2.5	0.6
Introspection	Mean	4.11	2.74	3.23	1.58	1.08
	Std. Dev.	2.2	1.5	1.2	1.2	0.8
Task	Mean	3.05	4.40	4.31	3.65	4.20
	Std. Dev.	2.6	1.9	1.7	2.7	0.2
Socialness	Mean	6.54	6.11	6.34	5.22	5.31
	Std. Dev.	1.8	2.3	1.4	2.2	1.5
Environment	Mean	6.83	5.60	5.70	5.12	5.70
	Std. Dev.	0.8	1.4	1.3	1.6	0.8

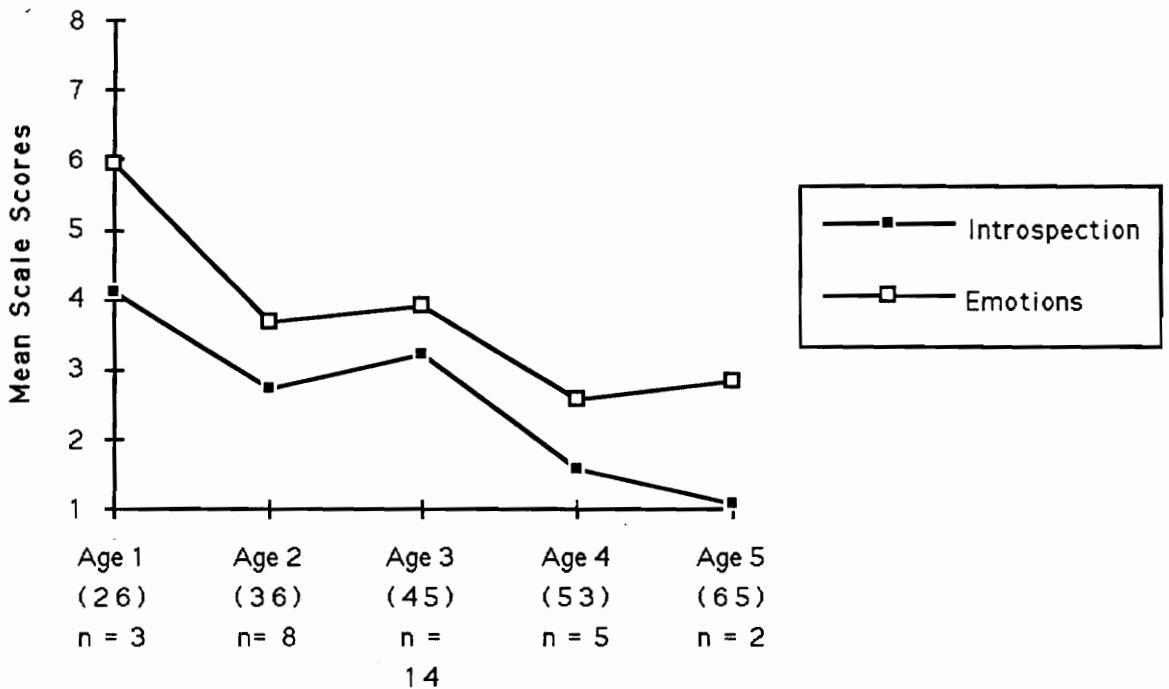


Figure 19. Mean scores for emotional intensity and introspection by age cluster

Education

Table 64 shows the analysis of variance including education as a between groups factor. Again, there is no multivariate effect. The univariate analysis demonstrates that at a .07 level social acceptance shows significant differences between groups. Table 65 shows that the clusters with most years of education describe higher levels of social acceptance as a component of their trip. However, including education does not improve the ability to see change across time.

Table 64

Repeated measures analysis of variance for modes of environment experience scales by education cluster

Multivariate	Wilks lambda	Degrees of freedom	p < .34	Sphericity epsilon
Between	0.18	20,34	p < .34	0.57
Within (seq.)	0.62	15,105	p < .31	
Interaction	0.27	60,181	p < .53	

Univariate	Within (seq.) Unadj. F	DF = 3,45	Between Unadj. F	DF = 4,14
Socialness	1.57	p < .21	2.67	p < .07
Task	0.66	p < .58	1.01	p < .43
Environment	1.27	p < .29	0.95	p < .46
Emotions	1.50	p < .23	1.21	p < .35
Introspection	0.15	p < .92	1.01	p < .43

Gender

Table 66 shows the inclusion of gender as a grouping variable. There is no significant multivariate difference in reported mode of environmental experience due to gender or time. However, at the univariate level, the relationship between time and task orientation becomes significant when gender effects are accounted for (see Figure 20).

Table 65

Mean scores for environmental experience scales by education cluster

		Education cluster				
		1	2	3	4	5
	Years	12	14	16	18	20
	No.	2	4	12	9	5
Environment	Mean	6.31	6.06	5.47	6.41	4.37
	Std. Dev.	1.7	1.6	1.3	0.7	1.3
Intensity	Mean	4.75	3.50	3.75	4.50	2.30
	Std. Dev.	1.6	2.3	1.9	1.3	2.0
Introspection	Mean	3.50	2.0	2.53	3.66	2.25
	Std. Dev.	0.3	1.2	1.4	1.4	2.1
Task	Mean	6.16	4.94	3.58	4.39	3.33
	Std. Dev.	0.9	2.0	2.3	1.3	1.2
Socialness	Mean	6.25	4.57	6.17	6.49	6.12
	Std. Dev.	0.7	3.5	1.7	1.3	1.2

Table 66

Repeated measures analysis of variance for modes of environment experience scales by gender

Multivariate	Wilks lambda	Degrees of freedom		Sphericity epsilon
Between	0.85	5,13	p < .80	
Within (seq.)	0.12	15,3	p < .42	0.60
Interaction	0.32	15,3	p < .89	
Univariate	Within (seq.) Unadj. F	DF = 3,51	Between Unadj. F	DF = 1,17
Socialness	2.83	p < .05	0.15	p < .70
Task	2.51	p < .07	0.08	p < .77
Environment	1.04	p < .38	0.54	p < .47
Emotions	1.67	p < .18	0.02	p < .91
Introspection	0.17	p < .91	0.02	p < .88

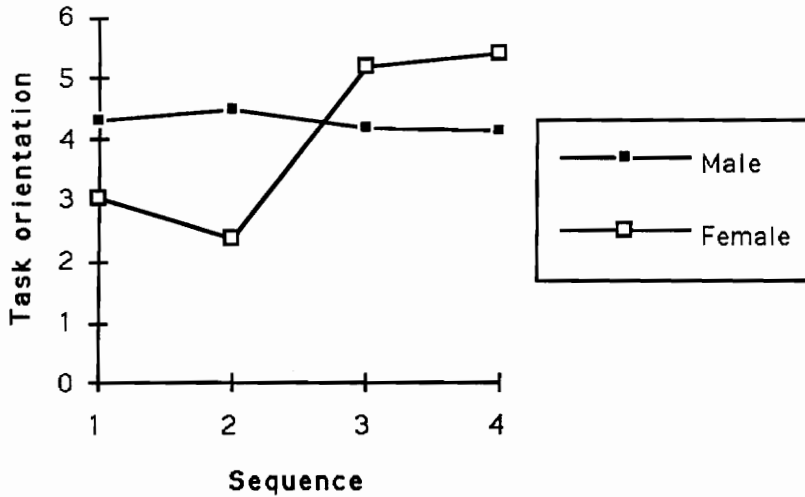


Figure 20. Mean scores for task orientation scale by gender and by questionnaire sequence

Visitor group characteristics

Group type

Two group characteristics, group size and type of group (family, friends or club) were also used to differentiate effects of time on mode of experience. Using group type as blocking variable, no overall multivariate effect and no univariate effect of time was found.

However, there is a significant difference in reports of emotional intensity and introspection due to group type (see Table 67). Levels of both emotional intensity and introspection were found to be higher for those out paddling with friends, club members, and family & friends groups, than those family groups (see Table 68).

Table 67

Repeated measures analysis of variance for modes of environment experience scales by group type

Multivariate	Wilks lambda	Degrees of freedom		Sphericity epsilon
Between	0.25	15,28	p < .32	
Within (seq.)	0.71	15,105	p < .54	0.64
Interaction	0.38	45,173	p < .62	

Univariate	Within (seq.) Unadj. F	DF = 3,42	Between Unadj. F	DF = 3,14
Socialness	1.39	p < .26	1.36	p < .30
Task	0.18	p < .91	0.26	p < .85
Environment	1.31	p < .28	0.98	p < .43
Emotions	1.23	p < .31	5.73	p < .01
Introspection	0.56	p < .64	6.67	p < .005

Table 68

Mean scores for environmental experience scales by group type

		Group type			
		Family	Friends	Club	Family & Friends
	No.	10	11	2	8
Environment	Mean	5.14	6.14	5.50	6.20
	Std. Dev.	1.0	1.4	0.5	1.1
Intensity	Mean	2.70	4.65	4.16	4.13
	Std. Dev.	2.0	1.6	0.8	1.5
Introspection	Mean	1.89	3.56	3.37	2.93
	Std. Dev.	1.5	1.6	0.2	1.2
Task	Mean	3.94	4.72	4.67	3.62
	Std. Dev.	1.7	2.0	3.0	1.7
Socialness	Mean	6.09	6.10	6.37	6.07
	Std. Dev.	2.2	1.4	0.5	2.0

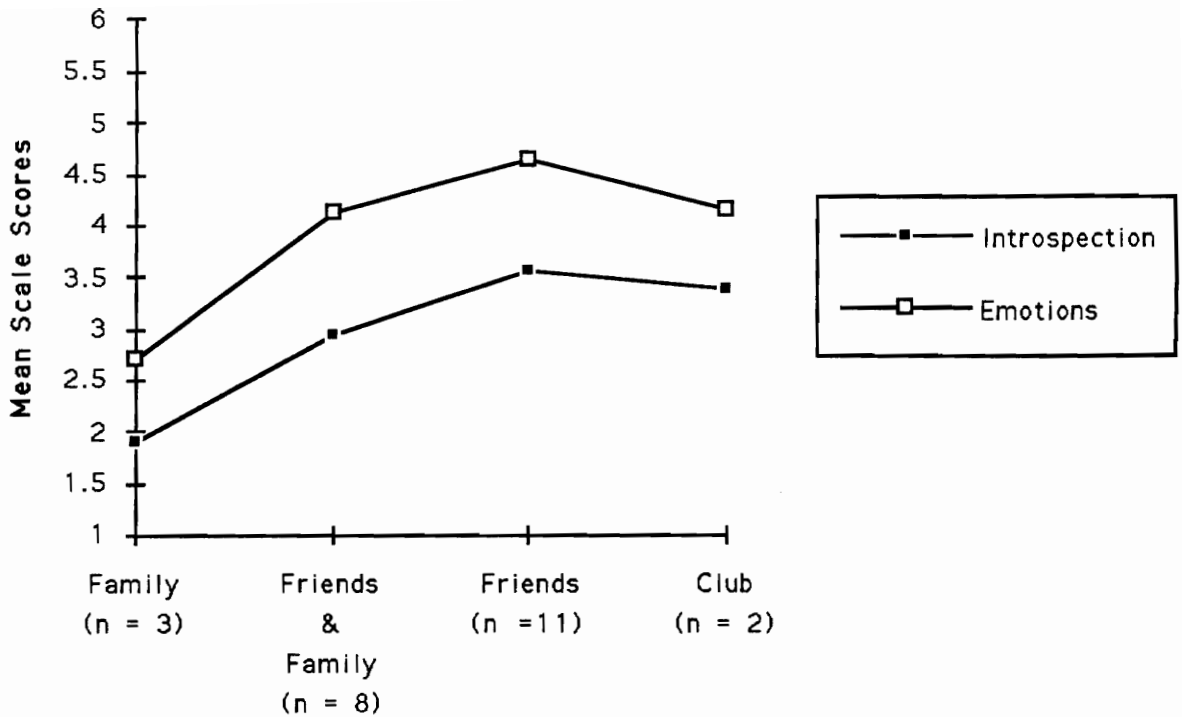


Figure 21. Mean scores for emotional intensity and introspection by group type

Group size

Although only degree of social acceptance shows significant changes across time of the five modes when group size is taken into account, the multivariate test statistic is the closest to being significant (at .14) than any of these analyses have shown. The sphericity assumption still proves problematic to this multivariate test, however. Also, it would appear that the degree of environmental sensitivity is significantly related to group size (see Table 69) . The larger groups tend to report lower degrees of environmental sensitivity (see Table 70).

Table 69

Repeated measures analysis of variance for modes of environment experience scales by group size

Multivariate	Wilks lambda	Degrees of freedom		Sphericity epsilon
Between	0.45	15,31	$p < .77$	
Within (seq.)	0.0021	15,1	$p < .14$	0.42
Interaction	.0001	45,4	$p < .24$	

Univariate	Within (seq.) Unadj. F	DF = 3,45	Between Unadj. F	DF = 3,15
Socialness	2.21	$p < .10$	0.75	$p < .54$
Task	0.18	$p < .91$	0.88	$p < .47$
Environment	0.16	$p < .92$	2.58	$p < .09$
Emotions	0.37	$p < .77$	0.86	$p < .48$
Introspection	0.08	$p < .96$	0.40	$p < .76$

Table 70

Mean scores for environmental sensitivity by group size cluster

	Group size cluster		
No. in cluster	22	6	3
Av. Group size	3	7	13
Mean	5.77	5.95	5.58
Std. Dev	1.36	1.16	0.40

Conclusion

In conclusion, this chapter has demonstrated the usefulness of the five modes of environmental experience. The factor analysis tends to support the structure of the five modes, although the measure of emotional intensity is not clearly separated (particularly from introspection). There is some evidence that these five mode of experience measures are susceptible to the influences of time in wilderness, although many of the effects were

masked by the overall variability of visitors. Separating out various visitor clusters based on their characteristics has helped to identify the significant changes in mode across time. There is also evidence that some of the visitor and group characteristics themselves had differential influences on the five mode measures.

Bearing in mind the limitations of small sample sizes, these results have shown no overall multivariate effect for the five modes of experience in wilderness. Only socialness shows a strong univariate difference between time groups. However, taking into account some of the visitor or visit characteristics allows the effect of time to become more noticeable for task orientation, emotional intensity, environmental sensitivity and for introspection. Recreation specialization appears to be the most useful blocking variable in these analyses.

Chapter 11 - Results of analyses -- The wilderness experience as ideal leisure.

Introduction.

The approach taken to investigate the relatedness of the wilderness experience to the characteristics of leisure is to examine the feelings of wilderness reported for situations that respondents report to be high in leisure. It is hypothesized that in situations of peak leisure experience reported levels of the six aspects of the wilderness experience (humility, solitude etc.) will also be particularly high. The peak leisure experience is measured as situations where high levels of the components of leisure are reported, as well as more intense feelings and emotions than usual. A similar analysis will then follow looking at the levels of four of the five different modes of environmental experience (focus on self, focus on environment, focus on task and concern about social acceptance) in these same peak leisure conditions.

Leisure item analysis

As previously discussed, the definition and conceptualization of leisure have gone through much development. In general, there seems to be consensus surrounding two primary components : intrinsic motivation and perceived freedom (Samdahl, 1986; Unger and Kernan, 1983). According to Samdahl and Kleiber (1988) some researchers perceive these components as necessary precursors to leisure (Mannell, 1979), while others see them as defining elements (Iso-Ahola, 1979; Neulinger, 1981). The operationalization used here to measure leisure will accept either viewpoint. The two items measuring role constraint (the opposite of perceived freedom), items N422 and N425, sought to tap the areas of perceived obligation and responsibility. They are taken directly from the work of Samdahl and

Kleiber (1988), who found the items to be satisfactorily valid and reliable using a confirmatory factor analysis with LISREL IV.

Traditionally, intrinsic motivation has been measured with an item such as N423, taken directly from the work of Wong and Csikszentmihalyi (1991). Unger and Kernan (1983) extended the subjective domain to include intrinsic satisfaction. Therefore, item Q424, also taken from the Wong And Csikszentmihalyi (1991) paper, was included to measure satisfaction with performance. Contentment with level of performance is considered a valuable contribution to a sense of intrinsic rather than extrinsic motivation. Leisure was also measured more directly through what Samdahl (1989) calls a connotative measure, “I would call what I was doing leisure,’ item Q407. Samdahl points out that her prior analysis has shown that the public connotation of leisure is similar to its theoretical definitions (Samdahl, 1991).

Confirmatory factor analysis of these five leisure items identified two distinct factors among the items (see Table 71). It is interesting to note that in its application in the wilderness setting, the connotative item (Q407) correlates with the intrinsic motivation items rather than with the perceived freedom items. This may be reflecting the defined choice to participate in a wilderness leisure experience. The degree of perceived freedom once one has committed to the experience is different from the relatively easy nature of physically bailing out of usual leisure activities.

Table 71

Confirmatory factor analysis for five measures of leisure

Leisure		Prin. Comp. Weights	Communality
(5 items) Lambda = 1.65, 1.47 for each vector % variance = 33.0, 62.5			
<i>Perceived Freedom</i>			
N422	Other people wanted me to be doing what I was doing	-.11	.65
N425	I was fulfilling some of my responsibilities	.16	.67
<i>Intrinsic motivation</i>			
N423	I wish I had been doing something else	.77	.53
Q424	I was satisfied with how I was doing	.60	.61
<i>Connotative leisure</i>			
Q407	I would call what I was doing leisure	.80	.65

Examining the reliability analyses for all five leisure items would tend to indicate rather poor Cronbach's alpha values, and some low item-scale correlations (see Table 72). This is to be expected, given that there are two factors being condensed into one. However, satisfactory communalities reported in the factor analysis, and 62.5% of the variance accountable in a linear composite would indicate that a composite of all five items is viable. (As the number of variables increases, so too does the difficulty of accounting for the variance in a linear combination.) Separating the items into two separate scales does not appear to improve the reliabilities. Trimming items in an effort to improve reliability would leave only one item to reflect each aspect of leisure. Therefore, for the purposes of this study, a summative composite of all five items is used. However, further analyses will be included to examine which of the three measures of leisure are most prevalent in situations of reported high degrees of aspects of the wilderness experience. The results, however, should be read with caution because of the low reliabilities shown.

Table 72

Reliability analysis for five measures of leisure.

Leisure		Mean	SD	Inter-item correlation			
(5 items) ALPHA = .33 Variance = 47.3				N422	N425	N423	Q424
<i>Perceived Freedom</i>							
N422	Other people wanted me to be doing what I was doing	4.6	3.3				
N425	I was fulfilling some of my responsibilities	4.1	3.0	.33			
<i>Intrinsic motivation</i>							
N423	I wish I had been doing something else	8.4	1.8	.17	.18		
Q424	I was satisfied with how I was doing	6.7	2.2	-.24	-.14	.21	
<i>Connotative leisure</i>							
Q407	I would call what I was doing leisure	6.5	2.7	-.10	.05	.42	.28
		Item-total correlation	Variance if deleted	Alpha if deleted			
<i>Perceived Freedom</i>							
N422	Other people wanted me to be doing what I was doing	.06	34.0	.39			
N425	I was fulfilling some of my responsibilities	.22	31.1	.22			
<i>Intrinsic motivation</i>							
N423	I wish I had been doing something else	.42	35.3	.13			
Q424	I was satisfied with how I was doing	-.01	42.8	.40			
<i>Connotative leisure</i>							
Q407	I would call what I was doing leisure	.20	33.7	.24			

Relationship between leisure and aspects of the wilderness experience

Using the summed composite of the five leisure items, conditions of high leisure are defined using a quick cluster of all responses into two groups, high and low leisure. The means for all five leisure items for the two resulting clusters is shown in Table 73. The high leisure cluster is typified by very high connotations of leisure (Q407), high values for intrinsic motivation items (N423, Q424), and moderately high feelings of perceived freedom (N422, N425). The low leisure cluster was much lower on all items.

Table 73

Mean values for leisure items across leisure clusters

Questionnaire item	High Leisure cluster	Low Leisure cluster
N422	5.18	2.61
N425	4.62	2.05
N423	8.91	6.24
Q424	6.85	5.89
Q407	7.17	3.66

A similar quick clustering of subjects into high and low emotional intensity clusters was carried out. A four way classification of high and low leisure, and high and low intensity, is shown in Table 74. The category of responses we are most interested in are the 77 response which report both highly intense and high leisure conditions, representing peak or ideal leisure. Table 75 shows that degree of intensity and two of the three measures of leisure are not related. It would appear that situations of low perceived freedom are more likely to be intense. For each of the six aspects of the wilderness experience, and of the five modes of environmental experience, a similar quick clustering was carried out (to obtain high vs. low primitiveness clusters, for instance).

Table 74

Distribution of responses by leisure and intensity clusters

	High Leisure cluster	Low Leisure cluster	Total
High Intensity	77	18	95
Low Intensity	66	20	86
Total	143	38	181

Table 75

Distribution of responses by intrinsic motivation, perceived freedom, connotative leisure and intensity clusters

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure	
	High	Low	High	Low	High	Low
High Emotional intensity	77	14	36	51	74	19
Low Emotional intensity	84	22	57	39	85	22
Chi square test	p < .33 (ns)		p < .01		p < .98 (ns)	

Primitiveness

Table 76 shows the classification of questionnaires according to the leisure and intensity clusters as well as by primitiveness clusters. Looking at the 62 questionnaires from situations reported to be both highly intense and high leisure, 43 or 69% also report high feelings of primitiveness. Similarly, of the 16 questionnaires from low leisure and low intensity, 13 or 81% report low feelings of primitiveness. A chi square statistic allows us to test whether or not this breakdown is significantly different from the expected frequencies based on overall frequencies. In this case, a chi square value of 27.6 is highly significant ($p < .00001$), indicating that the degree of primitiveness is highly co-incident with the combined feelings of leisure and intensity. Thus, the primitiveness aspect of wilderness appears highly correlated with ideal leisure.

Table 76

Distribution of questionnaires by leisure, intensity and primitiveness clusters

	High Leisure		Low Leisure	
	High Intensity	Low Intensity	High Intensity	Low Intensity
High Primitive	43	22	10	3
Low Primitive.	19	54	9	13
Chi. Sq. = 27.6, $p < .00001$				

Table 77 shows the relationship between clusters of high and low primitiveness and the three clusterings of leisure measures. For example, of the 85 responses reporting high conditions of primitiveness, 76 or 89% also report high feelings of intrinsic motivation, and of the 111 responses from low primitiveness situations, 25 or 23% also report low feelings of intrinsic motivation. In comparison, 49 out of 85 (58%) high primitiveness responses report low degrees of perceived freedom, while 59 or 60% of the 98 questionnaires now in the low primitiveness category record high feelings of perceived freedom. (Category numbers vary slightly because of missing responses.) Both of these trends are significant at the .05 level, whereas no clear trend is apparent with the connotative measure.

Table 77

Distribution of responses by degree of primitiveness and by each of intrinsic motivation, perceived freedom, connotative leisure measures.

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure	
	High	Low	High	Low	High	Low
High Primitiveness	76	9	36	49	74	13
Low Primitiveness	86	25	59	39	89	24
	p < .03		p < .02		p < .25 (ns)	

Humility

Table 78 shows the distribution of responses between high and low humility clusters, against the leisure/intensity categorization. Again, it would appear that high humility situations are co-incident with high leisure/high intensity reports, with 60% (30 out of 50) of highly intense, high leisure responses reporting high humility. About 56% of those reporting both low intensity and low leisure (13 out of 23) also report low humility. The

overall association between humility and the leisure/intensity classification is highly significant, with a chi square value of 17.7

Table 78

Distribution of responses by leisure, intensity and humility clusters

	High Leisure		Low Leisure	
	High Intensity	Low Intensity	High Intensity	Low Intensity
High Humility	30	45	4	10
Low Humility	20	46	10	13
Chi. Sq. = 17.7, p < .0005				

The breakdown of humility clusters by the three separate categorizations of leisure is shown in Table 79. Only one classification is significantly different from the expected frequencies, indicating a relationship between humility and the connotative measures of leisure. Of the 41 questionnaires described as low leisure, 29 or 70% also describe low feelings of humility.

Table 79

Distribution of responses by degree of humility and by each of intrinsic motivation, perceived freedom, connotative leisure measures.

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure	
	High	Low	High	Low	High	Low
High Humility	80	14	42	52	83	12
Low Humility	85	22	54	40	81	29
Chi square	p < .30 (ns)		p < .08 (ns)		p < .01	

Oneness

The breakdown of responses by degree of oneness compared to the clusters of leisure and intensity is shown in Table 80. This is also a significantly correlated classification, with

80% (53 out of 66) of those in highly intense, high leisure situations also described high feelings of oneness. Fifteen out of eighteen (83%) in the opposite low leisure, low intensity situations described low levels of oneness.

Table 80

Distribution of questionnaires by leisure, intensity and oneness clusters

	High Leisure		Low Leisure	
	High Intensity	Low Intensity	High Intensity	Low Intensity
High Oneness	53	35	12	3
Low Oneness	13	42	8	15
Chi. Sq. = 30.8, p < .0001				

Table 81 shows the distribution of the oneness clusters by the three clusterings of intrinsic motivation, perceived freedom and connotative leisure. It would appear that high degrees of intrinsic motivation and connotative leisure are co-incident with high reports of oneness, with statistically significant chi square tests. Perceived freedom is barely significant at a .05 level, with low degrees of perceived freedom being associated with high degrees of oneness.

Table 81

Distribution of responses by degree of oneness and by each of intrinsic motivation, perceived freedom, connotative leisure measures.

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure	
	High	Low	High	Low	High	Low
High Oneness	99	11	50	59	94	17
Low Oneness	63	25	49	33	66	24
Chi square	P < .001		p < .06		p < .05	

Timelessness

The analysis of the timelessness measure is less clear, largely because of the relative scarcity of situations clustered as highly timeless. Of the 18 situations described as low leisure and low intensity, a majority (66%, 12 of 18) also report low timelessness (Table 82). This is a lower frequency than would be expected, given the majority of the total population that report low timelessness (163 of 181 or 90%). Similarly, a lower percentage than expected of the high intensity/high leisure category report high timelessness (only 1 out of 66, or 1.5%). Thus, it would appear that highly intense feelings of leisure are antithetical to high feelings of timelessness.

Table 82

Distribution of responses by leisure, intensity and timelessness clusters

	High Leisure		Low Leisure	
	High Intensity	Low Intensity	High Intensity	Low Intensity
High Timeless.	1	4	7	6
Low Timeless.	65	73	13	12
Chi. Sq. = 32.2, p < .00001				

Table 83 shows the grouping of high and low timelessness situations against the clusters of intrinsic motivation, perceived freedom and connotative leisure. It would appear that high feelings of intrinsic motivation and of perceived freedom as well as high connotations of leisure correspond with low levels of timelessness.

Table 83

Distribution of questionnaire by degree of timelessness and by each of intrinsic motivation, perceived freedom, connotative leisure measures.

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure	
	High	Low	High	Low	High	Low
High Timelessness	14	8	5	14	14	9
Low Timelessness	135	29	94	78	152	33
Chi square	p < .02		p < .02		p < .02	

Solitude

A clear majority of those reporting high leisure and high intensity find themselves in situations describable as high solitude (43 of 66, or 65%), as is shown in Table 84.

Similarly, 66% or 12 out of 18 questionnaires classified as low intensity/low leisure report low levels of solitude. It would appear that ideal leisure, defined as high leisure conditions and highly intense feelings and emotions, is co-incident with feelings of solitude.

Table 84

Distribution of questionnaires by leisure, intensity and solitude clusters

	High Leisure		Low Leisure	
	High Intensity	Low Intensity	High Intensity	Low Intensity
High Solitude	43	37	10	6
Low Solitude	23	40	10	12
	Chi. Sq. = 7.5, p < .05			

Table 85 examines the components of the leisure measure compared against the measure of solitude. Ninety five out of 106 questionnaires (90%) describing high degrees of solitude

also report high levels of intrinsic motivation, while 84% (91 of 108) also report high connotations of leisure. Other associations are less clear.

Table 85

Distribution of responses by degree of solitude and by each of intrinsic motivation, perceived freedom, connotative leisure measures.

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure	
	High	Low	High	Low	High	Low
High Solitude	95	11	50	53	91	17
Low Solitude	73	25	49	40	76	24
	p < .004		p < .37 (ns)		p < .13	

Care

Low degrees of care are rare with only 18% of 180 valid responses reporting low levels of care. Although only statistically significant at the $p < .08$ level, there does appear to be a trend toward higher numbers than expected of high intensity/high leisure responses to also show high levels of care (89%, or 59 out of 66). Similarly, since one third of the low intensity / low leisure response also report low levels of care, there appears to be a trend toward association between ideal leisure and feelings of care (Table 86)

Table 86

Distribution of responses by leisure, intensity and care clusters

	High Leisure		Low Leisure	
	High Intensity	Low Intensity	High Intensity	Low Intensity
High Care	59	58	17	12
Low Care	7	18	3	6
	Chi. Sq. = 6.74, $p < .08$			

Table 87 shows the breakdown by care clusters for each of the three leisure measure classifications. None of these are statistically significant at the $p = .05$ level, although it would appear that intrinsic motivation is somewhat associated with feelings of care.

Table 87

Distribution of responses by degree of care and by each of intrinsic motivation, perceived freedom, connotative leisure measures.

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure	
	High	Low	High	Low	High	Low
High Care	139	26	76	80	137	31
Low Care	28	11	22	13	29	11
	$p < .07$		$p < .13$		$p < .20$ (ns)	

Relationship between leisure and modes of environmental experience

Introspection

Turning now to the five modes of environmental experience, Table 88 shows the cross tabulation of introspection clusters by high and low leisure and intensity. Thirty one of the 45 responses (69%) that reported high levels of introspection, or focus on self, also report high degrees of intensity and leisure. Likewise, all 18 of the low leisure / low intensity responses report correspondingly low degrees of introspection. This is, however, not unexpected since introspection and intensity of emotion were previously found to be somewhat correlated. Table 89 confirms this, for when intensity of emotion is removed from the equation, no relationship exists between degree of leisure and level of introspection

Table 88

Distribution of responses by leisure, intensity and introspection clusters

	High Leisure		Low Leisure	
	High Intensity	Low Intensity	High Intensity	Low Intensity
High Introspect.	31	4	10	0
Low Introspect.	35	72	10	18
Chi. Sq. = 45.4, p < .00001				

Table 89

Distribution of questionnaire by degree of introspection and by each of intrinsic motivation, perceived freedom, connotative leisure measures.

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure		
	High	Low	High	Low	High	Low	
High Introspection	39	7	21	24	37	9	
Low Introspection	123	29	74	65	123	31	
		p < .55 (ns)		p < .44 (ns)		p < .93 (ns)	

Environmental sensitivity

Environmental sensitivity, or focus on environment, does appear to be related to the degree to which an ideal leisure experience is felt in wilderness. Fifty five of the 66 high intensity / high leisure responses (83 %) also describe high levels of environmental sensitivity.

Correspondingly, 14 out of 18 (78%) of the low intensity / low leisure responses report a low degree of environmental sensitivity, as shown in Table 90.

Table 90

Distribution of responses by leisure, intensity and environmental sensitivity clusters

	High Leisure		Low Leisure	
	High Intensity	Low Intensity	High Intensity	Low Intensity
High Envir. Sen.	55	45	18	4
Low Envir. Sen.	11	31	2	14
Chi. Sq. = 31.5, p < .00001				

Table 91 indicates that two of the three measures of leisure, i.e. intrinsic motivation and connotative measures, are significantly related to the degree of environmental sensitivity. It would therefore appear that a peak leisure experience in wilderness is co-incident with a raised degree of environmental attentiveness.

Table 91
Distribution of responses by degree of care and by each of intrinsic motivation, perceived freedom, connotative leisure measures.

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure	
	High	Low	High	Low	High	Low
High Environmental sens.	118	17	62	64	115	21
Low Environmental sens.	48	19	34	29	49	21
	p < .006		p < .54 (ns)		p < .01	

Task orientation

The relationship between task orientation and ideal leisure is fairly straightforward as is shown in Table 92. According to the responses given by Okefenokee wilderness visitors, levels of high leisure correspond with low degrees of task orientation, and low levels of leisure are reported when task orientation is high. There is little differentiation based on the intensity of the experience. Table 93 indicates a probable reason for this observed relationship. High degrees of task orientation are related to low degrees of perceived freedom, and vice versa.

Table 92

Distribution of responses by leisure, intensity and task orientation clusters

	High Leisure		Low Leisure	
	High Intensity	Low Intensity	High Intensity	Low Intensity
High Task Orien.	21	25	13	14
Low Task Orien.	45	52	6	4
Chi. Sq. = 20.6, p < .0001				

Table 93

Distribution of responses by degree of task orientation and by each of intrinsic motivation, perceived freedom, connotative leisure measures.

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure		
	High	Low	High	Low	High	Low	
High Task orientation	67	19	25	52	67	20	
Low Task orientation	97	18	73	38	96	21	
		p < .24 (ns)		p < .0001		p < .37 (ns)	

Social acceptance

Table 94 shows the degree of relationship between social acceptance, or socialness, and ideal leisure. It would appear that high intensity / high leisure situations tend to correspond with high degrees of social acceptance (59 out 64, or 92 % report high socialness). Table 95 may also give more insight about this relationship, since it would appear that high socialness corresponds with high feelings of intrinsic motivation, yet lower than expected feelings of perceived freedom.

Table 94

Distribution of responses by leisure, intensity and social acceptance clusters

	High Leisure		Low Leisure	
	High Intensity	Low Intensity	High Intensity	Low Intensity
High Socialness	59	55	17	15
Low Socialness	5	20	3	2
Chi. Sq. = 9.16, p < .03				

Table 95

Distribution of responses by degree of social acceptance and by each of intrinsic motivation, perceived freedom, connotative leisure measures.

	Intrinsic Motivation		Perceived Freedom		Connotative Leisure	
	High	Low	High	Low	High	Low
High Social acceptance	139	23	72	83	130	33
Low Social acceptance	22	10	25	7	27	6
p < .02		p < .001		p < .78 (ns)		

Conclusion

This chapter has examined the relationship between the six measures of the wilderness experience used in this study with various measures of leisure, and of ideal or peak leisure. It would appear that raised feelings of oneness, humility, primitiveness and solitude are coincident with situations that can be described as both having high intensity and high conditions of leisure. This chapter has also examined the relationship of the modes of environmental experience with ideal or peak leisure. While highly intensity / high leisure experiences were positively correlated with introspection, environmental sensitivity, and social acceptance, and negatively correlated with a focus on task, much of these relationships appear to be explained by level of intensity of experience. For example, the only simple relationship found to exist between connotative leisure and mode of experience

was that involving environmental sensitivity. For this variable, the more one felt at leisure, the more one was likely to have feelings of high environmental sensitivity. Some interesting relationships were observed that might shed further light on the dynamics of the wilderness experience, and will be further discussed in the next chapter.

Chapter 12 - Implications and Conclusions

Introduction

Philosophically, this study was based on three perspectives. Fundamentally, it was anchored in the present moment. In seeking to investigate the wilderness experience as a process rather than an outcome, we have focused on the moment, as it is lived. This helped generate a problem of methodology, and a proposed solution in the Experience Sampling Method. Second, the visitor was seen as the best source of information about the lived experience. This, too, posed problems, particularly with the application of the ESM within the visitor's wilderness experience. And third, this study has suggested a theoretical stance towards wilderness which removes the ontological boundary between people and nature. Given this, not only is wilderness seen as an opportunity to be more in harmony with nature, but also the wilderness experience is viewed as a transaction between humans and the environment. Thus, our philosophical stances have driven the theoretical and methodological approaches taken.

However, the wilderness experience does not happen in isolation. People who visit wilderness bring with them ideas of what the wilderness experience might or should be. Wilderness means many things to people, and it is with these meanings in mind that visitors choose to experience wilderness. In this way, the wilderness experience is located not just in the visitor's expectations but also in the social definitions that help generate those expectations. Society's ideas of wilderness, and of the wilderness experience, cannot be separated from the actual experience itself.

One of the successes of wilderness writers such as John Muir and Aldo Leopold was that they have helped shape the social construction of the idea of wilderness. Not only was their own work reasonably widely read by the general public, but it also helped set the tone in which others in the resource agency and academic worlds, as well as the general media, would talk about wilderness. These great American wilderness writers do not easily separate the experience from the idea. The wilderness experience as described by Muir and Olson was part of their discovery and explanation of the idea of wilderness. Not only was the experience itself noteworthy, but it was also an important means to gaining further insights into the human condition. The writing of the text was also a process as well as an outcome. In coming to understand the significance of the experience of wilderness, the writers located and constructed the meaning of the experience within their overall philosophy of humans, nature, and of wilderness.

While it may be conceptually easy to consider a linear progression from the inherited idea of wilderness to the experience of wilderness to the construction of the meaning of the experience, the process may not be so easily segmented. For example, the experience itself is constantly being interpreted by the visitor during the experience. Equally, although the wilderness experience may be one of the most influential factors in a person's understanding of wilderness, it is not a compulsory part. Furthermore, an individual wilderness experience is also understood by the visitor not only in the context of the series of wilderness or wilderness-like experiences in their lifetime, but also in the context of other group members' meanings. Therefore, neither the idea, experience, nor meaning of wilderness can be understood in isolation.

This study, then, has attempted to define dimensions of the wilderness experience based on the idea, the meaning and the very experience of wilderness as described by wilderness writers. The wilderness experience is socially defined, and the great American wilderness writers have allowed a basis upon which to discuss those social definitions.

This study of the wilderness experience has four main objectives, and the purpose of this chapter is to reflect upon the study in the light of these objectives. The following sections examine how each of the objectives was approached, the limitations of those approaches, and some recommendations that might be suggested as a result of the study.

The multiple dimensions of the wilderness experience

Our investigation of the wilderness experience has shown that people respond to wilderness in ways other than just for solitude or primitive and unconfined recreation. Responses to the six aspects of wilderness and of the five modes of experience have demonstrated that the wilderness experience is more than recreation. Instead, it is an opportunity for engagement with the natural world. Wilderness is a chance to experience a natural state of being, one for which we have a history of preparation. The yearnings for a simple life, or for a more essential state of being, have been described in the discussion of humility, oneness, timelessness and primitiveness. In the time, space and isolation from society that wilderness allows, reflection on our role in the natural world is possible. The wilderness writers began a line of thought that questions our separateness from nature. Our authentic, or natural, mode of existence must take other beings of the community of life into account. This is what Heidegger would say is the easiest way to live. Wilderness is not, therefore, just the playground of the physically capable and inclined few. Rather, it is a demonstration and a reminder of what is right in the world. The 1964 Wilderness Act could

not articulate such a critical view of modern society, but in attempting to embody the spirit of the deeper ideas of wilderness, it began to sanction these ideas.

If wilderness is the base of normality for a healthy ecosystem, then perhaps the wilderness experience can be considered a base of normality for the human experience. The environment that people see is more than a collection of physical attributes. Visitors experience the full expression of the land, and the wilderness experience is the more powerful because of it. The wilderness experience becomes a potent symbol of the fullest notion of humans within the environment. While visitors may not be able to articulate these ideals, they have consistently responded positively to items of humility, oneness, and primitiveness. Humility represents the first expression of some larger ideas. If we question why the beauty and scale of the wilderness astound the visitor, then we might answer that it represents an escape from the ordinary. Just as nearby nature provides a respite, a contrast to an otherwise barren existence, so too does the wilderness experience provide a contrast to society. Furthermore, the wildness and unpredictability of wilderness instills elements of challenge and fear into the wilderness experience. Perhaps this, and the preparedness and wisdom needed to deal with it, are natural too. Wilderness is the great leveler, and feelings of humility and respect are to be expected. Out of admiration and respect come notions of immediacy, relatedness, and stewardship. Humility is the initial experience that binds people to deeper values of care and relationship.

Oneness explicitly extends the notion of self to include the natural environment. By endorsing a more expansive, transpersonal self, participants' positive response to the oneness items begins to acknowledge the natural world as interwoven with an individual. An extension of this notion of the expansive self is the idea of a sense of community and

belonging with the natural environment. From this would logically flow a feeling of mutual dependence, responsibility, and care. Minding the concerns of others is a natural role for humans in the world, since if we really care for ourselves then we must care for the fullest blossoming or development of others. Care is an important consequence of notions of humility and oneness.

Perhaps this expansive, humble, caring self is part of what the wilderness experience means. Wilderness has been a defining element in the development of American character, and it would seem that American society has grown within the context of it. The yearning for a primitive, more elemental experience could be an expression of the importance of a wilderness experience to the modern psyche. Current day Americans feel apart from nature, disoriented by an uncaring world in which the complexities overwhelm any sense of community with the natural world. Wilderness visitors seek a return to the past, when wildness and challenge were a part of the relationship with nature. Primitiveness too is an expression of how people seek to relate with themselves and the community of life.

Solitude and timelessness are also indicative of people's desire for a lived experience other than that found in modern society. The desire for escape from the social pressure and demands of everyday existence is expressed through feelings of solitude and timelessness within wilderness. The wilderness experience is a reminder of a quieter, more relaxing state of being. Wilderness sustains with the knowledge that natural rhythms and cycles still exist. Immediate feedback and consequences for one's actions are attractive features of the wilderness experience, and evoke perhaps ancestral memories of how to live and interact with nature.

The six aspects discussed above demonstrate some of the psychological and sociological concerns that people bring to the person-wilderness transaction. This study has begun to look at which parts of the notion of wilderness are influential in the transaction. We have tried to look beyond these influences as simply needs and motivations. Rather, the attempt was to look at their influence in the moment, within the experience, and to examine how and when the influences find greatest expression.

In this initial attempt to look at the process of the wilderness experience, encouragement can be found for further work on the dynamics of the experience. The potential exists to map the environmental and managerial inputs into the transaction. Their impact can be measured not only upon the six aspects of wilderness, but also upon the five modes of environmental experience. These five modes represent five ways of expressing the experience, as well as five means of interacting with the environment. Thus, potential exists not only for insight into the processes of the wilderness experience, but also for indicators of the quality of the experience. These would not be direct signals of the health of the wilderness environment, rather they would be measures of the quality and health of the experience received within the bounds of wilderness. In this way these are neither measures of the opportunity of wilderness, nor of the meaning of the experience. Instead, any such indicators would direct attention to, and measurement of, the transaction between people and the wilderness environment. The indicators might allow investigation of the wilderness dependency of this transaction. Perhaps the six aspects of wilderness presented in this study are the qualities of the human-environment transaction that can best be experienced in wilderness environments. As our knowledge of the dynamics of the wilderness experience improves, there may be patterns or particular combinations of modes of environmental experience that would also uniquely define the wilderness experience.

Furthermore, it would then also be possible to examine what other factors, in addition to environmental and managerial settings, help shape the experience. These influences might include background factors brought from outside the wilderness boundary such as the length of stay, visitor values and socio-demographics. Some of these have been demonstrated in this study to be significant determinants of the lived experience. Perhaps levels of environmental preference, as well as environmental aptitude or experience, would help determine patterns of wilderness experience. Equally, the wildernism (Stankey, 1972) or wilderness purism (Shafer and Hammitt, 1995) scale (a measure of the desirability of characteristics of wilderness) should be expanded to include the deeper, spiritual values of the wilderness experience discussed above.

Operationalization of the multiple dimensions

This study has both developed new items and scales and adapted old ones in an attempt to operationalize the six aspects and five modes of the wilderness experience. In most cases successful scales have been developed. Of the scales for the six aspects of the wilderness experience, reliabilities range from 0.67 to 0.83. Timelessness and care, however, received less attention and success in their development. The resulting distributions of response to these scales are slightly skewed and suggest the need for further development of these scales, including revision or construction of new items. Care, in particular, is a promising construct since it is the ethical extension of many of the other wilderness dimensions. It factored out separately in the overall factor analysis, and it could profitably see further development. Its relevance to the wilderness experience has been demonstrated in this study. Care was also found to be significantly related to the measure of environmental sensitivity.

Whereas the six aspects of wilderness were found to be interdependent (shown in the doubly multivariate analysis of variance), the five modes were not found to have the ability to form an overall scale. (This might be expected since the six aspects of the wilderness experience attempt to define aspects of an overall construct, while the five modes are more mutually exclusive of one another.) The reliabilities of the modes of experience scales ranged from 0.63 to 0.78, and the overall factor analysis clearly separated four of the five modes. (Emotional intensity was found to be quite similar to introspection). As independent measures, environmental sensitivity and social acceptance proved most problematic. Environmental sensitivity, though a very relevant construct, was not operationalized as well as it might have been. Further development of the items and of new items is necessary. The relevance of social acceptance to the wilderness experience is, however, questioned. Unlike many other leisure occasions, the number of other people potentially encountered in wilderness is few, and the company with whom the wilderness is shared is clearly chosen. Further development of socialness items should make clearer the differentiation between the other people around the respondent who are group members and those members of the general public who are encountered in wilderness.

One further problem with the construction of scales is the homogeneity of variances required among items of a scale. Adding items or scales with different variances is problematic. For example, the following two cases of a two-item hypothetical scale are not the same, and yet yield the same mean score : $0 \text{ and } 9 = 4.5$; $4 \text{ and } 5 = 4.5$. The items used in this study typically had means of similar magnitude to other items in a particular scale. Variances were also typically of the same range. The notable exception is the so-called reverse items. For these items, who were negatively worded and hence reverse coded in the analysis, distributions were often narrow and / or skewed. It is not clear that respondents

answered these items in the same context as the positively-stated items. The use of negatively worded items in further studies is questioned. Further analyses that were not included in this study but otherwise might have been, include the item response theory approach (Crocker & Algina, 1986). This analysis would have allowed us to determine which of the items in a particular scale were most sensitive, and hence play crucial roles in capturing the essence of response. Interestingly, most of the items asked addressed feelings that the majority of visitors considered relevant.

One of the things that visitors do bring with them to the wilderness experience, and to the research task, is the relative standards against which they judge the experience. That is, a rating of '9', say, on any particular item or scale is not a universal. The repeated measures analysis of variance does take into account individual variation. However, caution should be used in extrapolating the numerical results of this study beyond the bounds of the experiences of visitors to Okefenokee wilderness. Given the repeated answering of the same items over time, there is also concern that the relative standards may also change across the duration of the trip. For example, a '9' at the start of the trip may only be a '6' by the end of the trip, as what constitutes an extreme experience changes. For these reasons it is important to develop items and scales that are not skewed, centered instead mid range on the item-response categories, although this does not completely address the problem.

The relationship between wilderness and ideal leisure

The second objective of the study was to examine the relationship between the various measures of the wilderness experience and ideal or peak leisure. Although the five items used to measure leisure were based on items from prior research of leisure scholars, they did not show good psychometric properties. We also may have been measuring precursors

to the leisure experience or the state of leisure, rather than an ideal or peak leisure experience. The two major dimensions of leisure used in this study, intrinsic motivation and perceived freedom, are commonly accepted components of leisure. However, whether their presence or absence, or even their intensity, equals a measure of the quality of the leisure experience is problematic.

As it turned out, our measure of perceived freedom was not all that relevant to the measures of wilderness. This is surprising given that freedom, e.g., freedom from societal pressure and freedom from social obligation, is perhaps one of the defining aspects of wilderness. Our measures of freedom may have lacked validity, or perhaps wilderness represents a special kind of perceived freedom. People have already established a baseline of perceived freedom upon committing to enter wilderness, and subsequent evaluations are made in that light. In those cases where we found a relationship between perceived freedom and other aspects of the wilderness experience, it was often a negative one. For instance, the greater the degree of primitiveness, the lower the scores typically for perceived freedom. A similar negative correlation between task orientation and perceived freedom may be explained as the obligated nature of many of the tasks performed in paddling Okefenokee. Task orientation in the Okefenokee wilderness would appear to be antithetical to leisure.

Timelessness also shows a negative relationship to the measures of leisure. As a sense of timelessness rose, the sense of leisure declined. This might indicate that a particular sort of leisure is occurring in wilderness, one that does not entail the casualness of a loss of a notion of time. Perhaps this is serious leisure, which Samdahl and Kleiber (1989) describe as including formality and structure, clearly antithetical to timelessness. However, this

result runs counter to Mannell's (1980) view of leisure as a transitory state characterized by positive affect and decreased awareness of time.

It was also interesting to see that the five measures of leisure were inversely correlated with emotional intensity. That is, low conditions of leisure in wilderness (high constraint, low freedom) are emotionally intense, perhaps stressful. Nevertheless, the combination of high emotional intensity and high scores of leisure were used to define peak or ideal leisure. All six aspects of wilderness were co-incident with the thus defined ideal leisure (although care and solitude were less strongly related to leisure). All four modes of environmental experience were highly rated to the situation of high leisure and high emotions.

Introspection, however, does appear to be largely related to emotional intensity and less to the measures of leisure. Interestingly, raised environmental sensitivity occurs in high leisure / high intensity situations. This may counter the argument that by using high intensity as part of the definition for peak leisure, we were selecting for high sensation seekers. It seems unlikely that high sensation seekers could also focus on the details of the environment.

Ideally, our investigation of the leisure experience in wilderness would have included a control group. This could, for instance, have involved a group of recreationists at a local park. They would still be interacting with the environment, presumably somewhat at leisure, but lacking any sense of the location being wilderness. Then any relationships between feelings of humility, oneness, etc., and peak leisure observed in the local park setting could be equally attributed to an interaction with nature or simply being outdoors, and not wilderness. Nevertheless, this study has demonstrated that high feelings of wilderness are often related to conditions of high leisure. Further investigations could

examine how leisure in wilderness is different, and what are the key dimensions of either leisure or wilderness responsible for the relationship. Further, whether particular modes of experience are correlated to situations of high leisure could be further investigated.

The influence of time on measures of wilderness

This study has clearly demonstrated that the wilderness experience is a dynamic process. By taking into account variation in response by various visitor, visit and group characteristics, four of the six aspects of wilderness experience, the six aspects considered together, and four of the five modes of experience vary significantly across time. The clearest pattern, although by no means definitive, is that wilderness values are lowest at or towards the end of the first day. Humility, for instance, was shown to be significantly lower at the second round of questionnaires compared with the third and fourth questionnaires.

Some have asked whether day users in wilderness are getting different experiences than the overnight users, and whether their experiences are less “wilderness-dependent”. If this were so (and this study, because of small sample sizes and actual times of experience samples, was not able to fully address this question), then there might be justification for promoting and ensuring a minimum length of stay in wilderness. However, as has already been noted, visitors might also bring different judgment criteria to the research task, based upon different wilderness expectations and meanings. Given different expectations between the two groups (day or overnight), it may be that experience standards on a day trip are not be the same as those on an overnight trip. The respondents might also be self-selecting for different experiences, and it is not so much the experiences that differ, as it is the visitors who differ.

Several visitor, visit, or group variables were observed to shape the dynamic nature of the wilderness experience. Education, long the clear discriminant of wilderness users from non-users, was not a significant predictor of experience patterns for those already within the wilderness. Length of stay seemed to be an influential characteristic in the analysis of the nature of the experience across time. Overall, the six aspects of the wilderness experience showed a significant multivariate difference between length of stay groupings ($p < .05$), when change across time is accounted for. Of the six aspects of the wilderness experience, however, only timelessness showed a univariate difference between length of stay groups. No clear pattern of response is discernible, even for timelessness, to explain these significant differences. Differences between length of stay groups would be interesting, for instance, if longer visits reported higher levels of overall or individual aspects of the wilderness experience. If this were the case, then justification would be had for management to encourage or prefer longer visits to the wilderness. Significant interaction effects between within variables (time or questionnaire sequence) and between variables (length of stay) would also be interesting. These might, for example, show that an effect of time is only important for longer visits. (This was not, however, found to be the case.)

The patterns of change across time is also significant ($p < .04$) for the multivariate consideration of all six wilderness aspects together, when length of stay is accounted for. Group size was also found to be a significant discriminant of oneness and solitude scores. Both were significantly higher for the smaller group sizes, as might be expected. Larger groups also show greater variation in wilderness aspect scores across time groups. It would seem there is some evidence for the common management action of limiting the size of the party entering the wilderness.

Some interesting results also occurred with the five modes of environmental experience. Younger groups tended to report more intense feelings and higher degrees of introspection. Family groups, however, tended to report the opposite. Larger group sizes tended to report lower levels of environmental sensitivity, again lending weight to the argument to limit group size. Overall, social acceptance would appear to be the most varied scale across time. However, each of the five modes except environmental sensitivity show significant influences of time.

One particular visit characteristic that would have been interesting to investigate in addition to the ones included in this study would have been location of participant at the time of response, in particular, whether the respondent was on the water or in the campsite. (Some attempts were made to use activity as a proxy for this, but proved unsatisfactory.) Perhaps also, there might be significant differences between being on the narrow, winding, and enclosed river trails through the swamp versus being out in the open-water prairie.

Time was operationalized in the repeated measures analysis by questionnaire sequence. This was appropriate given the aim of the analysis to show the wilderness experience to be a dynamic one. However, within each questionnaire sequence group there was great variation in elapsed times within the experience at which the questionnaire was completed. Obvious time groupings overlapped questionnaire groups. For example, a quarter of the second questionnaires in the sequence of four or more were completed during day two of the experience, the remainder on day one. And nearly three quarters of the third questionnaires completed were on day two, but some were on day one and some on day three.

Two alternative operationalizations of time are possible, and might be more appropriate to an investigation the dynamics or phases of the wilderness experience. Grouping by time or phases of the experience is possible, but problematic unless precise stratification of sampling is carried out. That is, each subject must complete a questionnaire in each time period, in order to analyze any changes between time periods. This was not possible in this study due to unfamiliarity with equipment, logistics, and methodology. Also, it may not be possible to gain the necessary compliance of the general public to ensure strict observance to the sampling schedule (i.e. missed signals or non-compliance is still a problem, the more so the greater the sampling frequency).

The second alternative would be to treat time as a continuous variable. This would entail a standardization of item responses, since the accounting of individual variation through a repeated measures design would be lost. Least squares or other modeling approaches could investigate the influence of time elapsed as an absolute or relative variable. The later (% of trip elapsed) would permit an interesting investigation of the wilderness experience as a relative process. That is, the “early adjustment” and “imminent expectation of return to society” phases of the experience may transcend length of stay differences. In effect, the contrast with outside society may be the most important aspect of the wilderness experience. Greater sample sizes would be required for these analyses using time as a continuous variable.

The repeated measures approach to the analysis of variance has been particularly appropriate for this study. Not only is it ideal to the examination of time effects, but it has also helped deal with individual subject variability. As well as being a more powerful statistical approach, it has demanded fewer subjects. Repeated measures has also attempted

to take into account the interdependency of the aspects of the wilderness experience by doing a doubly multivariate analysis.

While the full set of responses (approximately 220 questionnaires) was available for correlational reliability, factor and categorical analyses, sample sizes have remained problematic in this study. Many of the analyses of variance were conducted with approximately 24 subjects, taken from those who completed at least four questionnaires (33 out of 62 respondents). Given the matrices calculations inherent in the repeated measures analysis of variance, missing data causes some subjects to fall out of the analyses.

Although most respondents were asked to complete four or more questionnaires, a large number either were unable to do so (failed to hear or respond to a signal, returned earlier or departed later than expected, etc.), or failed to answer all the items.

Application of the Experience Sampling Method to the study of wilderness

The Experience Sampling Method has attempted to directly deal with the problem that respondents are not very good at accurately reporting their memories of a situation. ESM is best applied to measuring the states and feelings of a subject at a moment in time. Rather than relying on reconstruction of the event, ESM successfully enters into the event asking for descriptions of what rather than why things are occurring. ESM is best when it is relevant, easy and deals with the 'here and now'. One of our study objectives was to assess the usefulness of the ESM as a tool to measure the lived experience in wilderness.

Generally, the use of ESM in wilderness was successful. Visitors were happy to participate in the study, and were intrigued by our research interest in their experiences. For the most part, respondents faithfully completed the questionnaire at the signaled moment a number

of times throughout the experience. This gave one of the first databases of the wilderness experience with multiple observations across time. Waterproof, sturdy research equipment permitted the questions to be answered at many different points in time during the experience. Immediate collection of data, and feedback on the research task were added benefits of the ESM approach.

However, there are some real concerns with the application of ESM in wilderness. The foremost problem is behavioral reactance, whereby the use of ESM methods may have changed the experience that we are trying to measure. The first aspect of this is rating stability. That is, do responses change purely because the same questions are being repetitively answered. We still have no way of knowing whether the people are actually experiencing what they report they are experiencing. However, the immediacy and repetitive nature of the ESM reporting task tends to temper any deliberate bias. One-time assessments are more prone to these sorts of response sets as to what the wilderness experience should have been like. ESM allows for active comparisons across different points in time and circumstance by the respondent.

Based on on-site feedback to the researcher and observation of subject responses, participants seemed quite prepared to score an item low if they feel it was not relevant to them at that point in time. Providing a nine-point scale helped the respondents deal with items not particularly pertinent to them. That is, they can indicate with a low value that an item is only somewhat important, without totally disregarding its overall relevance to the wilderness experience.

ESM could be criticized for putting words and concepts into the experience that were not there without the research process. Post-hoc questionnaires also suffer from this aspect of behavioral reactivity, since the items and concepts used in the questionnaire actively influence the recollection process. The challenge is to elicit response without imposing or suggesting theory. Particularly problematic is the use of value-laden words. A natural reaction is to feel that you must be experiencing these things if the researchers are asking about them. However, this has to be balanced with the need to provide subjects with the means to thoroughly describe and express their experiences. In any approach some prompting and topic guidance is provided to the respondent. ESM has tried to downplay the impact of the questions by making the questionnaire short and less imposing on the experience, by being unpredictable as to when the questions may need to be answered and to require as little cognitive effort as possible in responding. Greater efforts should be made in any future wilderness ESM studies to shorten the questionnaire, or investigate the greater use of open-ended questions.

Three aspects of ESM that have not been fully examined in this study deserve mention. One of the advantages of ESM is its strong ecological validity in that the data are collected within the domain of interest. But, it should be asked whether the questions can be answered in every wilderness setting. Since the wilderness experience we studied was a canoe trip, and we provided waterproof paper and waterproof bags, the beeper and questionnaire were readily available. But the researcher is still reliant on the subject to stop what he or she is doing and fill out the questions. In some situations, such as inclement weather or intimate moments, this might be unlikely. ESM also has the advantage of providing longitudinal data. If the subjects could be recruited to complete more questionnaires over a longer period of time, then it might be possible to identify phases of

the wilderness experience. However, given the current recruitment strategies, there would seem to be a limit to the degree of compliance that could be expected of wilderness visitors. Over longer periods of time, the problems of non-response bias and equipment failure would be greater. Fatigue and / or boredom with the response task is also a problem as the period of time over which responses are sought increases. Perhaps more attention could be given to an idiographic or individual respondent level analysis of responses across time. There may be interesting patterns and influences within one person's set of questionnaires. The problems of missed responses would be less problematic in such an idiographic approach.

The problem of the obtrusiveness of the ESM upon the wilderness experience sets many of the limitation for its application. While some visitors may enjoy the research task, feeling that it heightens their own self-awareness, there are others who find it an intrusion into their wilderness experience. Ideally, for the study of the dynamics of the wilderness experience subjects might be beeped up to eight times per day, as they are in many non-wilderness ESM studies. While visitors to Juniper Prairie Wilderness seemed content to complete three or four questionnaires in half a day, this seemed to be reaching the limits of their compliance based on feedback received at the end of the float trip. At Okefenokee, most respondents reported that two or three times per day was an intrusion but not an unreasonable burden. This may be partly due to the length (i.e., two pages) of the questionnaire used. Limiting response to a postcard size questionnaire would lessen the burden, shorten the intrusion, and lessen any antipathy to the research task. This might then allow for greater frequency of response, but would be at the expense of the breadth and depth of areas being investigated.

However, all attempts to mitigate any measurement problems of the ESM approach does not circumvent the criticism that ESM does not belong in wilderness. It is hard to justify interrupting the joys and pleasures of the wilderness experience for the task, however brief, of completing research instruments. The use of modifications of ESM, such as directed journals or disposable cameras, might be recommendable since these tasks are more likely to be considered part of the visitor's experience anyway. For example, rather than using a small alarm to randomly signal when to complete a form, the respondent could be given a camera with instructions to take four (say) photographs each day, at least half an hour apart, and at the same time and place complete a questionnaire. Not only is taking a photograph a more natural part of the visitor's experience, but it also provides motivation and reminder of the research task. (The film would be developed and prints returned as an incentive for participants.) However, this would tend to sample the peaks (high and low) of the experience, since these are the time visitors are most likely to want to photograph. The beepers, in contrast, randomly sample all moments.

There is also the ethical question of sending any research technology such as beepers, cameras and questionnaires into the wilderness. While some visitors probably do not find this to be an unacceptable intrusion (indeed, some wilderness visitors bring cellular phones, portable computers and radios with them), there are also those who deliberately shun as many items and aspects of modern society as possible. For these people, any set of paperwork or outside obligation may be unreasonable. They see it as antithetical to the experience they are seeking. For such visitors, the burden of answering questions within the wilderness is probably greater than with post-hoc interviews or questionnaires. However, given the limitations of verbal recall and report, researching the wilderness as it is experienced would tend to require it.

Management would ideally like feedback on the conditions encountered in as many places as possible. Because of the immediacy of ESM it may be that visitors notice and report different influences upon the experience. It may turn out that we have all been primed to consider litter, for instance, a nuisance and are now overly sensitive to noticing and remembering litter. The same might be said for user group conflicts and the amount of use encountered. This is not to say that the remembrance is accurate. ESM might be expected to improve this and the recall of it. However, even if subjects could be recruited to complete a greater number of questionnaires within wilderness, this might not be advisable. If the observations are too close together, one observation will begin to influence the next. That is, subjects can more easily recall earlier responses and answer based on implicit theories of change. The ESM is also not well placed to measure the experiences at the take-out and put-in.

The on-site contact is crucial to the success of using ESM in wilderness. While we want to keep it as brief and easy as possible, that is the time to build commitment, motivation and skill in the research task. This is helped by the generally enthusiastic and interested population of people who visit wilderness. The novelty and seriousness of the research task is also a plus. While we do not want people focusing on the beeper, we do need to empower them and give them sufficient training to be responsible for the research task. Perhaps, we could ask the visitors how often and during what hours they would be prepared to be beeped. However, some respondents might find it less of a burden than they first thought.

The post-trip collection of completed questionnaires was also an important part of the research procedure. It would be possible to include more formal steps of evaluation.

Subjects could be asked how representative the beeps were, and whether they extrapolated or averaged the experience in their report. They might also be asked what values, schemas or ethical stances influenced their response. It would also be worthwhile to have more precise information on who was involved in answering the questions. Although it seems difficult to imagine consensus among a group on feelings and individual states, it is clear that stopping the group to answer a questionnaire does involve other group members and lends itself to group discussions.

Conclusion

The methodology of ESM appears to have allowed this study to successfully research the wilderness experience as a process. Not only have particular situations and points in time in the wilderness experience been recorded, but some of the deeper, spiritual aspects of wilderness have been successfully investigated. This study has focused on the actual experience and the dynamics within the experience. It has been demonstrated that the wilderness experience is more than just a recreational activity, having other profound aspects that are linked to the relationship of humans to nature. Wilderness as a process allows the freedom to re-evaluate and perhaps remember a more authentic way of life within nature. Just as leisure is considered by Kelly (1987) to be the “freedom to be”, wilderness is also an important opportunity for the fullest expression of our lives on this planet. This study has suggested a potential link between ideal or peak leisure and the wilderness experience, and has demonstrated that the experience is a dynamic one changing across time. The combination of philosophical, methodological and literary investigations has suggested new understandings of the wilderness experience, and how it might continue to be researched.

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Appendix A - The Philosophy of Martin Heidegger

Introduction

In choosing to discuss the work of Martin Heidegger, a possible philosophical framework to this dissertation is presented. Heidegger's ideas not only resonate and find similarities with ideas of wilderness and the wilderness leisure experience, but also provide a holistic approach to the study of these concepts. His philosophical stance provides statements on questions of ontology and epistemology. This helps expose the underlying philosophy, or world view, that guides the research. Heidegger's views on the nature of reality, and on the sources of knowledge of that reality, not only guide the methodologies of a research project but also the topics and questions of investigation. The questions of this dissertation fit comfortably within and flow in part from the philosophy of Martin Heidegger.

The primary focus of Heidegger's writing is on the question of Being, what it means to exist in this world. In particular, Heidegger considers the interdependency and inter-relationship of the things, beings, that make up our existence. Put simply, an authentic existence is one in which other beings are allowed to fully manifest themselves. Heidegger argues that individuals cannot fully develop, or understand themselves and their world, without allowing the "presencing" of other things. It is not that everything is a product of human consciousness, but rather that natural beings are disclosed through the window of human existence (Zimmerman, 1983). Human events join together the 'dance of the fourfold,' a Heideggerean term for the inter-relationship between self, other creatures, divinities, and the environment.

Martin Heidegger's background

Heidegger will be remembered as one of the great philosophers of the twentieth century. His work provides an historical link between many nineteenth century Continental philosophers such as Husserl, Kirkegaard, and Nietzsche, and modern thinkers such as Sartre, Derrida, Foucault, and Habermas. There are some authors who see Heidegger as a seminal figure in the 'hermeneutic turn' of the social sciences that has led to various postmodern approaches (Guignon, 1993; Rosenau, 1992). Unfortunately, the exposure to Heidegger's ideas has also resulted from the controversy of his involvement with the Nazis. The connection between his philosophy and his political ideology is not clear.

Heidegger was part of a movement away from the dominant dualistic tradition of philosophy that can be traced back to Plato and Descartes. Rather than the clear separation of mind and matter, Heidegger saw reality as being closely tied to unity of experience. He views objects and things as neither static nor essential. Rather Heidegger believes other things find expression through the events of human existence.

In this fashion, Heidegger exhibits the influence of phenomenologist, Edmund Husserl, with whom he studied. However, Heidegger went on to question the phenomenological assumption that every object is purely the result of an act of consciousness. Although he agreed that human understanding is the only entrance to the nature of the world, he questioned whether objects of consciousness only become objects when in consciousness. Instead he would lead the way to a view of reality that centered on the notion of emergence-into-presence. Humans provide the space in which other beings, including objects, find expression. And humans find themselves "thrown" into a situation that already reflects a cultural and historical context of the way things are considered to be (Guignon, 1993).

Being is, therefore, nothing more than a life-course of interaction with the world, jointly defined. Heidegger held the belief that, “there is a predestinate unity in the universe and the human vocation entails finding our way back to it.” (Grange, 1985, p358). According to Guignon (1993), Heidegger’s criticism of the artificiality of the categories of mind and matter would influence and direct the ideas of phenomenology (through the work of Merleau-Ponty), existentialism (Satre), and hermeneutics (Gadamer and Ricoeur).

Heidegger’s notion of reality

Being in the world

Heidegger starts from the assumption that humans are inseparable from their world. That is, the essence of human existence is inseparable from the surrounding social, natural, and divine world. As Gray (1957, p. 200) describes, “man’s reality must be discovered in the world and the world belongs to his reality.” All that we can be, think or experience is situated within that world (Haar, 1993). Gray (1957) goes on to say that Heidegger believed that:

The ontological reality of the non-human world cannot appear through the manipulations of man. But things will not appear as things, he hastens to add, ‘without the alertness of mortals.’ In other words, human beings form an integral part of reality, a necessary part of the whole. (p. 204)

Humans are never isolated subjects, according to Heidegger, rather their very essence is constituted by their world (Frede, 1993).

The concept of Being (always capitalized) is central to Heidegger’s view of reality. Being is allowing the self-revealing or self-manifesting of other beings (Zimmerman, 1983). As

Guignon (1993, p63) describes, “Being comes to be thought of as a temporal event, a ‘movement into presence’ inseparable from the understanding of being embodied in Dasein’s forms of life. It is the event (Ereignis) of disclosedness in which entities come to be appropriated into intelligibility.” (Dasein is a German expression (lit: being there) used by Heideggerian scholars, and by Heidegger himself, to refer to human existence.)

An authentic existence therefore entails the fundamental task of letting things be. According to Zimmerman (1986), “For Heidegger, for something ‘to be’ means for it to be revealed, uncovered, made manifest, ... and authenticity means to be most appropriately what one already is” (p. xxiv). Thus the natural reality for human existence is to allow things to be themselves without human interference, the natural way of things. (This notion is deliberately self-defining.) Nature is considered a self-gathering event of manifestation (Zimmerman, 1993a). The ego, or self, is eclipsed by the experience, and the participatory role of making room for other beings to express their natures. As Heidegger puts it, “others are encountered environmentally” (Cave, 1982, p253). “Dasein ist Mitsein”, says Heidegger; to be involved in the world is to be with others (Friedman, 1988).

Care, unity and the dance of the fourfold

An authentic being actively works to create room for new creative possibilities of expression. This way of being-in-the-world consists of manifesting care, interest, and concern. These are means of truly understanding what other beings are, and allowing them to be just that (Westra, 1985, 1994). Gray (1957) explains that, “mortals dwell properly when they learn to protect the earth, not to exploit or conquer or subordinate. They dwell as they ought when they ‘receive the sky as sky’” (p. 203). Dwelling authentically is an act of tending and attending, to cherish and care for the things surrounding us.

“Heidegger emphasized the practical dimension of human existence by defining the very being of Dasein as ‘care.’ To be human means to be concerned about things and to be solicitous towards other people”, according to Zimmerman (1993, p. 247). We care for other beings not for any extrinsic good, but rather as a sense of identification or oneness with all things. Our relationship with the world is therefore concerned and participatory rather than perceptual and objectified. This stance is believed to be a profound change in our relationship to the planet, as Haar (1993) explains :

The absence of dwelling (or homelessness : *Heimatlosigkeit*) becomes a world destiny. This sort of rootlessness is more profound than any purely sociological or political phenomenon. When the world is reduced to a network of interchangeable connections, there are truly no more subjects who face objects but only gigantic circulations of energy, products, information ,and consumption. Evermore removed, everless inserted in a situation or a determinate site, technological man more and more finds himself decontextualized, simultaneously integrated and dispersed. The sense of the near and the distant becomes blurred. The oblivion of the Earth is the oblivion of the originally local and regional character of thinking and action. (p. 5)

The Heideggerean notions of Being and care (*Sorge*) are tightly interrelated. One cares for another being (object or creature) not for the sake of the individual ego, but for the sake of a larger notion of existence (Guignon, 1993). The care of one individual being is caring for the sum total of Being, simply for the sake of caring for the whole. This is the way to not only understand the true essence of Being, but also the true oneness. It is from the whole of existence that all the things within the world receive their meaning (Haar, 1993). As Cave (1982) suggests that:

Dasein is in the world primordially through its existential concern or involvement with the world ... Dasein is, for the most part, absorbed in the world in definite modes of concern: it has to do with something, produces something, attends to something, looks after something, makes use of something and so forth. (p. 252)

Our relationship with the world is active and concerned rather than perceptual and objectified.

This sense of unity with the world is tightly tied to Heidegger's later notion of the fourfold. When we speak of dwelling authentically, we speak of specific places in time and space where a gathering together of the fourfold occurs (Platt, 1985). Zimmerman (1992) says that, "Heidegger claimed that humanity's highest possibility is not to dominate entities, but to care for them, to let them be what they are, to join with things in the dance of the 'fourfold' of earth and sky, gods and mortals" (p. 250). However, when we speak of one of the four we must bear in mind the simple oneness of the four, thus we necessarily think of the other three that come along with it (Platt, 1985). Each thing suggests all of the realities, fitting and binding them together into a oneness, a unity, thus making them available to one another (Gray, 1957).

An example of this notion of oneness will help explain. Westra (1985) writes,

If we stand on the seashore, and see a wave coming in, driven up to the sand by the tide, and then receding, we have seen one entity, one wave. But we cannot cut it off from the totality of the sea, or from the earth that bounds it, the forces that move it, or the conditions of the sky at the time. And I am not a separate entity (a spectator), standing over and against it. I am part of that Being, too. To understand this is to do more than

simply pass through the earth. It means to dwell upon it, which entails the deep awareness of all that participates in the oneness of time and place. (p. 348)

The construction of meaning, the significance of existence, requires the joining of the fourfold. Without consideration of each of the four we do not have full understanding of what it means to Be. This is similar to the Buddhist notion of nothingness or emptiness. When one gives up the ego body of self, one creates the openness in which to identify and join with all things (Zimmerman, 1993a).

Emotion, language and culture

According to Grange (1985, p. 361), “mood for Heidegger is the felt sense of our interaction with the environment.” Feelings are our acknowledgment of the quality of our oneness with the environment. Emotions provide information about where we are, and how we are doing, in connection with the earth. Perhaps this is why wilderness experiences can be described as so intense. Heidegger sees feelings as being our authentic attachment to the world, they are the natural outcome of being one with the world (Grange, 1985). Feelings are indicative of active engagement, of praxis. That is, our feelings are our primary access to the world (Folz, 1984).

Language is another example of the actions that Dasein can take to open up our world and allow beings to play, according to Heidegger (Zimmerman, 1983). Poetic, artistic and creative works provide a context in which the fourfold can unite. For example, Zimmerman (1983) suggests that, “without rituals, myth, religion, poetry and art - that is, without language - there can be no human encounter with beings as such” (p. 103). Friedman (1988) translates Heidegger as saying that, “language is the supreme event of human existence” (p. 69). Language makes culture possible, and allows us a means to understand

the world based on the experiences of those who went before us. This pre-ontological understanding of the world, embodied in our language, gives us some hint of the meanings we should seek in allowing other creatures to be. Thus, although Heidegger believes in a sense of timelessness, collapsing all three temporal dimensions (past, present, and future) into one (the here and now), he does acknowledge that our access to things is always shaped and colored by our historical culture. We can only draw on the past as much as to help understand our present, our only entrance and key to the nature of being (Frede, 1993). We are “always already” in this world.

Lemay and Pitts (1994) summarize the contribution of language to our timeless sense of Being :

By recognizing ourselves as Dasein and not the thinking thing, we are in a position to realize that a certain, social practice we have allows us to recognize our relationship to Being, and in turn shows us how to live in response to that relationship. This practice, the central preoccupation of the latter part of Heidegger’s life, is language. ... Our entire language, the language of Dasein, becomes the living memory of beings coming into existence or, as Heidegger puts it, ‘Language is the house of Being.’ We are that special being who can ask questions about Being, and having that ability, we become the keepers or guardians of Being.

We are thus tied to an endless procession of Being, a primitive way of relating to the world. An authentic existence is tied to the history of coming-to-be, and language, the fundamental unit of Dasein, is the vehicle to transmit that earlier way of being. For Heidegger this meditative ‘step-back’ allows us to encounter the world authentically (Zimmerman, 1993a). Releasement to a simpler, more primitive way of Being can be achieved by activities that “allow the utter silence and stillness needed to become attuned to

the openness or nothingness pervading all things” (Zimmerman, 1993b, p. 257). Immersion in a natural world where one can most easily dwell authentically is an appropriate form of this praxis.

The relationship between Heidegger’s ideas and wilderness

Many of the themes of wilderness are found echoed in Heidegger’s work. Perhaps wilderness is our last chance to discover an authentic way of life. Perhaps it is in wilderness that we can reconnect with the beings around us. As Zimmerman (1992) considers, “Wilderness is a direct reminder that not everything can be reduced to the status of a human product, project or construct; wilderness is the ‘other’ which reminds humanity of its own dependency on the powers at work not only in wilderness, but also in humanity itself” (p. 247). The need or desire to visit wilderness may be symptomatic of humanity’s distance from what it truly means to be human.

Ideas of oneness and humility flavor much of Heidegger’s work. He talks of the necessity to reverse our philosophical and technological separation from other beings. In striking a very anti-dualistic stance, Heidegger insists we are inseparable from our world.

Furthermore, our only true self is found in unity with other beings. To dwell authentically is to lower the concerns of the self and of the individual ego, and to make room for other beings. To understand and appreciate things for what they are is to stand humble in the glory of a natural way of being. We are a necessary part of the whole, but it is the whole that helps define us.

That whole that Heidegger considers so important to the self reflects not only the influences of the here and now of earth, sky, mortals and divinities, but also our inherited

understanding of what it means to be with these things. Language is our ticket back to a simpler, more immediate relationship with the earth. The significance and construction of our words reflect a past that did not directly involve us. But it was built on a history of life experiences. Wilderness provides us an opportunity to rediscover those origins, those original contexts in which our cultural understanding was built. It permits a chance for a more direct relationship with other beings that Heidegger suggests is necessary to solve many of our current crises.

Because Heidegger's philosophy is so much based on the here and now, he effectively rolls the past, present and future into one. He argues for things to show themselves without any intervening interpretation, and for human existence to be primarily to do with current possibilities, active choices, (as limited only by the "thrownness" of our existence in this world). We are always already here. This loss of self in the moment has remarkable similarities to the state of flow, as described by Csikszentmihalyi. It is also commonly expressed by wilderness visitors. Their desire to escape the complexities and demands of their technological world suggests enthusiasm for living a life, however temporary, without an overload of pressures, commitments and responsibilities other than for the activities and environments at hand. The timelessness of the current moment is one of the delights of the wilderness experience.

Wilderness, and other natural areas, provide one of the clearest opportunities for active caring and authentic dwelling. Within wilderness we most clearly feel attached to, responsible with, and a part of, other things and beings. Most people seem to simply allow other things to be. Within wilderness we tend to most easily accept nature on its terms, and to actively care for the natural objects and beings. Wilderness tends to encourage bonding,

or attachment to the environment, rather than consuming or conquering. It means something special to its visitors and they tend to show concern for its existence.

A short example can illustrate the similarities between Heidegger's ideas and the import of wild nature. Zimmerman (1992), in describing his own development writes :

My sense of 'selfhood' was molded in part by my attempts to 'go over' to the 'otherness' of the squirrel-self; my human 'voice' was shaped by my identification with the wind in the summer leaves; my sense of civilized 'time' gained definition by contrast with the peculiarly timeless-yet-cyclical seasons of the woods; my capacity for 'love' was strengthened by the all-embracing repose which I at first experienced as cosmic indifference. ... I also knew that I was deeply attached to the ways of the woods and to the creatures who composed the woods - and that I was losing something by leaving them behind. The woods were a blessing to me because they were 'other' to me even while they were kin to me. In my attempts to 'go over' to the woods, I was also restored to my own humanity in a way that would not have been possible without these journeys. (p. 269)

Heidegger sees Being as a lifecourse of interaction with the world. Our insights into human: nature interactions therefore take on a greater significance. Indeed, Heidegger provides some themes for that interaction. For example, he says that "Dasein ist Mitsein", that to be is to be with others, and that others are encountered environmentally. Interactions with others are one expression of our environmental existence, as are feelings and emotions also, which Heidegger believes to be indicators of the quality or strength of our relationship to the environment. The self is another focus of the interaction, as the self is defined by the other beings around it. And finally, Heidegger considers being in nature to be an active task. One cannot know true existence from a distance. Rather, active engagement with the

world is required. Thus, in Heidegger's work we can identify themes common to our notions of human - nature relationships : the focus on self, others, feelings, the divine, and task.

Thus Heidegger provides a sound philosophy in which to base our investigation of the wilderness experience. The combination of phenomenology and existentialism matches our interest in the experience as it unfolds. And the themes of his ontology match our understanding of what it is we seek, and should seek, in our wilderness experiences. A true way of being in the world should be based on the natural relations we can discover in wilderness.

Appendix B - On-site Contact Sheet

On-site Interview

Okefenokee Swamp Recreation Study - 1994

Date : _____

Time : _____

1. How did you learn about Okefenokee Swamp ? _____

2. What type of group are you traveling with on this visit to Okefenokee ?

- _____ By yourself
- _____ Family
- _____ Friends
- _____ Club or organization -- please give name _____

3. How many people in your group ? _____

4. Are you using your own canoe or a rented one ? _____ Own _____ Rented

5. Is this your first visit to Okefenokee ? _____ Yes _____ No
 If no, how many times have you previously paddled Okefenokee ? _____

6. How many times have canoed on a river or lake ? _____

7. How often would you visit a forest or natural parkland near where you live ?

- _____ once a day _____ two or three times a week
- _____ once a week _____ two or three times a month
- _____ once a month _____ two or three times a year
- _____ once a year _____ less than once a year

8. How many times have you visited a wilderness area in your entire life (including this trip) ?

- _____ 1-5 _____ 11-20 _____ 51-100
- _____ 6-10 _____ 21-50 _____ more than 100

9. How would you rate canoeing compared with your other outdoor recreation activities ?

- _____ Canoeing is my favorite outdoor recreation activity
- _____ Canoeing is one of my favorite outdoor recreation activities
- _____ I prefer several outdoor recreation activities over canoeing

10. What is your age ? _____ years

11. What is your gender ? _____ Male _____ Female

12. What education level have you reached ? (Please circle the highest grade completed.)

- | | | | |
|-----------------|-------------|-------------|-----------------|
| Grade School | High School | College | Graduate School |
| 1 2 3 4 5 6 7 8 | 9 10 11 12 | 13 14 15 16 | 17 18 19 20 21+ |

13. May we have your name and address? This information will be kept confidential and will not be associated with your answers. Thank you !

Name : _____
 Street Address : _____
 City, State, Zip _____

Field Technician Notes.

Loc. : _____

Packet No. :

ETA Date :

Time : _____ am / pm

Loc. : _____

Actual

Time : _____ am / pm

Boat.: _____

Appendix C - Study Questionnaire

OKEFENOKEE VISITOR STUDY

RECREATION EXPERIENCE SAMPLING FORM

Date : _____

Please respond to the following questions as soon as possible after you were beeped.

1. What time is it now ? : _____ am/pm

2. When you were beeped, how much were you focusing on :

	not at all	somewhat	quite a bit	very much						
Your own thoughts	0	1	2	3	4	5	6	7	8	9
Other people around you	0	1	2	3	4	5	6	7	8	9
Your feelings and emotions	0	1	2	3	4	5	6	7	8	9
The natural environment around you	0	1	2	3	4	5	6	7	8	9
The task you were carrying out	0	1	2	3	4	5	6	7	8	9

3. When you were beeped, tell us how you were feeling :

	not at all	somewhat	quite a bit	very much						
✓ I felt a part of wild nature	0	1	2	3	4	5	6	7	8	9
I care what time it is	0	1	2	3	4	5	6	7	8	9
I felt I was living like a pioneer	0	1	2	3	4	5	6	7	8	9
I was in awe of nature's creation	0	1	2	3	4	5	6	7	8	9
I felt the tranquillity and peacefulness of this place	0	1	2	3	4	5	6	7	8	9
✓ I was feeling a special closeness with nature	0	1	2	3	4	5	6	7	8	9
I liked the way my body felt	0	1	2	3	4	5	6	7	8	9
I felt the simplicity of life on this trip	0	1	2	3	4	5	6	7	8	9
I want to behave properly towards this place	0	1	2	3	4	5	6	7	8	9
I was worrying about the time	0	1	2	3	4	5	6	7	8	9
The environment seems free of human-made noises	0	1	2	3	4	5	6	7	8	9
I felt that life is simple	0	1	2	3	4	5	6	7	8	9
I felt that time had flown by	0	1	2	3	4	5	6	7	8	9
✓ I was feeling totally immersed in nature	0	1	2	3	4	5	6	7	8	9
✓ I was feeling insignificant in the glory of nature	0	1	2	3	4	5	6	7	8	9
✓ I felt the silence of the environment	0	1	2	3	4	5	6	7	8	9
✓ I felt connected with times long ago	0	1	2	3	4	5	6	7	8	9
I care what time it is when I eat	0	1	2	3	4	5	6	7	8	9
I wanted to hurt this place	0	1	2	3	4	5	6	7	8	9
I felt humbled by all of nature around me	0	1	2	3	4	5	6	7	8	9
I was feeling the heartbeat of the earth	0	1	2	3	4	5	6	7	8	9
I felt I wanted to care for this place	0	1	2	3	4	5	6	7	8	9
I would call this place wilderness	0	1	2	3	4	5	6	7	8	9

4. When you were beeped, tell us how you were feeling :

	not at all	somewhat			quite a bit			very much		
I was reflecting about myself a lot	0	1	2	3	4	5	6	7	8	9
I felt a special closeness with others in my group	0	1	2	3	4	5	6	7	8	9
I found myself getting totally absorbed in what I was doing	0	1	2	3	4	5	6	7	8	9
The trees looked pretty much all the same to me	0	1	2	3	4	5	6	7	8	9
I was interested in making a good impression on others	0	1	2	3	4	5	6	7	8	9
I was very aware of my feelings	0	1	2	3	4	5	6	7	8	9
I was thinking about my place in the world	0	1	2	3	4	5	6	7	8	9
I would call what I was doing leisure	0	1	2	3	4	5	6	7	8	9
I was focusing on achieving the next goal of my trip	0	1	2	3	4	5	6	7	8	9
Other people wanted me to be doing what I was doing	0	1	2	3	4	5	6	7	8	9
I noticed the little things of nature more than before	0	1	2	3	4	5	6	7	8	9
The feelings I was experiencing were more intense than usual	0	1	2	3	4	5	6	7	8	9
I wish I had been doing something else	0	1	2	3	4	5	6	7	8	9
I was satisfied with how I was performing	0	1	2	3	4	5	6	7	8	9
I was concentrating on doing my activity right	0	1	2	3	4	5	6	7	8	9
I was fulfilling some of my responsibilities	0	1	2	3	4	5	6	7	8	9
Others group members were accepting me for who I am	0	1	2	3	4	5	6	7	8	9

5. Since the last time you were beeped, list three things about the trip (of the natural environment, the people, facilities, management activities, rules and regulations, etc.) that you LIKE the most :

1. _____
2. _____
3. _____

6. In similar fashion, tell us what you DISLIKED the most since the last time you were beeped :

1. _____
2. _____
3. _____

7. When you were beeped, what was the MAIN thing you were doing ? _____

Thank you for your assistance in completing these questions. Your help is very much appreciated

OKEFENOKEE VISITOR STUDY
 DEPT. OF FORESTRY
 Virginia Tech, Blacksburg VA 24061

Vita

Bill Borrie was born in Melbourne, Australia and received his Bachelor of Forest Science and Master of Forest Science from the University of Melbourne. He has taught at Bendigo College and the University of Melbourne, and has lived and worked in Australia, Germany, and the United States. He is currently Assistant Professor of Outdoor Recreation Management in the School of Forestry, University of Montana, Missoula, MT 59812.

A handwritten signature in cursive script that reads "Bill Borrie".