

## Chapter One - Introduction

### Introduction

As in many areas of study, outdoor recreation research is often guided by simple questions which, more often than not, have complicated answers. For example, why do recreationists chose the activities they do? Why do they select one location over another? Why do they prefer being with some people and not others? And, perhaps most importantly, what experiences do they want and/or receive? As Virden and Knopf (1989) note, however, outdoor recreation researchers are not the only group interested in these questions. Natural resource agency planners and managers--whose mandate often includes the provision of quality outdoor recreation outcomes--are also interested in finding answers to the above.

One model which tries to answer some of these questions has become particularly popular among both outdoor recreation researchers and natural resource agency personnel; the Recreation Opportunity Spectrum (ROS). ROS contends that physical settings can be arranged along a continuum ranging from highly developed (i.e., the urban class) to highly natural (i.e., the primitive class). In its most common configuration, ROS also includes four intermediary types of physical setting. Thus, the ROS continuum may be conceived of as having six classes: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural, and urban. Further, ROS holds that social settings co-vary with physical settings for each class. For example, in the urban class the amount of inter-group contact that is likely to occur will be very high, while in the primitive class such interaction will be very low. Finally, the recreation activity may co-vary with social and physical settings (e.g., baseball and backpacking in urban and primitive classes, respectively), as may the managerial setting (i.e., the regulations and policies affecting each class).

ROS also holds that, in addition to these four elements co-varying so as to form a six-class continuum, they may also combine to shape the type of experiences a recreationist receives. For example, when the social, physical, managerial settings and the recreation activity combine to form the primitive class, risk, self-reliance, autonomy, and tranquillity are probable experiential outcomes. In contrast, when the urban class is formed, social affiliation and competitive interaction are more likely to occur. One factor which can affect this relationship is the level of familiarity or "expertise" a recreationist has with a particular activity/setting combination. A novice and an advanced hiker may, for example, obtain different experiences in the same setting or the same experience in different settings.

One method commonly used to examine these experiential outcomes is the Recreation Experience Preference (REP) scales. REP is a list of 19 recreation experiences (e.g., independence, reduce tension, family relations), many of which are further sub-divided into smaller groupings (Driver, Tinsley, & Manfreda, 1991).

### Problem Statement

The purpose of this dissertation is to examine three issues associated with the REP and ROS models. First, is REP comprehensive or does it overlook some recreation experiences (e.g., identity, absorption, etc.)? Second, does REP have an underlying structure? If so, could it be used to develop a framework for classifying recreation experiences? And third, are there other variables, besides the ROS concepts of recreation activities, settings, and expertise, that could help predict the kind of experience a recreationist receives? Each of these issues will be discussed briefly in the remainder of this chapter and in greater detail in the following chapter.

As noted earlier, REP is a well known and often used list of recreation experiences. But concerns about REP have arisen. For example, Schroeder (1994) states

that natural resource agency employees do not adequately understand how people experience the natural environment and recommends that greater attention be focused on topics such as sense of place and spiritual values. Further, Haggard and Williams (1991) contend that a "conceptual void" exists concerning the effect recreation engagement has on identity. In addition, despite numerous studies on flow and absorbing experiences (e.g., Csikszentmihalyi, 1975, 1990; Csikszentmihalyi & Csikszentmihalyi, 1988; Quarrick, 1989), neither concept is included in REP. Finally, cross-cultural research suggests that the self-concept's content and structure may not be invariant. For example, Markus and Kitayama (1991) believe that Native Americans, recent immigrants from non-Western countries, and possibly some women and rural and small town residents may hold an "interdependent" self-concept versus the "independent" self-concept often considered as being ubiquitous in this country. If so, REP may not represent an exhaustive nor necessarily valid list of recreation experiences a person may obtain; especially those individuals having an interdependent self-construal.

Although considerable attention has been paid to the reliability and validity of the REP scales (Driver, Tinsley, & Manfreda, 1991), less energy has been expended on the development of a theoretical structure that could be used to classifying recreation experiences. A classification system for recreation experiences might: (a) increase our understanding of the similarities and differences among recreation experiences; (b) be more explanatory than REP; (c) be more parsimonious than REP; and (d) be in step with theoretical advances occurring in other areas of social science (e.g., sociology, social and environmental psychology, consumer research).

In the same way the REP scales have come under scrutiny, so too has the ROS model. For example, Virden and Knopf (1989) contend that the current theoretical and empirical literature base does not adequately articulate--or validate--the relationships that

exist among activities, settings, and experiences. Similarly, Hull, Walker, and Michael (unpublished manuscript) have stated that, because "contemplation and reflection are critically important components of some leisure experiences" (p. 2), traditional management tools based on setting characteristics and activity patterns may not prove applicable. In addition, Hull (1991) has noted that there is little understanding of how management of the social and physical setting may influence affect-based experiences. Finally, if a conceptual void does exist concerning the relationship between recreation activities and identity (Haggard & Williams, 1991), it would seem to follow that the effectiveness of ROS to plan and manage for such experiences is also unknown.

### Major constructs

Four new constructs have been developed in this dissertation. Each of these constructs is discussed briefly below and more fully in the literature review.

#### Mode and manner.

Knopf (1987) and Williams (1988) believe there are at least three fundamental sources of stimulation people can attend to in the out-of-doors: (a) the place, (b) the activity, and (c) the social environment. In addition to these three outdoor recreation experience "modes," a fourth type of mode may also exist. With this mode--hereafter referred to as the "cognitive" mode--the source of stimulation is internal (e.g., ideas or thoughts) rather than external (cf. Howard, 1995).

In the same way outdoor recreation can be experienced in different modes, so too can each mode be experienced differently. This proposition is based in part on Fournier's (1991) analysis of consumer-object relationships. Fournier (1991) believes objects play at least three distinct roles in people's lives, including: (a) a functional role (i.e., helping fulfill one's basic needs), (b) an expressive role (i.e., helping understand and express who

one is), and (c) an experiential role (i.e., helping influence or change one's emotional state).

These roles may also be applicable to outdoor recreation events. For example, hiking in order to keep physically fit illustrates both the activity mode and the functional role. Similarly, the other three modes may also be experienced in terms of functionality: a recreationist seeking peace and quiet may choose a secluded campsite (i.e., the place mode); a recreationist wanting to meet new people may participate in a group trip (i.e., the social environment mode); and a recreationist struggling with a perplexing problem may try to solve it through cogitation (i.e., the cognitive mode).

Unfortunately, Fournier (1991) does not recognize that the expressive role may actually be composed of two distinct but interrelated dimensions or "manners:" (a) a identity manner, which seeks to answer the question "who and what am I?" (Campbell, Trapnell, Heine, Katz, Lavalley, & Lehman, 1996); and (b) a self-evaluative manner, which seeks to answer the question "how do I feel about myself?" (Campbell et al., 1996). Similarly, Fournier's (1991) experiential role is also composed of two manners: (a) an affective manner, which is concerned with the individual's arousal level and/or mood state; and (b) an absorption manner, in which an object or event may trigger a loss of consciousness of the self as well as a loss of awareness of time and surroundings (Quarrick, 1989). Thus, the proposition is put forth that Fournier's (1991) three roles are more aptly conceptualized in terms of five separate but related manners (i.e., functional, self-evaluative, identity, affective, absorption). In addition, it is also proposed that by combining these five manners with the four modes (i.e., place, activity, cognitive, social environment), a framework for classifying outdoor recreation experiences can be developed. This framework is called the "Recreation Experience Matrix" (REM).

### Primary mode and mode dependence.

If the value of mode and manner is based on their potential ability to classify outdoor recreation experiences, then the constructs of primary mode and mode dependence may prove valuable because of their potential ability to explain and predict the types of recreation experiences an individual receives. For example, Williams (1988) believes that an individual may place greater importance on one mode over the other three (albeit in some cases two, three, or even all four modes may be tied in rank as being most important). If so, by knowing what the recreationist's "primary mode" is, increased understanding of the type of recreation experiences he or she receives may occur. Discovery of such a finding could prove valuable because of the limited success ROS concepts such as activity, setting, and expertise have had in predicting recreation experiences (Virden & Knopf, 1989).

In the same way primary mode may help to better understand and predict recreation experiences, so too may mode dependence. The construct of mode dependence has its origins in social exchange theory. According to Kelley and Thibault (1978) people prefer to interact with individuals who are most able to help them achieve their goals. Goals range along two dimensions (Foa & Foa, 1980), a concreteness dimension (e.g., love versus money) and a particularism dimension (i.e., the degree to which a specific individual--rather than any individual--must be involved in the exchange). Thus, it follows that in order for one type of outdoor recreationist to achieve his or her goals he or she would be dependent on the availability of a "specific" individual (e.g., a spouse), while another type of recreationist could achieve his or her goals when accompanied by a "generic" individual (e.g., a person--any person--who could help meet the minimum enrollment for a climbing course), and a third type of

recreationist could achieve his or her goals with a companion who lies somewhere between these two extremes.

In the example described above, the social environment ranges from specific dependence to generic dependence. But as Stokols and Shumaker (1981) have noted, places may also be viewed as ranging along a continuum of dependence. Similarly, Bryan (1977) has described a recreation specialization continuum ranging from anglers who fish only occasionally and could just as easily participate in another activity, to those who have become extremely specialized in their sport (e.g., using only hand-tied flies on cold-water, trout-stocked, mountain-fed streams). Finally, if dependence is applicable to the other three modes, it may also be applied to the cognitive mode. In some cases, cognitive activity may be focused on a specific issue (e.g., the pros and cons of accepting a job offer) while in other cases it may be directed toward a generic category of thoughts or ideas (or even away from a such a category, for example, if relaxation is the desired goal, thinking only about non-work-related topics may be necessary).

Based on the above, it is put forth that individuals may experience each of the four modes in terms of different levels of dependence, with some recreationists finding generic places, activities, cognitions, or social environments acceptable, while other recreationists require very specific places, activities, cognitions, or social environments in order to achieve their desired goals. Thus, mode dependence, like primary mode, may be another important factor affecting people's outdoor recreation experiences. Both primary mode and mode dependence will be reviewed in more detail in the literature review.

### Purpose of Dissertation

In summary, the purpose of this dissertation is twofold: (a) to develop a conceptual model of outdoor recreation experiences, (b) to test the model and the constructs suggested by it. In order to accomplish the latter, the following research questions have been developed.

### Research Questions

- 1) Is there empirical evidence that recreation experiences (e.g., identity, absorption) not included in the REP scales exist?
- 2) Do the concepts of mode, primary mode, and mode dependence exist?
- 3) How well do the ROS variables of recreation activity, physical setting, and expertise explain the types of experiences recreationists get (both REP and non-REP types of experiences)?
- 4) Does the concept of primary mode improve ROS's explanation level for both REP and non-REP types of experiences?
- 5) Does the concept of mode dependence improve ROS's explanation level for both REP and non-REP types of experiences?

### Conclusion

Research literature pertaining to the development of the conceptual model will be reviewed in the next chapter. In chapter three, the study methods and descriptive statistics are examined and the conceptual experience indices are discussed. Chapter four describes the results of the statistical analyses performed on these indices. Chapter five reports the results of the statistical analyses conducted for each research question. In the final chapter, the research questions and the conceptual model are reexamined in light of the study's empirical findings. In addition, managerial implications and possible directions for future research are also discussed.



## Chapter Two - Literature Review

### Introduction

In order to address this dissertation's stated purpose, the following literature will be reviewed: (a) the types of experiences outdoor recreationists receive, and (b) the factors that shape these experiences. The review of recreation experiences will emphasize the Recreation Experience Preference (REP) scales. Building on REP, the concepts of mode and manner will be further developed and a classification system for outdoor recreation experiences--the Recreation Experience Matrix (REM)--will be introduced. The second section reviews factors that shape recreation experiences. The Recreation Opportunity Spectrum (ROS) model will be the basis of this discussion, emphasizing the ability of activity, physical setting, and expertise to explain and predict recreation experiences. This section will also describe the concepts of primary mode and mode dependence, focusing on their potential ability to further explain and predict recreation experiences. In the review's third section, a framework for integrating the ROS and REM models, primary mode, and mode dependence will be proposed. The final section will consist of a summary of concepts and a concluding statement.

### Outdoor Recreation Experiences

#### Recreation Experience Preference (REP) scales.

Although REP's conceptual foundation originates in the consumer economics' concept of expected utility, psychological social psychology's theories of expectancy valence and planned behavior that have been equally influential (Driver, Tinsley, & Manfreda, 1991). Expectancy valence theory states that motivation is a product of two variables: (a) the likelihood an act will be followed by a given outcome, and (b) how much the outcome is valued (Ajzen & Fishbein, 1980). Ajzen's (1985, 1987) newest model--called the theory of planned behavior--includes two additional motivational

variables: (a) normative beliefs, which are concerned with how significant others are likely to view the behavior; and (b) perceived behavioral control, i.e., "the presence or absence of requisite resources and opportunities" (Ajzen & Driver, 1991, p. 188).

According to Ajzen (1991) these variables combine to determine both the individual's intention to perform a behavior and his or her actual behavior toward pursuing--or not pursuing--a particular goal.

In searching for the type of goals a recreationist may be trying to satisfy, Driver and his colleagues studied psychological trait and leisure literature, conducted focus groups, and examined the findings from a variety of personal interviews and mail questionnaires. After two decades of research, 19 recreation experience preference "domains" measuring "the extent to which specific experiences are desired and expected from leisure activities" (Driver, Tinsley, & Manfredi, 1991, p. 275) have been identified. Many, although not all, of these domains are composed of two or more REP scales, as illustrated in Table 1:

Table 1

Current (1991) Recreation Experience Preference (REP) domains and scales


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Recreation Experience Preference Domains	Recreation Experience Preference Scales
1. Enjoy nature	A. Scenery B. General nature experience
2. Physical fitness	
3. Reduce tensions	A. Tension release B. Slow down mentally C. Escape role overloads D. Escape daily routines
4. Escape physical stressors	A. Tranquillity/solitude B. Privacy C. Escape crowds D. Escape noise
5. Outdoor learning	A. General learning B. Exploration C. Learn geography of area D. Learn about nature
6. Share similar values	A. Be with friends B. Be with people having similar values

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Table 1 (continued)

Current (1991) Recreation Experience Preference (REP) domains and scales


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Recreation Experience Preference Domains	Recreation Experience Preference Scales
7. Independence	A. Independence
	B. Autonomy
	C. Being in control
8. Family relations	A. Family kinship
	B. Escape family
9. Introspection	A. Spiritual
	B. Personal values
10. Be with considerate people (social security)	
11. Achievement/stimulation	A. Reinforcing self-confidence
	B. Social recognition
	C. Skill development
	D. Competence testing
	E. Seeking excitement
	F. Endurance
	G. Telling others
12. Physical rest	
13. Teach/lead others	A. Teaching/sharing skills
	B. Leading others
14. Risk taking	

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Table 1 (continued)

Current (1991) Recreation Experience Preference (REP) domains and scales

Recreation Experience Preference Domains	Recreation Experience Preference Scales
15. Risk reduction	A. Risk moderation B. Risk prevention
16. Meet new people	A. Meet new people B. Observe other people
17. Creativity	
18. Nostalgia	
19. Agreeable temperatures	

Note. From "The Paragraph About Leisure and Recreation Experience Preference Scales: Results from two inventories designed to assess the breadth of perceived psychological benefits of leisure" by B. Driver, H. Tinsley, & M. Manfreda, 1991, Benefits of Leisure (p. 276), State College, PA: Venture Publishing.

Considerable effort has been expended on developing and testing the reliability and validity of the REP scales. According to Driver, Tinsley, and Manfreda (1991), scale reliability objectives have been successfully met, including: "maintaining an average Pearson correlation between items within a scale of at least .4, realizing a Cronbach alpha of .6 or higher, and maintaining independence (low correlation) between scales not in the same domain and between domains" (p. 275). Validity tests on the REP scales include their content validity ("the degree to which a measure covers the range of meanings included within a concept," Babbie, 1989, p. G2), construct validity ("the degree to which

a measure relates to other variables as expected within a system of theoretical relationships," Babbie, 1989, p. 125), and criterion or predictive validity ("the degree to which a measure relates with some external criterion," Babbie, 1989, G2).

Of these three types of validity tests, REP may be most susceptible to criticism on the first; content validity. Although each REP scale may exhibit an acceptable level of content validity--as may each of REP's 19 domains--it does not necessarily follow that all recreation experiences are listed in the current Recreation Experience Preference model. This contention is based on the belief that the identification of new recreation experiences is an ongoing process (as demonstrated by Driver and his colleagues' two decades of research) which is often affected by such factors as the study of new recreation populations (e.g., Hispanic individuals, mountain bikers) and theoretical advances in both leisure and other social science fields.

The proposition that REP does not include all types of recreation experiences is supported by a number of papers published over the past few years. Although many of these papers' authors do not specifically address the issue of REP's exclusion of the types of outcomes they describe, when these new recreation experiences are compared with those listed in REP, their absence is noticeable. For example, while considerable research has confirmed the existence of recreation experiences characterized by a loss of consciousness of the self, of time, and of one's peripheral environment--e.g., absorption (Quarrick, 1989), flow (Csikszentmihalyi, 1975, 1990)--REP does not recognize this type of experiential outcome. Further, although one of the existential questions all individuals seek to answer is who or what are they (Giddens, 1991), and while researchers have found that for some people this search for identity is answered through the recreation activities they do (Haggard & Williams, 1991) or the places they do them in (Proshansky, Fabian, & Kaminoff, 1983), identity-based experiences are also not found in REP.

Finally, another potential outcome that REP does not recognize is self-authenticity; a primary human motivation (Gecas, 1991). Turner (1976) and his colleagues (Turner & Billings, 1991) describe self-authenticity as those instances when individuals exhibit their "real" selves. It is likely that for some people these feelings of self-authenticity occur during recreation, a view supported by Lyng (1990), McIntyre (1989), and Hammitt and Madden (1989).

In addition to failing to recognize recreation experiences involving absorption, identity, and self-authenticity, REP may have also minimized the spiritual dimension of recreation. In regard to spirituality, McDonald and Schreyer (1991) differentiate between its content component (e.g., a symbolic entity, a particular religious belief system) and its process component (i.e., "the psychological thought processes that occur leading up to an experience of spirituality," p. 181). Although REP does have a spirituality scale, how well it measures the process component is open to debate (see Ajzen's, 1991, comments below).

Further, REP may have also assumed--incorrectly--that the experiences it identifies are generalizable to all recreationists. Research conducted by Markus and Kitayama (1991) has indicated that concept of self may differ for those in or from the non-Western world. This proposition is of significance to outdoor recreation as its user base begins to include more and more individuals of Asian and Hispanic descent--who may not expect nor prefer the same types of experiences as those enumerated in REP.

In-depth discussion of these two types of self-concept, as well as the process component of spirituality, and the experiences of absorption, identity, and self-authenticity will be found in upcoming sections. Before examining these topics, however, it is worthwhile to discuss why REP may not include these other types of recreation experiences.

Although REP may miss some experiences (e.g., self-authenticity, leisure outcomes resulting from differences in self-concept) simply because these theories are so new that they have not yet been tested in recreation research, other experiences (e.g., absorption, identity) may be excluded for a different reason. As noted earlier, REP is based on Ajzen's theories of expectancy valence and planned behavior. But Ajzen (1991) has stated that as a positivistic psychological social psychologist he has "great trouble" (p. 411) dealing with concepts such as identity, self-actualization (e.g., absorption), and spirituality. Although Ajzen (1991) contends that this difficulty is based on the inaccessibility of these concepts to standard psychometric measurement and empirical testing, another equally valid explanation may also exist. Ajzen, and those who following his theoretical lead (i.e., Driver and his colleagues), conceptualize recreation experiences largely in terms of goals--goals which are expected and preferred. Inevitably this conception will exclude phenomena such as absorbing or spiritual experiences (at least the process component of spirituality) which can occur regardless of the recreationist's desires or expectations (although in time he or she may come to desire and expect these two types of recreation experiences). The exclusion of identity as a potential recreation outcome may be based on a similar belief; that is, it too is considered to be a phenomenon (if it is considered at all) rather than a desirable goal. This perspective is at odds with that of at least one sociologist, who states that identity: "is not something that is just given, as a result of the continuities of the individual's action system, but something that has to be routinely created and sustained in the reflexive activities of the individual" (Giddens, 1991, p. 52).

Further discussion of outdoor recreation experiences not included in the REP scales will occur shortly. At this time, however, it is worth noting an attribute shared by both REP and non-REP outcomes--outdoor recreation experiences can be conceived of as



responses to an internal or external "stimulus." Such a proposition suggests that outdoor recreationists, rather than being acted upon by stimuli, actively attend to and interpret them. In the next section, the four stimuli or "modes" outdoor in an outdoor recreation event will be examined.

### Mode

Outdoor recreation events are best conceived of not as a single stimulus but as a set of stimuli. Knopf (1987) and Williams (1988), for example, contend there are at least three fundamental sources of stimulation individuals attend to in the out-of-doors: (a) the place, (b) the activity, and (c) the social environment. Howard (1995) adds that "attention can also be directed to the current contents of the mind, rather than to environmental stimuli" (p. 94). It appears, therefore, that in addition to the three stimuli or modes identified by Knopf (1987) and Williams (1988), another mode also exists, one in which attention is focused inwardly--i.e., on the individual's ideas, thoughts, and feelings--rather than outwardly. Further discussion of this inwardly-directed or "cognitive mode," as well as the other three types of mode, follows.

#### Activity mode.

Although some researchers believe the concept of leisure and recreation are equivalent (Kelly, 1990), most conceive of leisure as an experiential state characterized by freedom and intrinsic motivation (Neulinger, 1981), while recreation involves the performance of a variety of non-work, non-maintenance acts or activities. McKechnie (1975) has developed a 10-item recreation activity classification system which includes outdoor activities. This category can, of course, be subdivided further into hiking, hunting, skiing, canoeing, picnicking, mountain climbing, viewing scenery, etc. In summary, the activity mode is defined as those non-work, non-maintenance acts performed by an individual.

### Place and social environment modes.

Although philosophers have argued for nearly three millennia about what is real and what is not, the vast majority of people do believe that a world outside the mind does exist. This external world consists of various physical elements, both human and non-human, animate and inanimate. Thus, the social environment mode involves that part of the external world comprised of other humans, while the place mode involves that part of the external world consisting of everything else.

### Cognitive mode.

As noted above, attention can also "be directed to the current contents of the mind, rather than to environmental stimuli" (Howard, 1995, p. 94). Although humans are generally prone to cognitive economy and "mindlessness" (Langer, 1989), there are occasions when individuals are more likely to actively engage in thought, including: (a) novel situations in which no preexisting theories or schemas exist, (b) situations in which the outcomes are unexpected or potentially negative, and (c) high-effort situations in which reliance on habit or routine might prove costly (Howard, 1995).

Some individuals, however, may be inclined to seek answers or pursue ideas for dispositional rather than situational reasons. For example, using scale items such as "I really enjoy a task that involves coming up with new solutions to problems" and "I prefer my life be filled with puzzles I must solve," Cacioppo and Petty (1982) found significant differences in people's propensity to engage in and enjoy thinking.

Although Cacioppo and Petty's (1982) scale appears most suited to measuring people's proclivity to solve problems and think originally, other scales have been developed to measure different subjects. For example, Fenigstein, Scheier, and Buss (1975) have developed a scale to measure "private self-consciousness" or "the tendency to think about or attend to the more covert, hidden aspects of the self, that are personal in

nature and not easily accessible to the scrutiny of other persons--for example, one's privately held beliefs, aspirations, values, and feelings" (Scheier & Carver, 1985, p. 687). Other self-cognitions individuals may attend to include: (a) self-schemata (Markus, 1977), which are cognitive generalizations about the self (e.g., "I am independent"); and (b) possible selves (Markus & Nurius, 1986), which are people's ideas of what they were in the past or may become in the future.

Finally, individuals may also attend to previously encoded information--i.e., memories. "Memory retrieval involves activating information stored in long-term memory and bringing it into short-term memory, the part of memory that is the conscious focus of attention" (Howard, 1995, p. 95). Memory may be not only intraindividual but interindividual as well. Wegner (1986), for example, has developed a transactive model of memory in which different social group members are responsible for encoding different categories of information. Bellah, Madsen, Sullivan, Swidler, and Tipton (1985) describe a similar concept they call "communities of memory:"

In order not to forget that past, a community is involved in retelling its story, its constitutive narrative, and in doing so, it offers examples of the men and women who have embodied and exemplified the meaning of the community. These stories of collective history and exemplary individuals are an important part of the tradition that is so central to a community of memory. (Bellah et al., 1985, p. 153)

In summary, during the cognitive mode individuals attend to their ideas, thoughts, and memories--both self and non-self-related--rather than to external stimuli.

Previous studies which have used the concept of mode.

There are at least four previous studies which have examined the concept of mode. In a study of emotional and symbolic attachment to place, Williams, Patterson, Roggenbuck, and Watson (1992) developed items to measure the importance of three types of mode: (a) place mode, "I came here because I enjoy this place itself;" (b) activity mode, "I came here because this is a good place to do the outdoor activities I enjoy;" and (c) group mode, "I came here because I wanted to spend more time with my companions" (p. 35). Respondents were asked to indicate which one mode was the most important reason for their visit. Unfortunately, the only mode-related results Williams' et al. (1992) report is that people who were more place focused were also significantly more attached to places and wilderness than were activity-focused individuals, who, in turn, were significantly more attached to places and wilderness than were group-focused recreationists.

Williams' et al. (1992) three-mode model was also used in a study of outdoor recreationists conducted at Mount Rogers National Recreation Area (Virginia). Mowen (1994) found significant differences ( $<.001$ ) between general trail users and Virginia Creeper Trail users (a trail constructed on old railroad lines) when each user group was asked what was the single most important reason for their visit. Although a majority of both groups stated that the activity mode (i.e., do the activities I enjoy) was most important, only 56.9% of general trail users did so versus 86.0% of Virginia Creeper Trail users. Similarly, the place mode (i.e., enjoy the place itself) was the most important reason for 36.2% of general trail users versus 11.0% of Virginia Creeper Trail users. Finally, the group mode (i.e., spend time with my companions) was the most important reason for visiting Mount Rogers for 6.9% of general trail users and 3.0% of Virginia Creeper Trail users.

Mowen (1994) believes these differences may be due, at least in part, to the different kinds of activities that occur on the two types of trail. Study participants using the Virginia Creeper Trail were primarily cyclists (80.2%), followed by hikers (10.4%) and horseback riders (9.4%). In contrast, study participants using Mount Rogers' general trails were mostly hikers (60.4%), followed by horseback riders (29.1%) and cyclists (10.4%). Because of these activity differences, Mowen (1994) believes that "Virginia Creeper Trail users tended to visit because the site was a good place for their outdoor activities (bicycling) while Mount Rogers trail users (hikers and horseback riders) visited because they enjoyed the place itself" (p. 65). These findings may also have managerial implications. Mowen (1994) states:

[These results] would seem to indicate that managers should provide Mount Rogers trail users who are loyalists tied to the place with setting attributes that facilitate their enjoyment of the place itself. Virginia Creeper Trail users may wish for facilities and services that promote their enjoyment of activities without detracting from the physical attributes of the setting. (p. 65)

In contrast with the three-mode model used by Mowen (1994) and Williams' et al. (1992), Ittelson, Franck, and O'Hanlon's (1976) framework has five modes: (a) environment as an external physical place, (b) environment as social system, (c) environment as setting for action, (d) environment as emotional territory, and (e) environment as self. Unfortunately, only Ittelson's et al. (1976) environment as an external physical place and environment as social system are congruent with this paper's conceptualization of mode. For example, Ittelson et al., (1976) describe their setting for action category in terms of the physical environment being designed and evaluated so people can "carry out certain actions or meet certain goals" (p. 205). Thus, in contrast with their categories of environment as external physical place and as social system--in

which they conceive of mode as stimuli--with the environment as setting for action category Ittelson et al. (1976) conceive of mode as a way a stimuli can be experienced. Similarly, the authors describe their emotional territory category in terms of a feeling or mood which results after visiting a childhood home or thinking about a long-forgotten friend. By doing so, however, they again confound how the person experiences the stimuli (i.e., the emotions that occur) with the stimuli itself (e.g., the physical environment or the memory associated with that person). Finally, Ittelson et al. (1976) describe their self category in terms of an individual identifying with, or being absorbed into, his or her social or physical environment. Once again, the authors confound the stimuli (i.e., the two environmental modes) with how the stimuli are experienced (i.e., feelings of identity or absorption). Thus, while Ittelson's et al. (1976) categories of environment as social system and as an external physical place are consistent with two of this paper's types of mode (i.e., the social environment and place, respectively), their environment as setting for action, environment as self, and environment as emotional territory categories are better conceived of as ways a mode can be experienced.

Only one empirical study has utilized Ittelson's et al., (1976) framework. Borrie (1995), in a study of visitors to the Okefenokee National Wildlife Refuge in Georgia, used beepers to measure wilderness canoeist's focus on nature, others, task, self, and affect. Items were selected for each category and based on their correlations, Cronbach coefficient alphas, and confirmatory factor analysis loadings and communalities, five scales were subsequently developed. Because mode is a key concept in this dissertation, Borrie's (1995) study will be examined in detail.

Borrie's (1995) focus on nature scale consists of two items: (a) "how much were you focusing on the natural environment around you," and (b) "I notice the little things of nature more than before." Both of these items measure how much the recreationist is

attending to the place mode and, therefore, are consistent with this paper's conceptualization of mode.

Borrie's (1995) focus on others scale included "how much were you focusing on other people around you" and three other items. Statistical analyses resulted in only two items being used, "I feel a special closeness with others in my group" and "other group members were accepting me for who I am." As Borrie (1995) notes, however, these two items may be a better measure of social acceptance than of the social environment mode, and further, that each item may in fact represent a different facet of social acceptance. Borrie's (1995) interpretation seems reasonable, as the first item appears to measure feelings of belongingness while the second item measures feelings of self-authenticity.

Borrie's (1995) focus on task scale included: (a) "how much were you focusing on the task you were carrying out," (b) "I was focusing on achieving the next goal of my trip," and (c) "I was concentrating on doing my activity right." Unfortunately, Borrie (1995) repeats Ittelson's et al. (1976) error of confounding what is being attending to (i.e., mode) with how it is experienced (e.g., as a task or goal). All four modes, for example, may be experienced in terms of a task or goal--e.g., an activity (e.g., cycling to work), a place (e.g., a place which can provide food), a social environment (e.g., networking with faculty members), or a cognition (e.g., deciding which faculty position to accept after having successfully networked).

Borrie's (1995) focus on self scale was composed of three items: (a) "how much were you focusing on your own thoughts?" (b) "I was reflecting about myself a lot," and (c) "I was thinking about my place in the world." Borrie (1995) subtitles this scale "introspection," however, as that term may also include non-self-related cognitions, private self-consciousness may be more appropriate (it should also be noted that Borrie is only measuring one aspect of self-concept--i.e., "what is my place in the human and/or

natural world"--and not other areas of self-concept such as self-esteem and or self-efficacy). This scale, therefore, may miss both non-self-related cognitions which occur during outdoor recreation (e.g., problem-solving, creative thinking) and other self-related cognitions which may take place in the out-of-doors.

Borrie's (1995) final scale examines focus on affect and included: (a) "how much were you focusing on your feelings or emotions?," (b) "I was very aware of my feelings", and (c) "the feelings I was experiencing were more intense than usual." After a factor analysis of all five scales' items was conducted, this scale's first two items were found to load with the focus on self scale's items. Borrie (1995) believes this outcome is due to both scales' internal (i.e., personal self-consciousness) focus. Further, the last item loaded on the focus on nature scale--a finding which suggests that recreationists may experience increased emotional intensity after attending to the physical environment mode.

Although Borrie's (1995) conceptualization of mode differs from that of this study, it is worthwhile to note the mean scores respondents gave to each of his five focus items (on a scale ranging from 0 = not at all to 9 = very much): focus on the natural environment (6.3), focus on task (5.4), focus on other people (3.7), focus on own feelings or emotions (3.5), and focus on own thoughts (3.0). Clearly, most recreationists were attending to the natural environment. Participants were also focusing on their tasks; although it remains unclear which specific mode people associated these tasks with (i.e., the activity mode or one of the other three modes). Other people was rated third, albeit much lower than the other two foci. This finding is somewhat surprising as many researchers (e.g., Knopf, 1987) have noted the importance recreationists place on selecting and being with appropriate companions. Finally, the two foci which were least attended to are both associated with private self-consciousness.



In conclusion, little research has been conducted on the concept of mode. Further, the few studies which have done so differ on the number of modes that exist. For example, while some researchers believe that there are five primary types of mode (e.g., Borrie, 1995; Ittelson et al., 1976) others contend that there are only three (e.g., Knopf, 1987; Mowen, 1994; Williams, 1988; Williams et al., 1992). This confusion may be due to some studies (e.g., Borrie, 1995; Ittelson et al., 1976) confounding what the recreationist is attending to (i.e., the stimulus or mode) with how he or she experiences it. In the following section, discussion focuses on the different ways or "manners" a mode can be experienced.

### Manner

#### Introduction.

In consumer research, various classification schemes have been put forward pertaining to the relationship between users and the product being used. Originally these typologies concentrated only on the functional role served by products; classification was based on the attributes, benefits, and associated utility (Fournier, 1991). In the 1980s, however, consumer research recognized that many individuals valued goods and services not only for the functions they performed but also for the experiential characteristics they evoked. As Fournier (1991) notes, "such consumer objects provide sensory pleasure, aesthetic enjoyment, entertainment and generalized emotional arousal" (p. 737). In addition, products and services were also found to have an identity or expressive role. Csikszentmihalyi and Rochberg-Halton (1981) believe, for example, that a person's domestic objects are often "signs on a blueprint that represent the relationship of man to himself, to his fellows, and to the universe" (p. 38). Belk (1988) concurs, stating that "our possessions are a major contributor to and reflection of our identities" (p. 139).

Such statements are not surprising, however, as Mead (1934), over 50 years before, noted that:

Any thing--any object or set of objects, whether animate or inanimate, human or animal, or merely physical--toward which [an individual] acts, or to which he responds, socially, is an element in what for him is the generalized other; by taking the attitudes of which toward himself he becomes conscious of himself as an object or individual and thus develops a self or personality." (p. 154fn)

Based on the above, Fournier (1991) outlines a consumer-product typology composed of three categories: (a) those that serve a functional role (e.g., objects that fulfill basic lower-level needs); (b) those that serve an experiential role (e.g., objects that influence moods and emotions); and (c) those that serve an expressive role (e.g., objects that are associated with identity). Fournier's (1991) typology could be improved, however, by making two changes: (a) subdividing the experiential role into an affective dimension and an absorption dimension, and (b) subdividing the expressive role into an evaluative dimension and an identity dimension. The rationale for the first modification is based on Csikszentmihalyi and Rochberg-Halton's (1981) distinction between things that produce feelings of pleasure and things that result in flow experiences. The rationale for the second modification is based on Campbell's et al., (1996) contention that the self-concept's contents are composed of both an identity dimension--which seeks to answer the question of "who and what am I?"--and an evaluative dimension--which seeks to answer the question "how do I feel about myself?" Unfortunately, Fournier (1991) only acknowledges that people can use products to answer the first question, although research by Belk (1988) and Csikszentmihalyi and Rochberg-Halton (1981) indicates that products can be used to answer the second question as well. In summary, things (e.g., household objects, consumer products) can be experienced in at least five ways or "manners:" (a) a

functional manner, (b) a self-evaluative manner, (c) a identity manner, (d) an affective manner, and (e) an absorption manner. (Note: In order to avoid confusion, the term "manner" will be used in place of role or dimension for the remainder of this paper).

Each of these manners may be applicable to another commodity, the outdoor recreation event. As noted earlier, however, an outdoor recreation event is not a single stimulus but four stimuli--i.e., the place, the activity, the social environment, and the cognitive modes. In the next sections, each of the five manners will be discussed more fully, as will how each of the four modes may be experienced in terms of function, self-evaluation, identity, affect, and absorption.

#### Functional manner.

In consumer research, Prentice (1987) contends that products in the functional manner category may be valued because they can be used to either alter or affect an individual's environment (e.g., spears, automobiles). Fournier (1993) agrees, adding that functional products may also be appreciated because they either help satisfy basic needs or help solve various problems.

In outdoor recreation, the activities, the place, the social environment, and cognitions may serve as these consumer products. For example, activities such day hiking and mountain biking may be experienced in a functional manner (e.g., keeping physically fit, getting from point A to point B). Similarly, the place may be seen in terms of its utility (e.g., by providing fish, deer, or berries to supplement one's diet). In addition, the social environment may be viewed in functional terms (e.g., the need for other paying customers in order to meet the minimum enrollment for a guided raft trip), as may cognitions (e.g., the opportunity to think about how to solve a problem). In summary, therefore, it appears that all four modes may be experienced in a functional manner.

Self-evaluative manner.

According to Campbell et al., (1996), the self-concept's contents are composed of two manners: (a) an identity manner, which seeks to answer the question of "who and what am I?" and (b) an evaluative manner, which seeks to answer the question "how do I feel about myself?" In turn, the evaluative manner is composed of three motives: (a) self-esteem, i.e., to see oneself favorably and to act in such a way as to maintain, protect, or increase positive evaluations of oneself (Gecas, 1991); (b) self-efficacy, i.e., to see oneself as a causal agent, autonomous and having some degree of power or control (Gecas, 1991); and (c) self-authenticity, i.e., to present oneself in an honest, truthful, or "real" fashion (Turner & Billings, 1991). It should be noted that there is some confusion concerning the last motive. In contrast with Turner's conceptualization, Gecas (1991) views self-authenticity in terms of seeing oneself in a coherent, meaningful way. Because Turner's conceptualization has been more fully developed, it is his that will be used in this paper.

Of the three motives, self-esteem has received the most attention (Gecas, 1991). According to Schwalbe and Staples (1991), self-esteem has three potential sources: (a) reflected appraisals, which are other people's reactions to us; (b) self-perceptions, which are observations of our own behavior and its consequences; and (c) social comparisons, which involve using others as benchmarks for self-evaluation (p. 159). In outdoor recreation, self-esteem may be enhanced in at least three ways: (a) through the selection of companions who are likely to provide positive reflected appraisals (i.e., the social environment mode); (b) through opportunities for social comparisons with recreationists having similar interests or skill levels (i.e., the social environment mode); and (c) through selective engagement in recreation activities that are likely to support our self-perceptions (i.e., the activity mode). Although these propositions have not been empirically tested,

circumstantial evidence does exist. Knopf (1987) notes, for example, that "social affirmation" is one of the key goals of outdoor recreationists, adding that the voluntary outdoor group is an "important source of self-affirmation used to reinforce confidence in the rightness of one's values, perspectives, and life-style" (p. 803). Further, a number of studies (e.g. Burton, 1981) involving structured outdoor experiences (e.g., Outward Bound, National Outdoor Leadership School) supports the contention that engagement in recreation activities can result in positive changes in self-esteem. It would appear, therefore, that self-esteem may be linked to at least two of the four modes--the activity mode and the social environment mode.

In outdoor recreation, research on self-efficacy has received at least as much, if not more, attention than self-esteem. Some social scientists (e.g., Bernstein, 1972; Hart, 1973) believe natural settings may lend themselves to increased feelings of power and control because nature is manipulatable. In contrast, Scherl (1989) believes that, because natural areas provide very little if any response regardless of what people do, self-control is key. Not surprisingly, participation in recreation activities has been found to affect one's sense of self-efficacy. Lyng (1990), in his discussion of why people skydive and mountain climb, develops a concept he calls "edgework" which involves "not only activity-specific skills but also a general ability to maintain control of a situation that verges on total chaos" (p. 871). Edgework, Lyng (1990) adds, "is one of the few experiences in modern life where 'success' (survival) can be unambiguously attributed to individual skill" (p. 873). Based on the above, feelings of self-efficacy may increase in response to the place, cognitive, or activity modes.

Self-authenticity, the third element of the evaluative manner, is the least studied and least well-defined construct. Turner (1976) and his colleagues (Turner & Billings, 1991) define self-authenticity as those situations in which people are able to exhibit their

"real" selves. In a study of university students, Turner and Billings (1991) asked participants to indicate the kinds of situations in which they felt authentic ("on these occasions the person that I really am shows clearly, I feel genuine and authentic, I feel I know who I am," p. 104) or inauthentic ("on some other occasions my actions or feelings do not express my true self, and even misrepresent or betray the person I really am," p. 104).

Although their study does not deal specifically with feelings of self-authenticity during outdoor recreation, Turner and Billings' (1991) findings do indicate that relationships between self-authenticity and the four modes may exist. For example, Turner and Billings (1991) found that, while physical setting was largely unrelated to feelings of self-authenticity, natural scenery was the most mentioned environmental characteristic. Similarly, activities may also affect self-authenticity: Turner and Billings (1991) note that situations involving recreation were more likely to result in feelings of authenticity (16.9%) than inauthenticity (13.8%), as were situations involving physical challenges (33% true self, 19% spurious self) or a need for excellence or self-mastery (18% true self, 3% spurious self). Self-authenticity may also be related to the social environment mode in that such feelings are more common among intimate others (e.g., friends and family members) than among nonintimate others (e.g., acquaintances, colleagues, etc.). Finally, a sense of being one's real self may occur during cognitive activity. Turner and Billings (1991) found, for example, that feelings of self-authenticity were more likely during contemplation (9.6%) than were feelings of inauthenticity (2.5%), when examining oneself (8.5% to 2.5%, respectively), and when analyzing one's own or others ideas (3.1% to 0.3%, respectively).

As noted above, the concept of self-authenticity has been neither well developed nor well researched. Three studies do, however, lend support to the proposition that

feelings of self-authenticity may be an important dimension of the leisure experience. Lyng (1990) notes, for example, that some individuals reveal their true selves "only during moments of uninhibited behavior, emotional outbursts, or spontaneous expression" (p. 864) such as sky diving or mountain climbing. Similarly, McIntyre (1989) found, that "really being able to be myself" was a meaningful part of many people's camping trips. Finally, Hammitt and Madden (1989) found that when two groups were asked to the item "being yourself, free from the expectations of others," one group gave it a mean rating of 2.10 and the other group gave it a mean rating of 2.11 (based on a seven point scale where 1 = extremely important, 2 = very important, 3 = somewhat important, etc.).

In summary, self-authenticity, self-esteem, and self-efficacy may be related to all four modes. In addition, by participating in outdoor recreation some individuals may feel more authentic, more positive about themselves, and more in control of their lives. If so, for some people outdoor recreation events may help answer the evaluative manner's question "how do I feel about myself?"

#### Identity manner.

Individuals seek answers to the question "who or what am I?" (Campbell et al., 1996). Two theories which explain how people solve this problem are identity theory and social identity theory. According to Hogg, Terry, and White (1995), "identity theory is principally a microsociological theory that sets out to explain individuals' role-related behaviors, while social identity theory is a social psychological theory that sets out to explain group processes and intergroup relations" (p. 255). Because these two theories describe different ways outdoor recreationists can discover who or what they are, each is examined separately.

In identity theory, identity is derived from the self-characterizations individuals make about various group memberships (e.g., social roles, social categories). Stryker and Serpe (1994) states that a person may hierarchically order his or her identities as a consequence of both salience (i.e., his or hers readiness to act out an identity in a given situation) and commitment (i.e., the social and personal costs he or she feels will be accrued by not fulfilling the requirements associated with that identity). This conceptualization of identity may be relevant to outdoor recreation for two reasons: (a) because identity involves self-characterizations, and individuals may identify themselves in terms of recreation activities, social or physical environments, or cognitions, this aspect of identity theory may be applicable to the concept of mode; and (b) because identities are seen as hierarchically organized, and the saliency of, and level of commitment to, different outdoor recreation-based identities is likely to vary both within an individual and between individuals, this aspect of identity theory may also be applicable to the concept of mode.

As noted above, identity theory is concerned with the process of characterizing oneself as a member of a social role or category (Hogg et al., 1995). In outdoor recreation, the opportunity to do so may be provided by the social environment mode. As Knopf's (1987) review of the literature found, outdoor activity is often "less an end in itself and more a means to facilitate exchange among members of the group" (p. 803). As such, this exchange process often involves the careful selection of significant others who can serve as "an important source of self-affirmation used to reinforce confidence in the rightness of one's values, perspectives, life-style" (Knopf, 1987, p. 803). This affirmation is likely to extend to the identities the recreationist views as important.

Although identities are most often associated with other people or groups of people, individuals may also identify with the activities they participate in (Haggard &



Williams, 1991). For example, while many individuals often define themselves primarily in terms of the work they do, others may do so based on the activities they engage in. As noted earlier, Bryan (1977) found that some anglers became so focused on their recreation activity that it would become the determining factor in how they conducted their lives. Stebbins (1982) has called this behavior "serious leisure" and states that "participants in serious leisure tend to *identify* strongly with their chosen pursuits. They are inclined to speak proudly, excitedly, and frequently about them to other people, and to present themselves in terms of them when conversing with new acquaintances" (p. 257, emphasis in original). As Haggard and Williams (1991) have noted (p. 44), behavior such as serious leisure may occur because: (a) "individuals seek out situations (such as leisure activities) that serve to validate their preconceived notions of who they are" (cf. Swann, 1983, 1987); or (b) "individuals select situations that move [them] toward desired views of [themselves]" (cf. Schenkler, 1984). Regardless, some people's principal identity may be based on the activity they most value.

In the same way a person's identity may be related to the activity they engage in, so too may it be a function of the place they occupy. Proshansky (1978) has called this type of identity "place-identity" and describes it as "those dimensions of the self that define the individual's personal identity in relation to the physical environment" (p. 155). In a more recent paper (Proshansky, Fabian, & Kaminoff, 1983), Proshansky and his colleagues add that while individuals are often unaware of the cognitive structures associated with identity, they may be even less cognizant of those related to place-identity. They state:

unlike social events in which people and their interactions dominate the situational context, physical settings are the "backdrops" against which these events occur. The person is less likely to be aware of the physical setting and

its properties than he is of the people, their activities, and characteristics as they behave in these contexts. (Proshansky, Fabian, & Kaminoff, 1983, p. 63)

Because of this, identities associated with places may often be ranked less highly than other mode-based identities. This may not always be true, however, as some individuals--particularly those with high levels of experience either with a particular place or a particular type of setting--may be much more aware of the role the physical environment plays in helping him or her answer the question "who or what am I?" (Campbell et al., 1996).

Identity theory may also be compatible with the cognitive mode. For example, Markus (1977) has described self-schemas, which are cognitive generalizations that organize and guide the processing of self-related information, and, once established, "function as selective mechanisms which determine whether information is attended to, how it is structured, how much importance is attached to it, and what happens subsequently" (p. 64). Two types of self-schemas which may be relevant to the cognitive mode and the identity manner are: (a) identity schemas, which are used to define situations before an identity is invoked (Stryker & Serpe, 1994); and (b) possible selves schemas, which are representations of oneself in past or future states or circumstances (Markus & Nurius, 1986). Individuals engaged in self-reflection may actively think about both types of self-schemas; the former in order to discover who or what they are, the latter in order to determine who or what they could be.

According to identity theory, therefore, an individual characterizes him or herself in terms of a variety of social roles or categories. An outdoor recreationist, for example, may identify him or herself as an angler (i.e., the activity mode), a leader (i.e., the social environment mode), a city dweller (i.e., the place mode), or, upon self-reflection, a creative person (i.e., the cognitive mode). In addition, depending upon their salience and

the individual's commitment to them, each of these identities could be arranged in a hierarchical order (although, according to Stryker & Serpe, 1994, two or more identities can be ranked at the same level).

In contrast with identity theory's focus on the personal aspects of identity, social identity theory is more concerned with intergroup relationships, group processes, and the social self (Hogg et al., 1995). In social identity theory--or more accurately self-categorization theory, a branch of social identity theory--individuals define who they are in terms of: (a) the groups they belong to (i.e., in-groups), and (b) the groups they do not belong to (i.e., out-groups). Although all in-groups both describe and prescribe "one's attributes as a member of that group--that is, what one should think and feel, and how one should behave" (Hogg et al., 1995, p. 260), as an in-group's importance increases, so too does its descriptive and prescriptive effect on a group member. The outcome is that:

people are essentially "depersonalized": they are perceived as, are reacted to, and act as embodiments of the relevant in-group prototype rather than as unique individuals. [But while] depersonalization of self is the basic process underlying group phenomena . . . it has none of the negative implications of terms such as "dehumanization" or "deindividuation": it simply refers to a contextual change in the level of identity (from unique individual to group member), not to a loss of identity. (Hogg et al., 1995, p. 261)

With its focus on communality and embodiment, social identity theory may provide a second framework for examining the identity manner and the social environment mode. For example, while use of identity theory could provide insight on how a recreationist views him or herself in regard to a certain role (e.g., "I am the president of the hiking club"), use of social identity theory could provide insight on how feelings of belonging to a group affects a recreationist's view of him or herself (e.g., "I

belong to the hiking club"). Use of social identity theory may prove particularly valuable when studying people engaged in serious leisure or those who have a high level of recreation specialization. Stebbins (1980), for example, notes that belongingness is a "durable benefit" of serious leisure, and that serious leisure participants tend to carry on their interests within their own social worlds "which have special beliefs, values, moral principles, norms, and performance standards" (Stebbins, 1982, p. 257). Similarly, Bryan (1977) states that highly specialized anglers "have in effect joined a leisure social world-- a group of fellow sportsmen holding similar attitudes, beliefs, and ideologies, engaging in similar behaviors and having a sense of group identification" (p. 186). Thus, in order to more fully understand how the identity manner and the social environment mode are related use of social identity theory appears warranted.

In the same way group membership can lead to a contextual change in one's identity, so too can being a part of an activity. For example, some individuals become so associated with an activity that they become its embodiment. Hockey's Wayne Gretzky is one example. Gretzky was not only dominant as a player (e.g., winning numerous scoring and league championships), but he changed how the game was played (e.g., new defenses were designed to reduce "wrap-around" goals), how the league was run (e.g., fighting was reduced in response to his media comments), and even where hockey franchises were located (e.g., his move to Los Angeles eventually lead to two other California cities getting hockey teams). Gretzky, not unlike Michael Jordan in basketball, Mohammed Ali in boxing, or Pele in soccer, became such a key part of his activity that it not only was a part of him but he a part of it. (This phenomenon is not limited to professional athletes; community organizations may also have members who become so associated with an activity that they may be said to embody it).

If individuals can learn who and what they are through the groups and activities to which they belong, then they may also be able to do so through the ideas, thoughts, or cognitions they develop communally. Belk's (1988) description of how this can occur is exceptional; marred only by his emphasis on individual rather than group creation:

[when a material object or an abstract idea is created,] the creator retains an identity in the object for as long as it retains a mark or some association with the person who brought it into existence. This identity is codified through copyrights, patents, and scientific citations that preserve associations between people and their mental creations. (p. 150)

Examples include Ford and his automobiles, Darwin and the theory of evolution, and Einstein and the theory of relativity. But few objects or ideas are born from a single parent, most involve the creative contributions of many people. For example, published research papers often have more than one author. In many such papers each of the authors could probably identify which ideas were his or hers--and, according to Belk (1988), it is those ideas which reflect the person's identity. But it is also likely that many of the ideas in the paper were developed collaboratively. If so, these ideas would reflect the group's identity. Thus, in addition to being able to discover who and what one is through one's own ideas, it may also be possible to do so by examining the ideas of the group to which one belongs.

Unfortunately, while the concept of communality is useful in regard to the identity manner and the place mode, other aspects of social identity theory are less so. For example, although Turner, Hogg, Oakes, Reicher, & Wetherell (1987) recognizes that there may be more levels of identity and self-categorization than the three he describes--personal identity (i.e., me/you), social identity (i.e., in-group/out-group), and human identity (i.e., human/non-human)--he fails to recognize how seeing oneself as part of a

place can contribute to a person's identity. Human identity, or what Berry (1976) refers to below as environmentalism, may be contrasted with the bioregional concept of inhabitation:

The concept of country, homeland, dwelling place becomes simplified as "the environment"--that is, what surrounds us. Once we see our place, our part of the world, as *surrounding* us, we have already made a profound division between it and ourselves. We have given up the understanding--dropped it out of our language and so out of our thought--that we and our country create one another, depend on one another, are literally part of one another; that our land passes in and out of our bodies just as our bodies pass in and out of our land; that as we and our land are part of one another, so all who are living as neighbors here, human and plant and animal, are part of one another.

(Berry, 1976, emphasis added)

For some outdoor recreationists, therefore, a sense of identity may be found in being part of the land community--i.e., the local, bioregional, global, or perhaps even cosmic level of the place mode.

In summary, identity theory and social identity theory are two frameworks which may prove helpful in trying to understand how each of the four modes can be used to answer the question "who and what am I?" The two theories, as conceptualized in this paper, each do so in different ways: identity theory by asking if a social role associated with a group, place, activity, or cognition is part of the individual; social identity theory by asking if the individual is, or is not, part of a group. This communal aspect of social identity theory, however, may be applicable beyond the social environment. People may also feel they are a part of a place, activity, or cognition--what this paper hereafter refers to as communal identity (social identity theory will be considered part of this more

comprehensive theory). Only by using both theories will researchers be able to discover what relationships exist between identity and the four types of mode.

Affective manner.

As Fournier (1993) has noted, the objects an individual owns are often capable of producing very strong emotional reactions. Csikszentmihalyi and Rochberg-Halton (1991) found, for example, that when individuals were asked what it would mean to them if they no longer possessed a highly-valued object, many participants began to cry.

Unfortunately, in contrast to consumer research, outdoor recreation appears to have implicitly assumed that emotions are an important part of the leisure experience while spending very little time and effort on actually examining how they are linked (Hull, 1991; Knopf, 1987). One reason for the above may have been the prominence given to cognitive psychology over the past three or four decades both in psychology in general (Bruner, 1990) and in the outdoor recreation field in particular. A second reason may have been the difficulty distinguishing among the various types of emotions (Russell & Snodgrass, 1987). Of these different emotions, mood is of most interest to this paper.

Hull (1991) defines mood as "the subtle, subjective state of a person at any given moment" (p. 252). Moods consist of three processes: (a) behavioral (i.e., action, attention, communication, motor responses); (b) physiological (i.e., changes in arousal); and (c) cognitive (i.e., self-awareness of one's mood state). Considerable time and effort has been expended on trying to identify and classify different types of moods. One approach contends that there are between five and ten innate, fundamental moods (e.g., fear, anger). A second approach classifies moods along either two dimensions (Russell & Snodgrass, 1987) or three dimensions (Hull, 1991). The dimensions are bipolar, with one ranging from very aroused to very sleepy and the other ranging from very pleasant to very unpleasant. The third dimension ranges from dominance to submissive.

Regardless of how moods are organized, research suggests that mood may be affected by each of the four modes discussed earlier in the literature review. Hull (1991),



for example, has stated that the presence of other people--i.e., the social environment mode--may affect a person's mood. Similarly, Knopf (1987) and others (Ulrich, 1983; Wohlwill, 1983) have noted that natural surroundings--i.e., the place mode--can also affect one's mood. In addition, mood may also be affected by leisure participation--i.e., the activity mode--according to Hull (1991) and Mannell, Zuzanek, and Larson (1988). Finally, memories (Hammit, 1980; Tarrant, 1996) and meanings (Hull, 1991)--i.e., the cognitive mode--may influence an individual's mood. Based on the above, it appears that the affective manner is another way in which a recreationist could experience each of the four modes.

#### Absorption manner.

As noted earlier, Fournier's (1993) experiential role is likely composed of two separate but related manners: (a) the affective manner, and (b) the absorption manner. According to Quarrick (1989), absorption is characterized by a high level of attention being focused on a specific stimulus, a loss of consciousness of the self, and a loss of awareness of time and surroundings. Generally:

a person is inactive when in the absorbed state. He has usually stopped moving, talking, thinking, he simply sits and looks and listens and *experiences*. . .

. [however] under some conditions, it is possible to be physically or mentally active and at the same time absorbed. (Quarrick, 1989, p. 152, emphasis in original)

Csikszentmihalyi (1975, 1990) has called this active state of absorption "flow." In order for flow to occur, two criteria must be met: (a) a person's skills and the situation's challenges must be equal, and (b) both the skill level required and the challenge being extended must be above the level the person normally encounters in his or her everyday life (Csikszentmihalyi & Csikszentmihalyi, 1988). Research conducted by Massimini

and Carli (1988) has found that while individuals in a flow state feel something is at stake (i.e., at risk) they also feel more open, happy, and creative.

Quarrick (1989) believes there are three levels of absorption: (a) play, the mildest level, which is seen as a brief diversion from everyday life; (b) absorption, the middle level, which is characterized by the attributes described above; and (c) the highest level, where altered states of consciousness involving hallucinations, spiritual or cosmic experiences, and ecstasy often occur. This last level of absorption is equivalent to McDonald & Schreyer's (1991) process dimension of spirituality.

As with the other four manners, the absorption manner may also be associated with the four modes. For example, participation in recreation activities may result in a low level of absorption (i.e., "playing"), an absorbed state (Csikszentmihalyi, 1975, 1988, 1991), or even an extremely high level of absorption which may be perceived in a spiritual fashion (Csikszentmihalyi, 1987; McDonald & Schreyer, 1991). Similarly, the social environment mode may also involve absorbing experiences ranging from low (e.g., a pleasant interaction with strangers at a party), to middle (e.g., spending time with old friends), to high levels of absorption (e.g., being in love). Freud (1930) describes the latter very well when he states that "against all evidence of his senses, a man who is in love declares that "I" and "you" are one, and is prepared to behave as if it were fact" (p. 65). Other researchers have also recognized the intense level of absorption that can occur during interaction; Durkheim (1912) calling it collective effervescence and Turner (1969, 1974) *communitas*. Absorbing experiences can also occur in relation to places. Kaplan and Kaplan (1989) note that natural settings are often endowed with fascinating objects (e.g., waterfalls, sunsets, rustling leaves) or processes (e.g., growth, succession, predation, death), some of which are "so powerful that one cannot at the same time think of anything else" (p. 192). Not surprisingly, such absorbing experiences are often felt in

spiritual terms, as Scott (1974) notes when describing the writings of Thoreau, Leopold, and Muir. Perhaps the last author best sums up the idea of a spiritually-absorbing experience when he describes his visit to Yosemite:

It may be asked, What have mountains fifty or a hundred miles away to do with Twenty Hill Hollow? To lovers of the wild, these mountains are not a hundred miles away. Their spiritual power and the goodness 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 campfire. *Presently you lose consciousness of your own separate existence: you blend with the landscape, and become part and parcel of nature.* (Muir, 1916, p. 211, emphasis added)

Finally, the absorption manner may also occur during cognitive engagement. Creative inspiration, for example, may be one example of a mid-level absorbing experience (Quarrick, 1989), while mediation (e.g., Yoga, Zen) may illustrate a high level of spiritual absorption.

Thus, the absorption manner involves intense concentration and a concurrent loss of consciousness of the self, of time, and of one's surroundings. In addition, under certain conditions absorption can occur in conjunction with mental and physical activity. Further, the absorption manner varies in intensity from play, its mildest form, to a mid-level state of absorption, to its most intense form, which is often interpreted in terms of ecstasy or a spiritual experience. Finally, all four modes can be experienced in terms of absorption.

### Conclusion.

In conclusion, outdoor recreation events can be experienced in at least five different ways or manners: (a) the functional manner, which is concerned with trying to satisfy basic needs or solve various problems; (b) the self-evaluative manner, which seeks to answer the question "how do I feel about myself?" (and thus involving aspects of self-esteem, self-efficacy, and self-authenticity); (c) the identity manner, which seeks to answer the question "who and what am I?"; (d) the affective manner, which is concerned with people's mood; and (e) the absorption manner, which involves intense concentration on a limited stimulus field, a loss consciousness of the self, of time and of one's surroundings. In addition, each of these manners are different ways in which an recreationist can experience his or her activities (i.e., activity mode), companions (i.e., social environment mode), built or natural surroundings (i.e., place mode), or ideas, thoughts, and memories (i.e., cognitive mode).

The relationship between mode and manner is discussed below. Before proceeding, however, some potential problems related to the concept of manner must be outlined. First, although this paper recognizes five types of manner, more may exist. Second, some manners may be theoretically different but empirically indistinct. For example, can recreationists differentiate between experiences involving identity and self-evaluation? Third, the concept of manner may not be generalizable to people with an interdependent self-construal. Unfortunately, while this study may provide some insight on the five manners distinctiveness, additional research beyond this dissertation will likely be necessary to determine if other types of manner exist. Finally, as to the issue of how relevant the concept of manner is for people having an interdependent self-construal, that topic will be discussed further in the next section

### Manner and the Interdependent Self-construal.

In some cultures the individual is perceived as being separate, independent, and superordinate to the group, collectivity, or society, while in others he or she is seen as being connected, interdependent, and subordinate to the group, collectivity, or society. Markus and Kitayama (1991) call the former an independent self-construal and the latter an interdependent self-construal. According to the authors, most non-Westerners have an interdependent self-construal, as do many individuals in American subcultural groups (e.g., Asians, Hispanics, Native Americans). Some Western women may also have an interdependent self-construal, as may many citizens of small towns and rural communities (Markus & Kitayama, 1991).

Persons with independent self-construals and persons with interdependent self-construals differ in their relationships with others. For example, individuals with independent self-construals are "whole" even when alone (Markus & Kitayama, 1991). In contrast, individuals with interdependent self-construals are "fractions" (Lebra, 1976) who become whole only through interaction with others. Consequently, the primary tasks for each of these two types of self-construal also differ. Individuals with independent self-construals value being unique, expressing one's self, and promoting one's own goals, while individuals with interdependent self-construals value belonging, fitting in, and promoting other's goals.

Although the concept of mode is based largely on research with individuals who are likely to hold an independent self-construal, mode's overall structure may be generalizable to people with an interdependent self-construal. More importantly, however, is that while all five manners may be applicable to both groups, the content or configuration of some of the manners may differ between the two. For example, this paper has already outlined two ways in which individuals can discover who and what

they are: (a) identity theory, and (b) social identity theory. Because identity theory is more concerned with how an individual self-characterizes the groups to which he or she belongs, it may be more relevant to those with an independent self-construal. Similarly, because social identity theory emphasizes in-group identity over personal identity, it may be more relevant for those with an interdependent self-construal. The content of other manners may also differ between the two types of self-construal. Markus and Kitayama (1991) note, for example, that while self-esteem is critical to those with an independent self-construal, it may be less relevant for those with an interdependent self-construal.

Thus, further research on how differences in self-construal may affect people's primary tasks--and, therefore, their recreation experiences--seems warranted. It must be reiterated, however, that while people with independent and interdependent self-concepts may receive different outcomes from engaging in outdoor recreation, the concepts of mode and manner can be used to understand and classify both groups' outdoor recreation experiences. How these two concepts combine to do so will be discussed in the following section.

#### The Recreation Experience Matrix (REM) Model

This dissertation has introduced two concepts to help explain recreation experiences: (a) mode, which refers to the source of stimulation during an outdoor recreation event, and (b) manner, which refers to the different ways an outdoor recreationist can experience a mode. Four types of mode have been identified: place, activity, social environment, and finally the ideas, thoughts, or memories an individual is actively engaged in thinking about (i.e., the cognitive mode). Five types of manner have also been described: functional, self-evaluative, identity, affective, and absorption. It is now put forth that these four types of mode and five types of manner can be combined to

form a four by five matrix--hereafter referred to as the "Recreation Experience Matrix" (REM). REM is illustrated in Figure 1:

Type of Manner	Activity Mode	Place Mode	Social Environment Mode	Cognitive Mode
Absorption				
Affective				
Identity				
Self-evaluative				
Functional				

Figure 1: The Recreation Experience Matrix (REM)

As this study hopes to demonstrate, REM is conceptually more advanced than REP in that it is able to incorporate both REP and non-REP experiences into a comprehensive yet parsimonious framework. In doing so, REM utilizes a number of theoretical constructs from a variety of social science fields (e.g., sociology, psychology, social and environmental psychology, consumer research). In summary, the proposition is put forth that the concepts of mode and manner, when combined to form the Recreation Experience Matrix, can improve upon our current understanding of peoples' outdoor recreation experiences.

### The Recreation Opportunity Spectrum (ROS) Model

The Recreation Opportunity Spectrum is a planning and management framework used by natural resource agencies to provide individuals opportunities to engage in preferred activities (i.e., Activity Opportunities), in preferred settings (i.e., Setting Opportunities), in order to realize desired and expected recreation experiences (i.e., Experience Opportunities). Setting Opportunities may be of three types: (a) the physical setting, comprised of biophysical and cultural-historic resources, (b) the social setting, comprised of the users, their behaviors, equipment, and pets, and (c) the managerial setting, comprised of built structures, and agency personnel, equipment, rules, regulations, and services (Driver, Brown, Stankey, & Gregoire, 1987). According to ROS, realization of some recreation experiences (e.g., isolation, risk taking) will depend upon certain combinations of activity and setting, while other experiences (e.g., family kinship, physical exercise, tranquillity) can occur in multiple activities and settings. ROS applies only in the former, i.e., "it does not address those experiences and dimensions of recreation diversity that are unrelated to activities or settings" (Driver et al., 1987).

Because activities, settings, and experiences co-vary, a framework can be constructed describing the different kinds of relationships that can occur among these variables. One such framework, used by the U.S. Forest Service (USFS), consists of six interrelationships arranged along a continuum. The continuum consists of six broad classes: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural, and urban. An abridged description of three of these ROS classes--specifically those three used at the study area examined in this paper (Mount Rogers National Recreation Area, Virginia)--is provided in Table 2.



Table 2

Recreation Opportunity Spectrum (ROS) Classes used at Mount Rogers NRA

Opportunity	Semi-Primitive	Roaded	
	Non-Motorized	Natural	Rural
Activity	hiking & walking hunting & fishing	hiking & walking hunting & fishing resort lodging	hiking & walking hunting & fishing resort lodging sports participation
Setting	predominately natural or natural appearing; low interaction with other users; no motorized use	predominately natural appearing; low to moderate interaction with other users; motorized use	substantially modified natural environment; moderate to high interaction with other users; intense motorized use
Experience	high probability of isolation; closeness to nature; risk & challenge opp. available	equal probability of isolation & affiliation with others; less opp. for risk & challenge	probability for experiencing affiliation key; little opportunity for risk & challenge

Note: Abridged from the United States Department of Agriculture Forest Service 1986 ROS Book, p II-31, II-32, and II-p.33.

As Driver et al., (1987) note, however, the degree to which activities, settings, and experiences are related is not well known. The authors state that: "tests of predictability between these variables are needed to guide efforts directed toward achieving better definition and differentiation of recreation opportunities" (Driver et al., 1987, p. 207). Virden and Knopf (1989) have conducted one of the few studies which has examined the ROS tenet that activities, settings, and experiences are interrelated. Their first hypothesis, that activity preference and setting preference are related, was supported although, because of the problems with the size of some of their study cells, they state that such a conclusion is "purely speculative" (p. 167). Virden and Knopf's (1989) second hypothesis, that activity preference and desired experience preference are related, received some support depending on the type of experience being examined. Finally, their third hypothesis, that setting preference and desired experience preference are related, also received some support depending upon the type of experience being examined. In summarizing their findings, Virden and Knopf (1989) state:

It appears, at least in this study, that some desired experiences are more activity-dependent, while others are more setting-dependent. On a more complex level, desired experiences for a given activity might be independent of environmental setting, while for other activities those same desired experiences might be setting-dependent. Within the findings of this study, clear insights into the nature and complexity of these relations remain elusive. (p. 175)

One reason Virden and Knopf (1989) may not have found strong relationships among activities, settings, and experiences was their failure to measure participants' expertise levels. ROS contends that while specific combinations of activity and setting (e.g., hiking in semi-primitive non-motorized areas) will likely result in the same types of experiences (e.g., isolation, independence), the likelihood this will occur will vary

depending upon the person's level of expertise with this particular combination. Although recreationists who are very familiar with an activity/setting combination will probably receive very similar experiences, individuals who are not may receive very different experiences or may obtain the same experiences but from other ROS classes. Expertise is, therefore, a confounding variable in their study which may affect both the activity/setting combination and the recreation experiences that result.

Other factors can confound the ability to predict recreation experiences. In a study of nonmotorized river users (e.g., tubers, rafters, kayakers, canoeists) Williams and Knopf (1985) found that "waterflow intensity (whitewater) and trip duration were more strongly associated with experiential variation across river settings than the primitive-urban continuum" (p. 351). Because both of these variables are independent of ROS classes, the authors go on to state:

The concept of primitive-urban distinctions as a primary determinant of certain kinds of recreation experiences has long been a favorite for those of us with disciplinary roots in forestry and back-country management. But it is important to recognize that researchers and planners with alternative disciplinary heritages might posit other environmental variables as being causally linked to experience. (Williams & Knopf, 1985, p. 365)

Two factors of interest in this study, primary mode and mode dependence, will be discussed in the following sections.

### Primary Mode

As outlined earlier, there are at least four modes recreationists can attend to in the outdoors: (a) the activity, (b) the place, (c) the social environment, or (d) their ideas, thoughts, memories, or cognitions. Knopf (1987) notes, however, that the limited data available do not make clear the relative contribution each mode makes to an individual's

recreation experience. Williams et al. (1992) concur, stating that the place "may be central to the experience for some, but only a backdrop for achieving particular social or activity goals for others" (p. 33). Although Williams' et al. (1992) do not report how recreationists rated the three modes (i.e., the place, activity, and social environment) used in their study, Mowen (1994) does. Mowen (1994) found that Virginia Creeper Trail users--80.2% of whom were cyclists--reported that the activity mode was the most important reason for their visit (86.0%), followed by the place mode (11.0%) and the group mode (3.0%). In contrast, general trail users at Mount Rogers NRA--60.4% of whom were hikers and 29.1% of whom were horseback riders--indicated that the activity mode was the most important reason for their visit (56.9%), followed by the place and group modes (36.2% and 6.9%, respectively).

Borrie (1995) also found that, on average, outdoor recreationists focused most on the natural environment mode (mean of 6.3 on a scale ranging from 0 = not at all to 9 = very much). Focus on task was rated second highest (5.4), followed by focus on the social environment (3.7), focus on one's own feelings or emotions (3.5), and focus on one's own thoughts (3.0).

The proposition is put forth that if we can learn what aspects of their outdoor visits recreationists most attend to, we will be better able to understand and predict the types of experiences they receive. In some cases this information may contribute little understanding beyond what ROS and REP already provide; knowing, for example, that a recreationist is focusing on the social environment mode, it should not be surprising to find that he or she also rates experiences such as "being with my family" or "meeting new people" as being highly important. In other instances, however, such information may improve our understanding beyond ROS and REP. For example, if an individual rates recreation experiences such as "experiencing excitement," "learning more about who I

am," or "being in control" as highly important, there is currently no way of knowing which aspect of his or her visit--the activities he or she did, the people he or she was with, the places he or she went to, or the ideas he or she had--contributed the most to his or her receiving this experience. Thus, by knowing an individual's primary mode (or modes), we may be able to better understand and predict his or her recreation experiences.

### Mode Dependence

#### Introduction.

Primary mode is concerned with intermodal attention--i.e., which one of the four modes does a recreationist attend to the most. In contrast, mode dependence is concerned with intramodal attention--i.e., how does a recreationist interpret the sensory information originating from a mode. For example, Jacob and Schreyer (1980) believe the place mode can be experienced along a continuum ranging from focused to unfocused. At the focused end, close examination occurs: "stones are picked up, balsam needles smelled, berries eaten and birds identified, making an intimate knowledge of the place and its inhabitants central to the recreation experience" (p. 375). At the unfocused end, a place is experienced in terms of "generalities, overall spatial relationships, the lay of the land but not its particulars" (p. 375). Goal achievement, therefore, can be dependent on the type of sensory interaction--ranging from focused or "specific dependence" to unfocused or "generic dependence"--the recreationist has with a particular mode.

#### Social environment dependence.

Jacob and Schreyer's (1980) conceptualization is not unlike two concepts in social exchange theory. First, Thibault and Kelley (1959) contend that people prefer to interact with individuals who are able to help them achieve their goals. Second, Foa & Foa (1980) believe people's goals can be arranged along two continuums: (a) concreteness (e.g., love versus money); and (b) particularism (i.e., the degree to which a

specific individual, rather than any individual, must be involved in the exchange). Based on the above, if an individual's primary goal is to "spend time with my best friend," then the recreation experience he or she desires has an extremely high level of particularism (i.e., only one person can successfully meet this criterion). In contrast, if another individual's primary goal is to "meet new people," then the recreation experience he or she desires has an extremely low level of particularism (i.e., everyone he or she has never met would meet this criterion). These two examples illustrate the two endpoints on a social environment mode dependence continuum ranging from specific dependence (i.e., a high level of particularism) to generic dependence (i.e., a low level of particularism).

Place dependence.

Thibault and Kelley's (1959) and Foa and Foa's (1980) concepts may also be applicable to the other three modes. Stokols and Shumaker (1981), for example, use Thibault and Kelley's (1959) proposition to explain how some people interact with places. Stokols and Shumaker (1981) believe that individuals evaluate the quality of their current place versus comparable other places based on how well each satisfies the person's goals. Some individuals may be very dependent on a particular place to satisfy their goals (i.e., geographic place dependence), while other individuals may be able to do so almost anywhere (i.e., place independence). In-between these two poles are individuals who only require a category of functionally similar places (i.e., generic place dependence). Adapting Stokols and Shumaker's (1981) concept of place dependence to outdoor recreation, we may discover that while some climbers require a specific place to recreate (e.g., Mount Everest), others are content with a category of functionally similar places (e.g., mountains over 8000 meters), and a third group can recreate almost anywhere (e.g., a local cliff, a shopping center climbing wall).

### Activity dependence.

The concept of mode dependence may also be applicable to the activity mode. Bryan (1977), for example, found that anglers could be classified along "a continuum of behavior from the general to the particular, reflected by equipment and skills used in the sport and activity setting preferences" (p. 174). At one end of Bryan's "recreation specialization" continuum were Occasional Anglers, whose primary goal was simply to go to a nearby lake with their family and "catch a fish, any fish." At the opposite end were Technique-Setting Specialists. These anglers used specialized equipment, had exacting physical setting criteria, and fished only with other technique-setting specialists. Thus, for the activity mode, a continuum could be developed ranging from recreationists having a generic activity dependence to those having a specific activity dependence.

### Cognitive dependence.

Finally, mode dependence may also apply to the cognitive mode. In some cases, cognitive activity may be focused on a specific issue (e.g., solving a personal problem) while in other cases it may attend to a generic category of thoughts or ideas (e.g., sports). Once again, a continuum ranging from generic dependence to specific dependence can be developed.

### Conclusion.

Because recreationists vary in terms of how particular they are concerning who they go with, where they go to, and what they do and think about when they are there, they can be arranged along four continuums ranging from specific dependence to generic dependence. Where individuals fall along these four continuums may provide important information on the types of experiences they both seek and receive. For example, in an earlier section two situations were described: (a) a recreationist wanted to spend time with his best friend (specific social dependence), and (b) a different recreationist wanted

to meet some new people, (generic social dependence). Of these two recreationists, the individual spending time with his best friend would be more likely to report feelings of self-authenticity than would the recreationist hoping to meet new people. This contention is based on Turner and Billings (1991) finding that feelings of self-authenticity were twice as likely when friends, teammates, or roommates were near (24.5% true self, 11.8% spurious self), and twice as unlikely when strangers, acquaintances, coworkers, or classmates were present (19.4% true self, 39.4% spurious self). Similarly, because most individuals are likely to feel self-conscious when meeting new people, the recreationist in this situation may also be less likely to have an absorbing experience. Mode dependence, therefore, is another variable that may be able to improve our ability to predict peoples' recreation experiences.

### Conceptual Overview

In order to understand how the established concepts of REP and ROS may be related to this paper's concepts of mode, manner, REM, primary mode, mode dependence, and self-construal, it may be helpful to first divide recreation experiences into three temporally-defined periods: pre-experience, experience, and post-experience. The pre-experience period (Driver, Brown, & Peterson, 1995) would include the recreationist's characteristics (e.g., age, income, past experiences, activity style), social-psychological field (e.g., needs, attitudes, desired and expected experiences), perceived personal attributes, real and perceived internal and external constraints (e.g., time, skills), as well as his or her search for, and selection of, the best leisure alternative. Self-construal and mode dependence appear to be characteristics of recreationists, hence they may be two additional elements of this dimension. It is important to note, however, that both elements will have significant effects on the experience dimension; self-construal by



changing the manner's contents and mode dependence by altering the way in which the recreationist conceives of each mode.

The experience period is made up of the four modes--the place, activity, social environment, and the cognitive modes. The activity mode differs from its ROS counterpart in that the latter concept simply refers to a type of activity. In contrast, the mode concept includes both how the individual views the activity (i.e., his or her level of activity dependence) and the level of attention he or she gives to it (i.e., primary mode).

The place mode also differs from its ROS equivalent. First, while ROS is concerned only with those experiences which are affected by activities and settings, the conceptualization used in this paper recognizes that the activity and place may not be relevant to all recreationists (e.g., primary mode). In addition, ROS classifies the physical setting into six categories. According to place dependence, however, this is but one way (e.g., generic place dependence) a recreationist can experience his or her surroundings; individuals may also be very dependent on one particular place (i.e., geographic place dependence) or independent of most places (i.e., place independence).

ROS and mode differ in other ways as well. For example, the social environment mode recognizes that there are both different types of companions (i.e., social environment dependence) and that the level of attention one gives to his or her companions can vary (i.e., primary mode). In addition, ROS does not acknowledge the cognitive aspect of recreation experiences (i.e., the cognitive mode). ROS does, however, recognize that natural resource agency planners and managers can affect the place, activity, and social environment. Thus, the managerial setting is an important component of any recreation experience model.

The experience period also involves how people act toward, react to, or interact with, each of the four modes. There are at least five manners how this can occur:

functional, self-evaluative, identity, affective, and absorption. The resulting matrix--i.e., the REM model--incorporates both desired and expected experiences listed in REP, and those experiences (e.g., absorption, self-authenticity, identity) that are overlooked for various reasons (e.g., they occur spontaneously).

The final period is post-experience. The post-experience period would include: (a) evaluating the outdoor recreation experience, (b) deciding if one was satisfied or dissatisfied with his or her experience, and (c) determining what losses or benefits one has accrued from the experience.

#### Literature Review Conclusion

The purpose of this literature review has been twofold: (a) to describe two major recreation concepts--REP and ROS--including their perceived shortcomings; and (b) to introduce six new recreation concepts--mode, manner, REM, primary mode, mode dependence, and self-construal--which may, at least in part, alleviate some of the perceived problems inherent in the first group. In the next chapter discussion will shift from how these concepts are conceived to how they may be operationalized and relationships among them explained. Information on how study data were collected and analyzed, as well as resultant descriptive statistical findings, will be also provided.

## Chapter Three - Methods, Conceptual Experience Indices, and Descriptive Data

### Introduction

This chapter reports: (a) how data were collected, (b) how questionnaire items were selected or developed, (c) the indices the experience items are thought to form, (d) what statistical analyses will be performed for the research questions, and (e) the study's descriptive findings. Data collection will be examined first.

### Data Collection

Data for this dissertation were collected using three methods: (a) an on-site questionnaire conducted at Mount Rogers National Recreation Area (Virginia), (b) a follow-up mail-out questionnaire delivered within one month of the on-site contact, and (c) three focus groups, composed of mountain bikers, backpackers, and horseback riders, respectively. Each of these methods is described below.

#### On-site questionnaire.

Potential participants were approached at various Mount Rogers National Recreation Area (NRA) sites. Sites were selected in cooperation with U.S. Forest Service staff who were knowledgeable about Mount Rogers NRA. Although convenience sampling took place, sites were selected to represent a diverse group of users, recreation activities, and ROS classes. Sampling was conducted during October and November, 1995.

Personnel were trained for approximately one hour on the study's purpose, how potential participants should be approached and when (i.e, if possible, during the mid to latter part of their visits), how to answer questions respondents might have, and why participants' addresses and telephone numbers were being sought. Table 3 outlines the days and dates sampling occurred, the number of people who were approached, and the number of individuals who accepted and rejected the proffered on-site questionnaire.

Table 3

On-site Questionnaire Response Rate

Day and Date (all 1995)	People Approached	Questionnaires Accepted	Questionnaires Rejected
Saturday, October 21	76	66	10
Sunday, October 22	49	39	10
Saturday, October 28	32	31	1
Sunday, October 29	59	55	4
Saturday, November 4	75	72	3
Sunday, November 5	48	45	3
Saturday, November 11	44	38	6
Sunday, November 12	47	37	10
Sunday, November 19	8	7	1
Monday, November 20	20	20	0
TOTALS (%)	458 (100%)	410 (89.5%)	48 (10.5%)

As illustrated above, nearly nine in 10 recreationists who were asked to fill out the on-site questionnaire did so. Of the 48 individuals who did not, 20 (42%) of these rejections occurred during the first weekend of the study. Of these 48 rejections, 26 (54.2%) were hikers or backpackers, 11 (22.9%) were cyclists, and the remainder (22.9%) were engaged in a variety of other activities. Individuals were not asked why they chose not to participate, however, study personnel reported difficulty getting cyclists

to dismount and complete the questionnaire. In addition, due to the blizzard-like conditions that occasionally occurred during the sampling period, hikers and backpackers often appeared more interested in reaching their cars (and their cars' heaters) than completing the on-site questionnaire.

A copy of the three page on-site questionnaire is located in Appendix A.

Mail-out questionnaire.

As part of the on-site questionnaire, recreationists were asked to provide their names, addresses, and telephone numbers in order to be re-contacted at a later time. Using a modified Dillman (1978) method, these study participants were mailed an eight page questionnaire between two and four weeks after initially being contacted. The mail-out questionnaire included a cover letter explaining the nature of the project and a stamped, self-addressed envelope. A postcard reminder was mailed out two weeks later. Finally, a third mail-out--consisting of the questionnaire, another stamped self-addressed envelope, and a more strongly-written cover letter--was sent out one to two weeks after the reminder postcard. All of these can be found in Appendix B.

Of the 410 individuals who completed the on-site questionnaire, 344 usable names and addresses were provided--and, therefore, 344 mail-out questionnaires were sent out. Two hundred and eighty six postcard reminders were sent in the second mailing, and 259 questionnaires, with the more strongly-written cover letters, were sent out in the third mailing. Eight questionnaires were returned with undeliverable addresses, yielding a total sample frame of 336 potential respondents. Of these 336 individuals, 169 returned the mail-out questionnaires, resulting in an overall response rate of 50.3% (i.e.,  $169/336 = 50.3\%$ ). Table 4 reports the on-site contact date, the number of addresses that resulted, and the number of questionnaires returned and undeliverable.

Table 4

Mail-out Questionnaire Response Rate

Date of on-site contact	Total on-site questionnaires completed	Usable addresses from on-site questionnaire (%)	Total mail-out questionnaires returned (%)	Undeliverable (%)
21/10/95	66	62 (93.9%)	29 (46.8%)	0 (0.0%)
22/10/95	39	34 (87.2%)	17 (50.0%)	0 (0.0%)
28/10/95	31	27 (87.1%)	15 (55.6%)	0 (0.0%)
29/10/95	55	45 (81.2%)	24 (53.3%)	5 (11.1%)
04/11/95	72	58 (80.1%)	28 (48.3%)	1 (1.7%)
05/11/95	45	38 (84.4%)	21 (55.3%)	0 (0.0%)
11/11/95	38	28 (73.7%)	9 (32.1%)	1 (3.6%)
12/11/95	37	26 (70.3%)	13 (50.0%)	0 (0.0%)
19/11/95	7	6 (85.7%)	3 (50.0%)	0 (0.0%)
20/11/95	20	20 (100%)	10 (50.0%)	1 (5.0%)
<hr/>				
TOTALS (%)	410 (100%)	344 (83.9%)	169 (49.1%)	8 (2.3%)
<hr/>				
Overall Response Rate:	344 - 8 undeliverable = 336		169/336 = 50.3%	

### Focus groups.

Focus groups were also conducted in order to better understand the different types of outdoor recreation experiences Mount Rogers NRA visitors receive. Three factors which could potentially influence people's recreation experiences--(a) primary activity, (b) familiarity with Mount Rogers NRA, and (c) dependence level on Mount Rogers NRA--were used to select the focus groups.

The first focus group was conducted with three members of a mountain biking club located near Mount Rogers NRA. Initial contact with this organization occurred when the club president completed an on-site questionnaire and provided his name, address, and telephone number. In addition to the club president, two other members of the mountain bike club also participated in the focus group (neither of whom had participated in any other part of this study). Mountain bikers were believed to be both highly familiar with, and highly dependent on, Mount Rogers NRA. The focus group was held in April, 1996 and the club was given a \$100.00 honorarium for participating.

The second focus group was conducted with backpackers belonging to a university outdoor recreation club. The university is situated approximately two hours from Mount Rogers NRA. Initial contact with this organization occurred when the club president completed an on-site questionnaire and provided his name, address, and telephone number. In addition to the club president, two other club members participated in the focus group, one of whom had previously completed an on-site questionnaire. Backpackers were believed to be both less familiar and less dependent on Mount Rogers NRA. The second focus group was also held in April, 1996 and, as with the mountain bike club, this organization was given an honorarium of \$100.00.

The third focus was conducted with Mount Rogers' horseback riders. Initial contact was made through the cooperation of an informant knowledgeable about horse

use in Mount Rogers NRA. Horseback riders were believed to be both highly familiar with, and highly dependent on, Mount Rogers NRA. This focus group was held in July, 1996 and, as with the other two groups, an honorarium of \$100.00 was paid.

Focus groups were videotaped and averaged approximately one hour and twenty minutes in length. Results from the focus groups will not be discussed in this study.

### Selection and development of study items

#### On-site questionnaire.

The first page of the on-site questionnaire consisted of general items related to the recreation experience, including: (a) arrival and anticipated departure times; (b) type of companions; (c) areas of Mount Rogers NRA visited; (d) recreation activities engaged in; (e) most important recreation activity engaged in; (f) level of expertise in most important recreation activity; and (g) total number of visits to Mount Rogers, and first year of visitation.

The second page examined two topic areas, mode and experiences. Study participants were asked to indicate how much each of the four modes contributed to the quality of their experience. Items related to the place, activity, and social environment modes were based on those developed by Williams et al. (1992), while the cognitive mode item was developed from Quarrick's (1989) description of everyday cognitive activity. After the first weekend of data collection, a new mode item was added to the on-site questionnaire which asked respondents to choose which one of the four modes contributed the most to the quality of their experience. This primary mode item was added after the first weekend of data collection confirmed that Mount Rogers NRA visitors could and did differentiate in their ratings of the four types of mode.

The other topic area on the second page consisted of 31 items measuring the types of experiences recreationists had received. These items, their source, and the manners,



when known, they are believed to represent, are described in the text and tables that follow.

As noted earlier, all four modes can be experienced in a functional manner; i.e., in terms of satisfying basic needs or solving various problems. Some Recreation Experience Preference scales' items can also be conceived of in functional terms. For example, one reason many individuals participate in recreation activities is to maintain or improve their health (e.g., to reduce the chances of, or to recover from, a heart attack)--a functional objective that REP's physical fitness scale measures with its "keeping physically fit" item. Another REP scale item which may also measure how recreation activities can be experienced in a functional manner, is "developing skills and abilities" from the REP Skill Development scale. Thus, as these items are included in the on-site questionnaire as an index of activity mode, functional manner experiences. Table 5 lists these two items along with the functional manner items associated with the other three modes.

The place and social environment modes may also be experienced in a functional manner. Three examples of social environment mode, functional manner experiences are: (a) "meeting people having similar interests" from the REP Social Security scale, (b) "meeting new and interesting people" from the REP New People scale, and (c) "sharing your outdoor skills with others" from the REP Share Skills scale. Similarly, the REP scales also provide examples of place mode, functional manner experiences, including: (a) "viewing the scenery" from the REP Scenery scale, and (b) "being away from the crowds and noise," which integrates elements of both the REP Escape Crowds and the REP Escape Noise scales. The first three items are used in the on-site questionnaire as an index of social environment mode, functional manner experiences, while the last two items are an index of place mode, functional manner experiences.

Finally, the cognitive mode can also be experienced functionally. "Learning more about nature," from the REP Learning scale, is one example of a cognitive, functional experience. Another example is the new item "developing new ideas." These items will be used as an index of cognitive mode, functional manner experiences.

Table 5

Functional Manner Indices, Items, and Item Source

Index and Items	Source of Item
<b>Activity Mode Index</b>	
Keeping physically fit	REP Physical Fitness scale
Developing skills and abilities	REP Skill Development scale
<b>Place Mode Index</b>	
Viewing the scenery	REP Scenery scale
Being away from the crowds and noise	REP Escape Crowds & Noise scales
<b>Social Environment Mode Index</b>	
Meeting people having similar interests	REP Social Security scale
Meeting new and interesting people	REP New People scale
Sharing your outdoor skills with others	REP Share Skills scale
<b>Cognitive Mode Index</b>	
Learning more about nature	REP Learning scale
Developing new ideas	New item

The self-evaluative manner seeks to answer the question "how do I feel about myself?" In order for a person to make this determination, he or she may examine three

aspects of his or her self-concept: (a) self-efficacy, how competent, in control, or independent an individual feels he or she is; (b) self-authenticity, how honest or truthful a person feels his or her current presentation of self is; and (c) self-esteem, how positive or favorable a person feels about himself or herself. Five items are believed to measure self-efficacious experiences: (a) "feeling more self-confident" from the REP Self-confidence scale; (b) "feeling more self-reliant" from the REP Autonomy scale; (c) "control over my time and activities," an item adapted from the REP Control scale; (d) "controlling my thoughts and feelings," an item adapted from the REP Control scale and Fiske and Taylor's (1984) description of cognitive control; and (e) "being able to achieve my goals," a primary task of people with an independent self-concept according to Markus and Kitayama (1991). Feelings of self-authenticity may be measured by "letting others see me as I really am," an item adapted from McIntyre (1990). Feelings of self-esteem are not measured in this study. Table 6 displays the six items used as an index of self-evaluative manner experiences.

Table 6

Self-Evaluative Manner Index, Items, and Item Source

Items	Source of Item
Feeling more self-confident	REP Self-confidence scale
Feeling more self-reliant	REP Autonomy scale
Control over my time and activities	Adapted from REP Control scale
Controlling my thoughts and feelings	Adapted from REP Control scale & Fiske and Taylor (1984)
Being able to achieve my goals	Adapted from Markus & Kitayama (1991)
Letting others see me as I really am	Adapted from McIntyre (1990)

The identity manner asks "who or what am I?" In order for an individual to answer this question, he or she may examine his or her role-related behaviors (i.e., identity theory) or his or her group memberships (i.e., social identity theory). The applicability of social identity theory's elements of communality and embodiment may, however, extend beyond the social environment mode; presumably, this collective form of identity may be experienced with the other three modes as well.

Table 7 lists the five items composing the identity manner index. Two items are thought to measure personal identity: (a) "thinking about my life and personal values," from the REP Personal Values scale, and (b) "being reminded of the things that matter most in my life," a new item. Two new items are thought to measure communal identity: (a) "feeling I'm part of something bigger" and (b) "feeling a sense of oneness with

nature." The fifth item, also new, is "learning more about who I am." Because the wording of this item is very similar to that of the principal identity question--"who or what am I?"--theoretically, it could be included on both a personal identity index and a communal identity index. For analytical purposes, however, this item will only be used once, as part of a single index which includes both the personal and communal dimensions of identity.

Table 7

Identity Manner Index, Items, and Item Source

Index and Items	Source of Item
Thinking about my life and personal values	REP Personal Values scale
Being reminded of the things that matter most in my life	New item
Feeling I'm part of something bigger	New item
Feeling a sense of oneness with nature	New item
Learning more about who I am	New item

As noted earlier, mood is defined as "the subtle, subjective state of a person at any given moment" (Hull, 1991, p. 252). One approach for classifying moods is to arrange them along bipolar dimensions. Two of these dimensions are very pleasant to very unpleasant, and very aroused to very sleepy. Excitement is an example of a pleasant, high arousal mood, while tranquillity is an example of a pleasant, low arousal mood (Russell & Snodgrass, 1987). Both moods are Recreation Experience Preference scales,

as shown in Table 8. The items "experiencing excitement" and "experiencing tranquillity" are used in the REP Excitement and REP Tranquillity scales, respectively. A third emotion-related item--from the REP Reduce Tensions scale--is also used to measure affective manner experiences, "releasing or reducing built-up tensions." It should be noted that the affective manner index is a measure of the emotional intensity an individual experiences during his or her whole outdoor recreation visit, not the mood they feel at one given or specific time.

Table 8

Affective Manner Index, Items, and Item Source

Items	Source of Item
Experiencing excitement	REP Excitement scale
Experiencing tranquillity	REP Tranquillity scale
Releasing or reducing built-up tensions	REP Reduce Tensions scale

Absorbing experiences are characterized by a high level of attention toward a specific stimuli and a concurrent loss of consciousness of self, of time, and of one's surroundings. Based on Quarrick's (1989) research, three items have been developed to measure the attention dimension of absorption: (a) "becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," and "enjoying this visit so much I lose track of time." There is, however, a second dimension of absorption. Massimini and Carli's (1988) research also found that feelings of creativity and risk-taking may occur during absorbing experiences involving mental and physical activity. Use of two REP scale

items may prove useful in measuring this challenge dimension of absorption: (a) "being creative" from the REP Creativity scale, and "taking risks" from the REP Risk Taking scale. Table 9 lists the five items used to measure the two dimensions of absorption.

Table 9

Absorption Manner Indices, Items, and Item Source

Index and Items	Source of Item
<b>Attention Dimension Index</b>	
Becoming so absorbed in my experience that I lose track of everything around me	New item
Living only in the moment; forgetting the everyday worries of life	New item
Enjoying this visit so much I lose track of time	New item
<b>Challenge Dimension Index</b>	
Taking risks	REP Risk Taking scale
Being creative	REP Creativity scale

As noted in the literature review, non-Westerners, Native Americans, residents of rural areas and small towns, and possibly some women, may have a different type of self-construal than that of other, more traditional, outdoor recreationists. In contrast with the latter group, these interdependent individuals may value belonging, fitting in, and promoting other's goals. Based on Markus and Kitayama's (1991) research, three items

have been developed to measure the interdependent self-construal (Table 10): (a) "understanding my companions' thoughts and feelings," "finding happiness in my companions' achievements," and "finding harmony with my companions." Because of the importance interdependent individuals give to the social setting (as the demonstrated by the three items' wordings), these items may only be applicable to the social environment mode.

Table 10

Interdependent Self-Construal Index, Items, and Item Source

Items	Source of Item
Understanding my companions' thoughts and feelings	Adapted from Markus & Kitayama (1991)
Finding happiness in my companions' achievements	Adapted from Markus & Kitayama (1991)
Finding harmony with my companions	Adapted from Markus & Kitayama (1991)

In summary, the 31 experience items are classified into five manners and 10 indices. Unfortunately, due to the time and space limitations associated with the use of an on-site questionnaire, the identity, affective, and self-evaluative manner indices, as well as both absorption manner indices, are generalized across all four modes. Further, the interdependent self-construal index may only be applicable to the social environment mode. However, the functional manner indices are mode specific (e.g., the functional manner, cognitive mode and the functional manner, recreation activity mode have



different sets of items). Table 11 reports whether an index is specific to one mode or is generalized across all four modes.

Table 11

Index and its Mode Specificity

Index	Index Specific to One Mode or Generalized Across Modes
Absorption	
Attention	Index generalized across all four modes
Challenge	Index generalized across all four modes
Affective	Index generalized across all four modes
Identity	Index generalized across all four modes
Self-evaluative	Index generalized across all four modes
Functional	One index for each of the four modes
Interdependent S.C.	Index applicable only to the social environment mode

One final issue concerning the on-site questionnaire's second page remain. Because of the amount of time the questionnaire was taking to complete, one question was dropped. This question was composed of the 31 earlier experience items, but asked participants how much they wanted an experience rather than if they had already received it. Second, the classification of the experience items into the categories described above reflects the most current conceptualization of mode, manner, and REM. Although some items were intentionally included in the on-site questionnaire because it was thought that they would measure a particular manner (e.g., the interdependent self-construal items), others items were selected because they represented a variety of possible experiences

and, only after further conceptual development, were they conceived of as being measures of a specific manner (e.g., the affective manner).

The last page of the on-site questionnaire examined two types of mode dependence: (a) activity dependence, and (b) place dependence. Both types of dependence were measured using a five-point Likert-type scale. Two new dependence items were developed: (a) "I probably could have done another activity and had just as good a time," which examined activity dependence; and (b) "I probably could have gone to another place and had just as good a time," which examined place dependence.

Four items were also developed to measure the degree to which recreationists identified with activities and places. Both types of identification were measured using a five-point Likert-type scale. The two activity items were: (a) "What I do here is central to my life," and (b) "The activity I do here says a lot about who I am." Both items are based on McIntyre's (1989) work. The two place items were: (a) "My life is so deeply connected with this place I would rather not go anywhere else," and (b) "The places I visited here are like old friends; it is important to me that I visit them again and again." Both items are based on Williams' (1995) research.

The final page of the on-site questionnaire examined recreationists' self-concept (using six items developed by Singelis, 1994), and asked participant's to indicate their gender and to provide their name, address, and telephone number. In addition, based on an earlier question concerning the different areas of Mount Rogers National Recreation Area that had been visited, participants were also assigned to one of three ROS setting classes (Forest Service staff at Mount Rogers NRA use only the semi-primitive non-motorized, roaded natural, and rural ROS categories).

### Mail-out Questionnaire.

The mail-out questionnaire was composed of three major sections, including: (a) a section focusing on the visit to Mount Rogers when they were first contacted; (b) a section on the participant's lifetime recreational use of Mount Rogers, particularly his or her favorite experience there; and (c) a section on management issues and demographics.

The first section of the mail-out questionnaire dealt with issues (e.g., benefits, satisfaction) associated with a respondent's original visit to Mount Rogers (which are not examined in this dissertation).

The second section of the mail-out questionnaire consisted of eight questions. The first two questions asked how much each of the four modes contributed to the respondent's favorite Mount Rogers NRA experience and which of these four modes was primary. Item wording and measurement for these two questions was identical to that used in the on-site questionnaire. The third and fourth questions asked respondents to indicate all of the areas they had ever visited in Mount Rogers NRA and the three areas they had visited most often, respectively. The fifth and sixth questions were similar, and asked study participants to indicate all of the activities they had ever engaged in at Mount Rogers NRA and their first, second, and third most favorite. The last two questions in this section focused on the activity respondents had chosen as their most favorite. Participants were asked how desirable 32 possible experiences were in regard to their favorite activity. These experience items were worded and ordered in the same fashion as those used in the on-site questionnaire, with the addition of one new item ("spending time with your family"). Favorite activity-based experiences were measured on a five-point Likert-type scale.

The third and final section of the mail-out questionnaire dealt with management issues (which are not examined in this dissertation) and demographic data. Demographic

data collected included age, level of education attained, size of the communities they grew up and now reside in, income level, marital status, and family status (i.e., total number of children, number of children at home and/or away). Finally, as with the on-site questionnaire, participant's responses regarding the areas they visited were used to determine which one of the three ROS setting classes they were most likely use.

### Focus Group

Each focus group had five major sections: (a) introductions, project explanation, and signing of the human subjects' consent form; (b) determination of the different types of mountain biking, backpacking, and horse riding visits respondents had participated in at Mount Rogers; (c) selection of one common type of visit and examination of it across all five travel stages (planning, travel to the site, on-site, travel home, recollection), with particular emphasis being placed on how the four modes are experienced during the on-site stage; (d) determination of the level of dependence respondents had on each mode (e.g., could mountain bikers substitute another activity, such as day hiking, and get the same experience?); and (e) discussion of Mount Rogers NRA management rules, policies, and actions of importance to the focus group participants. Semi-structured questions and probes were used for these five sections of the focus group.

## Data Analysis

### Experience indices.

Earlier in this chapter new and previously developed items were used to form 10 hypothetical experience indices. In chapter four, item means and standard deviations, inter-item correlations, Cronbach coefficient alphas, and confirmatory factor analyses' loadings and communalities for each of these indices will be examined. On-site and favorite experiences (from the on-site and mail-out questionnaires, respectively) will be discussed separately. In addition, a factor analysis of all of the items will be performed in order to determine if the experience indices form separate factors.

### Research question one.

The first research question asks: "is there empirical evidence that recreation experiences (e.g., identity, absorption) not included in the REP scales exist?" In order to answer this research question, two issues must be addressed: (a) are the new recreation experiences different from the REP experiences (and, if so, are the new recreation experiences also different from each other)? and (b) do people report having these new experiences? These issues will be examined using: (a) the factor analyses conducted on the experience items (see previous section); (b) correlations between experiences; (c) comparisons among experience means using a one-way ANOVA (analysis of variance) of the 10 experiences and Tukey's multiple comparison test; and (d) the percent of study participants who report having these experiences above the "somewhat" level (i.e., a mean of 3.49 or higher on the five point scale used for this question). Based on the results of these analyses, a new recreation experience will be deemed to either exist or not exist.

Five new recreation experiences are of particular interest to this dissertation because they are thought to be conceptually different from REP experiences, including:

(a) functional manner, cognitive mode, experiences, composed of one REP item ("learning more about nature") and one non-REP item ("develop new ideas"). (b) Self-evaluative manner experiences, composed of three REP items ("control over my time and activities," "feeling more self-confident," and "feeling more self-reliant") and three non-REP items ("controlling my thoughts and feelings," "being able to achieve my goals" and "letting others see me as I really am"). (c) Identity manner experiences, composed of one REP item ("thinking about my life and personal values") and four non-REP items ("being reminded of the things that matter most in my life," "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," and "learning more about who I am"). (d) Absorption manner, attention dimension, experiences, composed of three non-REP items ("becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," and "enjoying this visit so much I lose track of time"). And (e), interdependent self-construal experiences, composed of three non-REP items ("understanding my companions' thoughts and feelings," "finding happiness in my companions achievements," and "finding harmony with my companions").

#### Research question two.

The second research question asks: "do the concepts of mode, primary mode, and mode dependence exist?" In order to determine if the concepts of mode and primary mode exist: (a) the frequency of scores for each mode item will be studied; (b) the mode items' means and standard deviations will be examined, (c) t tests between each mode and the "contribute somewhat" category (3.0 on the five point scale used to measure mode intensity) will be conducted; (d) a one-way ANOVA, using Tukey's multiple comparison test, will be performed on the four types of mode; and (e) the percent of study participants who rated each mode as being the most important contributor to their

recreation experiences (i.e., primary mode) will be examined. In addition, correlations among the mode items will also be discussed. Based on these analyses, the concepts of mode and primary mode will be deemed to either exist or not exist.

In order to determine whether the concept of mode dependence exists: (a) the frequency of scores for the two mode dependence items will be studied; (b) the mode dependence items' means, standard deviations, and correlation will be examined; (c) paired comparison t tests will be conducted between each mode dependence item's mean score and a neutral response (3.0 on the five point scale used to measure mode dependence); and (d) a paired comparison t test will be performed on the two mode dependence items. Based on these analyses, the concept of mode dependence will be deemed to either exist or not exist.

#### Research question three.

The third research question asks: "how well do the ROS variables of recreation activity, setting, and expertise explain the types of experiences recreationists get (both REP and non-REP types of experiences)?" In order to answer this question, three two-way ANOVA's will be performed on each recreation experience. (Due to the study's design, a single three-way ANOVA cannot be conducted). Three ROS variable combinations will be examined, including: (a) setting and activity, (b) setting and expertise, and (c) activity and expertise. Probability levels for the two main effects and the interaction effect will be reported. By examining the probability levels for each, it can be determined if the one ROS variable, both ROS variables, or their interaction, affect a recreation experience.  $R^2$ s for the main and interaction effects will also be reported. By examining these  $R^2$ s, it can be determined how much of a recreation experience's variability is due to a main effect, both main effects, or their interaction. Finally, it must be noted that because of the study's unbalanced design, the SAS Sum of

Squares III method (SAS Institute Inc., 1988) will be used to determine probability levels and  $R^2$ s for the main and interaction effects. This method differs from the more common SAS Sum of Squares I method in that the order in which variables are listed does not affect the size of the resulting sum of squares.

Research question four.

The fourth research question asks: "does the concept of primary mode improve ROS's explanation level for both REP and non-REP types of experiences?" Once again, two-way ANOVA's will be performed on each recreation experience. In contrast with research question three, however, these two-way ANOVA's will be composed of the primary mode variable and one ROS variable. Three variable combinations will be examined, including: (a) primary mode and ROS activity, (b) primary mode and ROS setting, and (c) primary mode and ROS expertise.

Probability levels for the two main effects and the interaction effect will be reported. By examining the probability levels, it can be determined if the primary mode variable by itself, or in interaction with an ROS variable, significantly affects a recreation experience.  $R^2$ s for the main and interaction effects will also be reported. By examining these  $R^2$ s, it can be determined how much of a recreation experience's variability is due to the primary mode variable by itself, or in interaction with an ROS variable. Additionally, Turkey's multiple comparison test will be performed on significant effects involving the primary mode variable. Finally, it must be noted that because of the study's unbalanced design, the SAS Sum of Squares III method (SAS Institute Inc., 1988) will once again be used to determine probability levels and  $R^2$ s for the main and interaction effects.

Before proceeding, it should be noted that there is a methodological limitation which will affect the interpretation of this research question. As noted earlier in this chapter, due to the time and space limitations associated with the on-site questionnaire,



five experiences--the identity, affective, self-evaluative manner experiences, and two absorption manner experiences--had to be generalized across all four modes. In contrast, the interdependent self-construal experience was believed to be specific to the social environment mode, while each of the functional manner experiences were specific to an associated mode (e.g., the functional manner, cognitive mode, experience with the cognitive mode). In the latter case, therefore, if primary mode is properly conceptualized, then individuals who give primacy to a mode associated with a specific recreation experience should rate it significantly higher than people who give primacy to a different mode. In the case of the recreation experiences which were generalized across all four modes, however, if primary mode is properly conceptualized, then no significant differences should be found due to differences in primary mode. Both of these possibilities will be discussed in detail at the conclusion of each set of ANOVA's.

Research question five.

The fifth research question asks: "does the concept of mode dependence improve ROS's explanation level for both REP and non-REP types of experiences?" Once again, two-way ANOVA's will be performed on each recreation experience. As with research question four, each two-way ANOVA will be composed of one ROS variable and one mode dependence variable. Six variable combinations will be examined, including: (a) activity dependence and ROS activity, (b) activity dependence and ROS setting, (c) activity dependence and ROS expertise, (d) place dependence and ROS activity, (e) place dependence and ROS setting, and (f) place dependence and ROS expertise.

Probability levels for the two main effects and the interaction effect will be reported. By examining the probability levels, it can be determined if a mode dependence variable by itself, or in interaction with an ROS variable, significantly affects a recreation experience.  $R^2$ 's for the main and interaction effects will also be reported. By

examining these  $R^2$ s, it can be determined how much of a recreation experience's variability is due to a mode dependence variable by itself, or in interaction with an ROS variable. Additionally, Turkey's multiple comparison test will be performed on significant effects involving a mode dependence variable. Finally, it must be noted that because of the study's unbalanced design, the SAS Sum of Squares III method (SAS Institute Inc., 1988) will once again be used to determine probability levels and  $R^2$ s for the main and interaction effects.

### Descriptive Data

#### Introduction.

This section of the dissertation will examine: (a) respondents' demographic characteristics (e.g., gender, age, marital and family status, income, education, size and type of community they grew up, and now reside, in); (b) respondents' most important recreation activities; (c) respondents' expertise levels in these recreation activities; (d) respondents' primary ROS class; (e) type of people accompanying the respondents; and (f) the number of times respondents had visited Mount Rogers NRA. Demographic characteristics will be examined first.

#### Demographic characteristics.

As Table 12 illustrates, nearly 75% of on-site and mail-out study participants were male. In comparison, respondents in Mowen's (1994) Mount Rogers NRA study were 67.8% male, 32.2% female. Gender was the only demographic question asked of on-site respondents in this study.

Table 12

Gender of On-site and Mail-out Questionnaire Respondents

Gender	On-site Questionnaire (%)	Mail-out Questionnaire (%)
Male	299 (74.4%)	122 (72.6%)
Female	103 (25.6%)	46 (27.4%)
TOTAL N	302	168

Table 13 reports the number and percentage of respondents in six age groups. Twenty to 29 year olds (26.0%) were the largest age group. One study participant was under 16 years of age (12 years old). The average age of mail-out questionnaire respondents was 37 years. Mowen's (1994) study reported an average age of 40.5 years for Mount Rogers general trail users and 41.8 for Virginia Creeper Trail users.

Table 13

Age Group of Mail-out Questionnaire Respondents

Age Group (years)	Mail-out Questionnaire (%)
12 to 20	12 (7.1%)
20 to 29	44 (26.0%)
30 to 39	36 (21.3%)
40 to 49	32 (18.9%)
50 to 59	14 (8.3%)
60 and over	31 (18.3%)
TOTAL	169

About 56% of mail-out questionnaire respondents were either married or had a partner versus 43.5% who were single (Table 14). In addition, 55.7% of mail-out questionnaire respondents had not yet had a child (Table 15).

Table 14

Marital Status of Mail-out Questionnaire Respondents

Marital Status	Mail-out Questionnaire (%)
Single	73 (43.5%)
Married or Partner	95 (56.5%)
TOTAL	168

Table 15

Mail-out Questionnaire Respondents Who Have/Have Not Had Children


---

Have/Have Not Had Children	Mail-out Questionnaire (%)
Have Had a Child	74 (44.3%)
Have Not Had a Child	93 (55.7%)
TOTAL	167

---

Table 16 reports the education level of mail-out respondents. Over 77% of study participants had spent at least one year in college. Mean education was 15.2 years, which is comparable to the 14.9 years Mowen (1994) reported for Mount Rogers general trail users and 15.9 years for Virginia Creeper Trail users.

Table 16

Level of Education of Mail-out Questionnaire Respondents


---

Level of Education	Mail-out Questionnaire (%)
Less Than Grade 12	18 (10.7%)
Completed Grade 12	20 (11.8%)
Some College	43 (25.4%)
College Graduate	45 (26.6%)
Graduate School	43 (25.4%)
TOTAL	169

---

As shown in Table 17, the most frequently reported (26.9%) yearly income category was \$25,000 to \$39,999. Unfortunately, because Mowen's (1994) study and this study do not use the same intervals, income level comparisons are difficult. It is worth noting, however, that the most frequently reported (33.2%) yearly income category in Mowen's (1994) Mount Rogers NRA study was \$40,000 to \$59,000. In addition, when yearly income categories are combined, Mowen (1994) reports 34.6% of his respondents made less than \$40,000 per year, versus 51.9% of respondents in this study. This difference may be due to hunters being included in the present study.

Table 17

Level of Income of Mail-out Questionnaire Respondents

Level of Income	Mail-out Questionnaire (%)
Under \$10,000	16 (10.3%)
\$10,000 to \$24,999	23 (14.7%)
\$25,000 to \$39,999	42 (26.9%)
\$40,000 to \$54,999	26 (16.7%)
\$55,000 to \$74,999	23 (14.7%)
\$75,000 or more	26 (16.7%)
TOTAL	156

Tables 18 and 19 describe, respectively, the type and/or size of the communities where mail-out questionnaire respondents grew up and now reside. With the exception of major cities (population over one million), near-equal numbers of respondents appear to have grown up in the other five types of community. Most respondents now live,

however, in either small or medium size cities. Twenty seven percent of respondents reported living in cities having populations between 5,000 to 50,000 individuals, while 26.4% of respondents lived in cities having populations between 50,000 to 1 million people. In comparison, Mowen (1994) found 29.9% of his participants lived in cities having populations between 5,000 to 50,000 individuals, while 23.4% of respondents lived in cities having populations between 50,000 to 1 million people. When summed, 53.4% of this study's respondents lived in cities having populations between 5,000 to 1 million people, versus 53.3% in Mowen's (1994) study.

Table 18

Type/Size of Community Where Mail-out Questionnaire Respondents Grew Up

Type/Size of Community Grew Up	Mail-out Questionnaire (%)
Farm or ranch	25 (15.1%)
Rural or small town (under 1,000)	30 (18.1%)
Town (1,000 up to 5,000)	26 (15.7%)
Small city (5,000 up to 50,000)	33 (19.9%)
Medium city (50,000 up to 1 million)	39 (23.5%)
Major city (over 1 million)	13 (7.8%)
TOTAL	166

Table 19

Type/Size of Community Where Mail-out Questionnaire Respondents Now Live

Type/Size of Community Live Now	Mail-out Questionnaire (%)
Farm or ranch	12 (7.4%)
Rural or small town (under 1,000)	27 (16.6%)
Town (1,000 up to 5,000)	28 (17.2%)
Small city (5,000 up to 50,000)	44 (27.0%)
Medium city (50,000 up to 1 million)	43 (26.4%)
Major city (over 1 million)	9 (5.5%)
TOTAL	163

Most important recreation activity and level of expertise.

Table 20 describes respondents most important recreation activities. On-site questionnaire respondents reported 21 different activities as being most important while mail-out questionnaire respondents listed 14 different activities. Off-road cycling was the most commonly mentioned activity, with 17.1% of on-site questionnaire respondents stating it was most important, versus 19.2% of mail-out questionnaire respondents. Other recreation activities mentioned by more than 5.0% of on-site questionnaire respondents included: backpacking (16.3%), day hiking (14.9%), hunting (14.6%), viewing the scenery (11.8%), backcountry camping (7.2%), and horseback riding (6.1%). Recreation activities mentioned by more than 5.0% of mail-out questionnaire respondents included: day hiking (15.9%), hunting (14.6%), viewing the scenery (13.9%), backpacking (13.2%), and backcountry camping (7.9%).



Table 20

Most Important Recreation Activities

Recreation Activity	On-site Questionnaire (%)	Mail-out Questionnaire (%)
Auto/RV camping	4 (1.1%)	3 (2.0%)
Backcountry camping	26 (7.2%)	12 (7.9%)
Backpacking	59 (16.3%)	20 (13.2%)
Collecting forest products	1 (0.3%)	0 (0.0%)
Day hiking	54 (14.9%)	24 (15.9%)
Driving for pleasure	3 (0.8%)	0 (0.0%)
Fishing	7 (1.9%)	2 (1.3%)
Horseback riding	22 (6.1%)	7 (4.6%)
Hunting	53 (14.6%)	22 (14.6%)
Off-road cycling	62 (17.1%)	29 (19.2%)
On-road cycling	1 (0.3%)	0 (0.0%)
Photography	1 (0.3%)	0 (0.0%)
Picnicking	4 (1.1%)	1 (0.7%)
Pre-hunt scouting	2 (0.6%)	0 (0.0%)
Socializing	12 (3.3%)	6 (4.0%)
Viewing the scenery	43 (11.8%)	21 (13.9%)
Viewing wildlife	4 (1.1%)	1 (0.7%)
Motorcycling	1 (0.3%)	0 (0.0%)
Trail maintenance	2 (0.6%)	2 (1.3%)

Table 20 (continued)

Most Important Recreation Activities

Recreation Activity	On-site Questionnaire (%)	Mail-out Questionnaire (%)
Contemplation	1 (0.3%)	1 (0.7%)
Fall festival	1 (0.3%)	0 (0.0%)
TOTAL	363	151

Table 21 describes the expertise level of on-site questionnaire respondents in their most important activity. Expertise was originally measured along a 10 point continuum with only the two endpoints labeled (i.e., one = beginner, 10 = expert). In order to make interpretation easier, these 10 categories were reduced to two--novice (one to six) and expert (seven to 10). As illustrated in the following table, 58.7% of recreationists were classified as experts while 41.3% were classified as novices.

Table 21

Level of Expertise in Most Important Recreation Activities for On-site QuestionnaireRespondents


---

Level of Expertise in Recreation Activity	On-site Questionnaire (%)
Novice	148 (41.3%)
Expert	210 (58.7%)
TOTAL	358

---

Note: Novices selected 1, 2, 3, 4, 5, or 6 on a 10 point scale (1 = beginner, 10 = expert), Experts selected 7, 8, 9, or 10 on the same scale.

Respondent's primary ROS setting class.

Respondents were also assigned to one of three ROS setting classes: (a) semi-primitive non-motorized, (b) roaded natural, and (c) rural (these are the only ROS classes used by U.S. Forest Service personnel at Mount Rogers NRA). Respondents were assigned to these setting classes based on the sites they had visited and how these areas were classified by U.S. Forest Service staff at Mount Rogers NRA. As shown in Table 22, most on-site and mail-out questionnaire respondents were assigned to the semi-primitive non-motorized ROS setting class (52.9% and 50.0%, respectively).

Table 22

Respondent's Primary ROS Setting Class

ROS Setting Class	On-site Questionnaire (%)	Mail-out Questionnaire (%)
Semi-primitive non-motorized	217 (52.9%)	79 (50.0%)
Roaded natural	140 (34.1%)	43 (27.2%)
Rural	53 (12.9%)	36 (22.8%)
TOTAL	410	143

Type of companions.

Recreationists who participated in the on-site questionnaire of the study were also asked about the type of companions who had accompanied them (Table 23). The majority (48.3%) had recreated with close friends, followed by family members (32.1%). Just under 5% of study participants recreated by themselves.

Table 23

Type of Companions with On-site Questionnaire Respondents

Type of Companions	On-site Questionnaire (%)
Family	131 (32.1%)
Close friends	197 (48.3%)
Acquaintances	53 (13.0%)
Strangers	7 (1.7%)
Alone	20 (4.9%)
TOTAL	408

Previous visits to Mount Rogers NRA.

Table 24 reports the number of times on-site and mail-out questionnaire respondents indicated they had visited Mount Rogers NRA. For approximately one-third of both study participant groups, this was their first visit to Mount Rogers NRA (37.5% on-site, 30.7% mail-out). Further, 57.7% of mail-out respondents and 62.2% of on-site respondents had visited Mount Rogers NRA less than four times. These percentages are much higher than those found by Mowen (1994); only 24.0% of his respondents had visited Mount Rogers NRA less than four times. Mowen (1994) also reports that 32.7% of his study participants had been to Mount Rogers NRA four to 10 times, 25.1% had been 11 to 25 times, and 18.1% had been 26 or more times. Mowen's (1994) percentages are much higher for both the four to 10 visit category and the 11 to 25 visit category, than those found in either the on-site or mail-out sections of this study.

Table 24

Number of Times On-site and Mail-out Questionnaire Respondents Have Visited Mount Rogers NRA

Number of Visits	On-site Questionnaire (%)	Mail-out Questionnaire (%)
One	143 (37.5%)	50 (30.7%)
2 or 3	94 (24.7%)	44 (27.0%)
4 to 10	64 (16.8%)	26 (16.0%)
11 to 25	31 (8.1%)	16 (9.8%)
26 or more	49 (12.9%)	27 (16.6%)
TOTAL	381	163

Conclusion

In conclusion, this chapter has reported: (a) how data were collected, (b) how questionnaire items were selected or developed, (c) the indices the experience items are thought to form, (d) what statistical analyses will be performed for the research questions, and (e) the study's descriptive findings. In the next chapter, the results of the statistical analyses performed on the 10 experience indexes will be examined.

## Chapter Four - Experience Indices

### Introduction

In Chapter three, new and previously developed items were used to form 10 hypothetical experience indices. In this chapter, the indices' item means, standard deviations, inter-item correlations, Cronbach coefficient alphas, and confirmatory factor analyses' loadings and communalities will be examined. On-site and mail-out data sets (from the on-site and mail-out questionnaires, respectively) will be discussed separately. In addition, a factor analysis using all of the items will be performed in order to determine if the experience indices form separate factors.

### Functional Manner, Activity Mode, Index

#### On-site data set.

As noted in the literature review, functional manners are those which either satisfy basic needs or help solve various problems. Different modes have different functions. For the activity mode, two functions have been identified and operationalized: (a) "keep physically fit" (item 3), and (b) "developing skills and abilities" (item 17).

Table 25 displays the mean, standard deviation, and inter-item correlations for these items using the on-site data set. The correlation between these two items is low at .31 (Driver, 1977, recommends using only items having correlations of at least .40).

Table 26 reports the Cronbach coefficient alpha for this index. The overall alpha was low at .47.

Table 25

Functional Manner, Activity Mode, Index: Mean, Standard Deviation, and Inter-Item Correlation (On-site Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation	
			3	17
3. Keeping physically fit	3.88	1.04	1.0	.31
17. Developing skills and abilities	3.60	1.10		1.0

Table 26

Functional Manner, Activity Mode, Index: Cronbach Coefficient Alpha (On-site Data Set)

Cronbach Coefficient Alpha for Index = .47

Item Number and Item	Correlation with Total	Alpha if Deleted
3. Keeping physically fit	.31	--
17. Developing skills and abilities	.31	--

Table 27 reports the results of the confirmatory factor analysis with these two items. Both items loaded at levels above what is commonly considered acceptable



(Tabachnick & Fidell, 1983, state that loadings above .30 are eligible for interpretation, although Rencher, 1995, recommends at least .50). Communality--how much an item has in common with the other items and can be predicted by them (Streiner & Norman, 1994)--was also found to be acceptable for both items.

Table 27

Functional Manner, Activity Mode, Index: Confirmatory Factor Analysis (On-site Data Set)

---

First eigenvalue = 1.31, variance explained = 65.3 %

---

Item Number and Item	Loading	Communality
3. Keeping physically fit	.71	.65
17. Developing skills and abilities	.71	.65

---

Mail-out data set.

Table 28 reports the means, standard deviations, and inter-item correlations for the functional manner, activity mode, index for the mail-out data set. The correlation for these two items ( $r = .45$ ) was above Driver's (1977) recommended level.

Table 28

Functional Manner, Activity Mode, Index: Mean, Standard Deviation, and Inter-Item Correlation (Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation	
			3	17
3. Keeping physically fit	4.28	0.85	1.0	.45
17. Developing skills and abilities	4.02	0.90		1.0

Table 29 displays an acceptable Cronbach coefficient alpha (.63) for this index.

Table 29

Functional Manner, Activity Mode, Index: Cronbach Coefficient Alpha (Mail-out Data Set)

Cronbach Coefficient Alpha for Index = .63

Item Number and Item	Correlation with Total	Alpha if Deleted
3. Keeping physically fit	.45	--
17. Developing skills and abilities	.45	--

Table 30, the confirmatory factor analysis, exhibits one factor which explains 72.7% of the variance. The two items load at .85 and their communality is .73.

Table 30

Functional Manner, Activity Mode, Index: Confirmatory Factor Analysis (Mail-out Data Set)

---

First eigenvalue = 1.45, variance explained = 72.7 %

---

Item Number and Item	Loading	Communality
3. Keeping physically fit	.85	.73
17. Developing skills and abilities	.85	.73

---

Functional Manner, Place Mode, Index

On-site data set.

Means, standard deviations, and inter-item correlations for the on-site data set are in Table 31. Both items' means were among the highest found in this study. Correlation between the two items is acceptable at .46.

Table 31

Functional Manner, Place Mode, Index: Mean, Standard Deviation, and Inter-Item Correlation (On-site Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation	
			25	28
25. Viewing the scenery	4.55	0.81	1.0	.46
28. Being away from the crowds and noise	4.47	0.88		1.0

Table 32 displays an overall Cronbach coefficient alpha of .63 for this index.

Table 33 displays the outcome of the confirmatory factor analyses, which resulted in one factor which explained 72.8% of the variance.

Table 32

Functional Manner, Place Mode, Index: Cronbach Coefficient Alpha (On-site Data Set)


---

Cronbach Coefficient Alpha for Index = .63

---

Item Number and Item	Correlation with Total	Alpha if Deleted
25. Viewing the scenery	.46	--
28. Being away from the crowds and noise	.46	--

---

Table 33

Functional Manner, Place Mode, Index: Confirmatory Factor Analysis (On-site Data Set)


---

First eigenvalue = 1.46, variance explained = 72.8 %

---

Item Number and Item	Loading	Communality
25. Viewing the scenery	.85	.73
28. Being away from the crowds and noise	.85	.73

---

Mail-out data set.

Table 34 provides the means, standard deviations, and inter-item correlations with the mail-out data set. As with the on-site data set, these items are very highly rated, however the correlation between the two items is much lower with the mail-out data set ( $r = .29$ ) than with the on-site data set ( $r = .46$ ).

Table 34

Functional Manner, Place Mode, Index: Mean, Standard Deviation, and Inter-Item Correlation (Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation	
			25	28
25. Viewing the scenery	4.61	0.58	1.0	.29
28. Being away from the crowds and noise	4.65	0.71		1.0

Table 35 reports the Cronbach coefficient alpha for the overall index, which was low at .45 (compared to .63 for the on-site data set). Table 36 displays the results of the confirmatory factor analysis. One factor was found which explained 64.4% of the total variance (versus 72.8% for the on-site data set).

Table 35

Functional Manner, Place Mode, Index: Cronbach Coefficient Alpha (Mail-out Data Set)

---

Cronbach Coefficient Alpha for Index = .45

---

Item Number and Item	Correlation with Total	Alpha if Deleted
25. Viewing the scenery	.29	--
28. Being away from the crowds and noise	.29	--

---

Table 36

Functional Manner, Place Mode, Index: Confirmatory Factor Analysis (Mail-out Data Set)

---

First eigenvalue = 1.29, variance explained = 64.4 %

---

Item Number and Item	Loading	Communality
25. Viewing the scenery	.80	.64
28. Being away from the crowds and noise	.80	.64

---

Summary.

Although use of these two items does seem acceptable in the case of the on-site data set, it is less clear in regard to the mail-out data set. The low correlation between the two items ( $r = .29$ ) and the low overall alpha (.45) makes use of this scale for the functional manner, place mode, problematic. Because of the exploratory nature of this dissertation, however, the index will be used in its current form for both data sets.

Functional Manner, Social Environment Mode, Index

On-site data set.

Table 37 displays the mean, standard deviation, and inter-item correlations for the three items used in the functional manner, social environmental mode, index. All of the correlations are at or above .40.

Table 37

Functional Manner, Social Environment Mode, Index: Mean, Standard Deviation, and Inter-Item Correlation (On-site Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation		
			9	22	31
9. Meeting people having similar interests	3.30	1.25	1.0	.66	.43
22. Meeting new and interesting people	2.99	1.23		1.0	.40
31. Sharing your outdoor skills with others	3.66	1.20			1.0

Table 38 and 39 report the results of the Cronbach coefficient alpha and the confirmatory factor analysis, respectively. The overall alpha of .75 would increase to .80



with the deletion of item 31. One major factor was found which explained 67.0% of the variance. Item 31's loading and communality score was low compared to that of the other two items.

Table 38

Functional Manner, Social Environment Mode, Index: Cronbach Coefficient Alpha (On-site Data Set)

---

Cronbach Coefficient Alpha for Index = .75

---

Item Number and Item	Correlation with Total	Alpha if Deleted
9. Meeting people having similar interests	.65	.58
22. Meeting new and interesting people	.63	.60
31. Sharing your outdoor skills with others	.46	.80

---

Table 39

Functional Manner, Social Environment Mode, Index: Confirmatory Factor Analysis  
(On-site Data Set)

---

First eigenvalue = 2.01, variance explained = 67.0%

---

Item Number and Item	Loading	Communality
9. Meeting people having similar interests	.87	.76
22. Meeting new and interesting people	.86	.74
31. Sharing your outdoor skills with others	.72	.51

---

Mail-out data set.

The mail-out data set included one additional item, "spending time with your family" (item 32). As shown in Table 40, this item exhibited very low correlations with the other three items (which had all inter-correlations above  $r = .40$ ).

Table 40

Functional Manner, Social Environment Mode, Index: Mean, Standard Deviation, and Inter-Item Correlation (Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation			
			9	22	31	32
9. Meeting people having similar interests	3.44	1.15	1.0	.70	.42	.12
22. Meeting new and interesting people	2.94	1.11		1.0	.44	.20
31. Sharing your outdoor skills with others	3.79	0.99			1.0	.21
32. Spending time with your family	3.55	1.37				1.0

Table 41, the Cronbach coefficient alpha, and Table 42, the confirmatory factor analysis, also indicate that item 32 does not fit well with this index. Deletion of this item increases the overall alpha from .68 to .77. Results from the factor analysis also show a very low loading for this item (.38) and an extremely low communality (.14).

Table 41

Functional Manner, Social Environment Mode, Index: Cronbach Coefficient Alpha  
(Mail-out Data Set)

---

Cronbach Coefficient Alpha for Index = .68

---

Item Number and Item	Correlation with Total	Alpha if Deleted
9. Meeting people having similar interests	.57	.54
22. Meeting new and interesting people	.63	.50
31. Sharing your outdoor skills with others	.48	.61
32. Spending time with your family	.22	.77

Table 42

Functional Manner, Social Environment Mode, Index: Confirmatory Factor Analysis  
(Mail-out Data Set)

---

First eigenvalue = 2.14, variance explained = 53.4%

---

Item Number and Item	Loading	Communality
9. Meeting people having similar interests	.85	.72
22. Meeting new and interesting people	.87	.76
31. Sharing your outdoor skills with others	.72	.52
32. Spending time with your family	.38	.14

---

Discussion.

Deletion of item 32, "spending time with your family" appears warranted.

Statistical analyses conducted without this item follow.

Deletion of item 32.

Table 43 describes the mean, standard deviation, and inter-item correlations for the three remaining items. As Table 44 illustrates, deletion of item 32 results in an increase in the overall alpha to .77 (from .61). Further deletion of item 31 would increase the overall alpha to .82. Factor analysis performed with the two remaining items is shown in Table 45. Once again one major factor results, however the three-item index explains 68.5% of the variance versus 53.4% for the four-item index. Although item 31's loading and communality score is lower than that of the other two items, it is acceptable.

Table 43

Revised Functional Manner, Social Environment Mode, Index: Mean, Standard  
Deviation, and Inter-Item Correlation (Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation		
			9	22	31
9. Meeting people having similar interests	3.44	1.15	1.0	.70	.42
22. Meeting new and interesting people	2.94	1.11		1.0	.44
31. Sharing your outdoor skills with others	3.66	1.20			1.0

Table 44

Revised Functional Manner, Social Environment Mode, Index: Cronbach Coefficient  
Alpha (Mail-out Data Set)

---

Cronbach Coefficient Alpha for Index = .77

---

Item Number and Item	Correlation with Total	Alpha if Deleted
9. Meeting people having similar interests	.66	.61
22. Meeting new and interesting people	.68	.60
31. Sharing your outdoor skills with others	.47	.82

---

Table 45

Revised Functional Manner, Social Environment Mode, Index: Factor Analysis (Mail-out Data Set)

---

First eigenvalue = 2.05, variance explained = 68.5%

---

Item Number and Item	Loading	Communality
9. Meeting people having similar interests	.61	.76
22. Meeting new and interesting people	.61	.78
31. Sharing your outdoor skills with others	.50	.52

---

Summary.

In summary, use of items 9, 22, and 31 to form a Functional Manner, Social Environment Mode index appears warranted. The exclusion of item 32 may be a consequence of social environment dependence, that is, few people meet the criteria of being members of one's family in comparison to the large number of individuals who may share one's interests or who may be considered new and interesting.

Functional Manner, Cognitive Mode, Index

On-site data set.

Table 46 displays the means, standard deviations, and inter-item correlation for the two functional manner, cognitive mode, index items. As shown, the means and standard deviations for both items are similar, and their inter-item correlation is .42.



Table 46

Functional Manner, Cognitive Mode, Index: Mean, Standard Deviation, and Inter-Item Correlation (On-site Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation	
			14	20
14. Learning about nature	3.73	1.09	1.0	.42
20. Developing new ideas	3.30	1.10		1.0

Table 47 reports the Cronbach coefficient alpha for this index. The overall alpha was .59. Table 48 reports the results of the confirmatory factor analysis. One factor, having an eigenvalue of 1.42 was found, which explained 70.9% of the variance. Loadings for the two items were .84 and their communality was .71.

Table 47

Functional Manner, Cognitive Mode, Index: Cronbach Coefficient Alpha (On-site Data Set)

---

Cronbach Coefficient Alpha for Index = .59

---

Item Number and Item	Correlation with Total	Alpha if Deleted
14. Learning about nature	.42	--
20. Developing new ideas	.42	--

---

Table 48

Functional Manner, Cognitive Mode, Index: Confirmatory Factor Analysis (On-site Data Set)

---

First eigenvalue = 1.42, variance explained = 70.9 %

---

Item Number and Item	Loading	Communality
14. Learning about nature	.84	.71
20. Developing new ideas	.84	.71

---

Mail-out data set.

Table 49 displays the means, standard deviations, and inter-item correlations for the two items used in the mail-out data set. Means varied more these two items than with the on-site data set, but the inter-item correlation is acceptable at .53.

Table 49

Functional Manner, Cognitive Mode, Index: Mean, Standard Deviation, and Inter-Item Correlation (Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation	
			14	20
14. Learning about nature	4.01	.96	1.0	.53
20. Developing new ideas	3.46	1.08		1.0

Table 50 and Table 51 display the Cronbach coefficient alpha and the confirmatory factor analysis results, respectively. The overall alphas for this index was .69. One factor was found which explained 76.4% of the variance. Loadings and communality for both items were acceptable.

Table 50

Functional Manner, Cognitive Mode, Index: Cronbach Coefficient Alpha (Mail-out Data Set)

---

Cronbach Coefficient Alpha for Index = .69

---

Item Number and Item	Correlation with Total	Alpha if Deleted
14. Learning about nature	.53	--
20. Developing new ideas	.53	--

---

Table 51

Functional Manner, Cognitive Mode, Index: Confirmatory Factor Analysis (Mail-out Data Set)

---

First eigenvalue = 1.53, variance explained = 76.4%

---

Item Number and Item	Loading	Communality
14. Learning about nature	.87	.76
20. Developing new ideas	.87	.76

---

### Summary.

The two items used in the functional manner, cognitive mode, index appear to fit well together when both the on-site and mail-out data sets are examined.

### Self-Evaluative Manner Index

#### On-site data set.

The self-evaluative manner seeks to answer the question "how do I feel about myself?" Six items were selected which might affect how a recreationist answers this question. Items 5 ("feeling more self-confident"), 7 ("control over my time and activities"), 8 ("being able to achieve my goals"), 27 ("controlling my thoughts and feelings"), and 30 ("feeling more self-reliant") are associated with feelings of self-efficacy. Item 23 ("letting others see me as I really am") is associated with feelings of self-authenticity.

Table 52 provides information on the mean, standard deviation, and inter-item correlation for the self-evaluative manner items using data from the on-site data set. As shown, item 23's mean is lower compared to the other items. The correlation between items 7 and 23 is low ( $r = .26$ ).

Table 52

Self-Evaluative Manner Index: Mean, Standard Deviation, and Inter-Item Correlation  
(On-site Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation					
			5	7	8	23	27	30
5. Feeling more self-confident	3.52	1.11	1.0	.39	.52	.44	.40	.55
7. Control over time & activities	3.60	1.19		1.0	.55	.26	.43	.33
8. Being able to achieve my goals	3.61	1.16			1.0	.38	.38	.50
23. Let others see me as I am	3.15	1.28				1.0	.36	.42
27. Control thoughts & feelings	3.34	1.17					1.0	.52
30. Feeling more self-reliant	3.59	1.21						1.0

Table 53 displays the Cronbach coefficient alpha for the on-site data set. The overall alpha was .82. The confirmatory factor analysis (Table 54) reports that 52.6% of the variance is explained by the first factor, and that the loadings and communality scores for the six items were found to be acceptable.

Table 53

Self-Evaluative Manner Index: Cronbach Coefficient Alpha (On-site Data Set)


---

Cronbach Coefficient Alpha for Index = .82

---

Item Number and Item	Correlation with Total	Alpha if Deleted
5. Feeling more self-confident	.63	.78
7. Control over my time & activities	.52	.80
8. Being able to achieve my goals	.64	.78
23. Letting others see me as I really am	.49	.81
27. Controlling my thoughts & feelings	.56	.79
30. Feeling more self-reliant	.64	.78

---

Table 54

Self-Evaluative Manner Index: Confirmatory Factor Analysis (On-site Data Set)


---

First eigenvalue = 3.15, variance explained = 52.6 %

---

Item Number and Item	Loading	Communality
5. Feeling more self-confident	.77	.59
7. Control over my time & activities	.67	.45
8. Being able to achieve my goals	.77	.59
23. Letting others see me as I really am	.64	.41
27. Controlling my thoughts & feelings	.71	.50
30. Feeling more self-reliant	.78	.60

---

Mail-out data set.

Table 55 shows the mean, standard deviations, and inter-item correlations for the self-evaluative index using data from the mail-out data set. Upon examination, item 23's mean is found to be lower than that of the other items. In addition, only one inter-item correlation was below .40; the correlation between items 23 and 7 ( $r = .29$ ).



Table 55

Self-Evaluative Manner Index: Mean, Standard Deviation, and Inter-Item Correlation  
(Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation					
			5	7	8	23	27	30
5. Feeling more self-confident	3.72	1.11	1.0	.49	.51	.55	.47	.72
7. Control over time & activities	3.86	1.12		1.0	.53	.29	.45	.45
8. Being able to achieve my goals	3.94	1.01			1.0	.40	.42	.53
23. Let others see me as I am	3.22	1.22				1.0	.48	.56
27. Control thoughts & feelings	3.30	1.19					1.0	.56
30. Feeling more self-reliant	3.70	1.17						1.0

The overall Cronbach coefficient alpha for this index, using the mail-out data set (Table 56), is .85. Confirmatory factor analysis for favorite experiences (Table 58) results in one factor having an eigenvalue greater than 1.0 (3.49) which explains 58.1% of the variance. Loadings and communality scores were acceptable for all six items.

Table 56

Self-Evaluative Manner Index: Cronbach Coefficient Alpha (Mail-out Data Set)


---

Cronbach Coefficient Alpha for Index = .85

---

Item Number and Item	Correlation with Total	Alpha if Deleted
5. Feeling more self-confident	.72	.81
7. Control over my time & activities	.56	.84
8. Being able to achieve my goals	.62	.83
23. Letting others see me as I really am	.58	.84
27. Controlling my thoughts & feelings	.61	.83
30. Feeling more self-reliant	.75	.81

---

Table 57

Self-Evaluative Manner Index: Confirmatory Factor Analysis (Mail-out Data Set)


---

First eigenvalue = 3.49, variance explained = 58.1%

---

Item Number and Item	Loading	Communality
5. Feeling more self-confident	.83	.69
7. Control over my time & activities	.69	.48
8. Being able to achieve my goals	.74	.55
23. Letting others see me as I really am	.71	.51
27. Controlling my thoughts & feelings	.73	.54
30. Feeling more self-reliant	.85	.72

---

Summary.

Upon review, the self-evaluative manner index exhibits acceptable statistical properties. Although there is some concern regarding item 23's inclusion, it must be remembered that this item is believed to measure a different aspect of self-evaluation (i.e., self-authenticity) than the other five items do (i.e., self-efficacy). Continued use of this index, in its present form, appears defensible.

Identity Manner IndexOn-site data set.

As noted in the literature review, self-concept has two components, self-evaluation and identity. The identity component seeks to answer the question "who and what am I?" (Campbell et al., 1996). Five items, thought to measure both personal and

communal identity, were used for this index. Table 58 shows the means and standard deviations for these items using the on-site data set, as well as the inter-item correlations. As shown, item 12 is rated highest and item 29 lowest. All but one inter-item correlation were above .50

Table 58

Identity Manner Index: Mean, Standard Deviation, and Inter-Item Correlation (On-site Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation				
			6	11	12	15	29
6. Feeling I'm part of something bigger	3.75	1.20	1.0	.56	.52	.49	.58
11. Feeling a sense of oneness with nature	4.04	1.03		1.0	.70	.53	.53
12. Being reminded of the things that matter most in my life	4.07	1.10			1.0	.61	.51
15. Thinking about my life & personal values	3.68	1.16				1.0	.61
29. Learning more about who I am	3.38	1.22					1.0

Table 59 and Table 60 examine the Cronbach coefficient alpha and confirmatory factor analysis findings, respectively. The alpha level (.87) was acceptable and the deletion of items was found to be unnecessary. Only one factor was found to be above 1.0, and explained 65.2% of the variance. Loadings for all five items were above .75, and item communality was also acceptable.

Table 59

Identity Manner Index: Cronbach Coefficient Alpha (On-site Data Set)


---

Cronbach Coefficient Alpha for Index = .87

---

Item Number and Item	Correlation with Total	Alpha if Deleted
6. Feeling I'm part of something bigger	.65	.85
11. Feeling a sense of oneness with nature	.72	.83
12. Being reminded of the things that matter most in my life	.72	.83
15. Thinking about my life & personal values	.68	.84
29. Learning more about who I am	.68	.84

---

Table 60

Identity Manner Index: Confirmatory Factor Analysis (On-site Data Set)


---

First eigenvalue = 3.26, variance explained = 65.2%

---

Item Number and Item	Loading	Communality
6. Feeling I'm part of something bigger	.78	.60
11. Feeling a sense of oneness with nature	.83	.69
12. Being reminded of the things that matter most in my life	.83	.69
15. Thinking about my life & personal values	.80	.64
29. Learning more about who I am	.80	.63

---

Mail-out data set.

Table 61 displays the means, standard deviations, and inter-item correlations for identity using the mail-out data set. Once again, item 12 is rated highest ( $\underline{M}$  = 4.10) and item 19 is rated lowest ( $\underline{M}$  = 3.50). Inter-item correlations are also similar, with all correlations being above .45 for both data sets.

Table 61

Identity Manner Index: Mean, Standard Deviation, and Inter-Item Correlation (Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation				
			6	11	12	15	29
6. Feeling I'm part of something bigger	3.79	1.18	1.0	.55	.59	.57	.63
11. Feeling a sense of oneness with nature	3.98	1.02		1.0	.50	.45	.52
12. Being reminded of the things that matter most in my life	4.10	1.00			1.0	.69	.56
15. Thinking about my life & personal values	3.78	1.01				1.0	.61
29. Learning more about who I am	3.50	1.27					1.0

As Table 62 illustrates, the Cronbach coefficient alpha for this index was .87, and deletion of items was unnecessary. Factor analysis of these items (Table 63) resulted in only one major factor which explained 65.2% of the variance. Loadings on this factor were all above .70 and communality scores were greater than .50.

Table 62

Identity Manner Index: Cronbach Coefficient Alpha (Mail-out Data Set)


---

Cronbach Coefficient Alpha for Index = .87

---

Item Number and Item	Correlation with Total	Alpha if Deleted
6. Feeling I'm part of something bigger	.71	.83
11. Feeling a sense of oneness with nature	.60	.86
12. Being reminded of the things that matter most in my life	.70	.83
15. Thinking about my life & personal values	.71	.83
29. Learning more about who I am	.72	.83

---



Table 63

Identity Manner Index: Confirmatory Factor Analysis (Mail-out Data Set)


---

First eigenvalue = 3.26, variance explained = 65.2 %

---

Item Number and Item	Loading	Communality
6. Feeling I'm part of something bigger	.82	.68
11. Feeling a sense of oneness with nature	.73	.54
12. Being reminded of the things that matter most in my life	.82	.68
15. Thinking about my life & personal values	.82	.68
29. Learning more about who I am	.83	.69

---

Summary.

Examination of the descriptive data, Cronbach coefficient alpha, and confirmatory factor analyses for these five items does support their use as an index.

Affective Manner IndexOn-site data set.

The affective manner index measures the emotional intensity an individual experiences during his or her overall outdoor recreation visit. Table 64 describes the means, standard deviations, and inter-item correlations for the three affective items used in this index.

Table 64

Affective Manner Index: Mean, Standard Deviation, and Inter-Item Correlation (On-site Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation		
			13	16	21
13. Releasing or reducing built-up tensions	3.94	1.15	1.0	.43	.57
16. Experiencing excitement	3.95	1.01		1.0	.37
21. Experiencing tranquillity	3.76	1.16			1.0

Mean and standard deviation scores were similar for all three items, although the inter-item correlations indicate that item 13 and 21 are more closely related to each other than either is to item 16 (i.e., experiencing excitement). Findings from Table 65 support this, indicating that item 16 has a correlation of only .45 with the total.

Table 65

Affective Manner Index: Cronbach Coefficient Alpha (On-site Data Set)


---

 Cronbach Coefficient Alpha for Index = .71
 

---

Item Number and Item	Correlation with Total	Alpha if Deleted
13. Releasing or reducing built-up tensions	.60	.54
16. Experiencing excitement	.45	.73
21. Experiencing tranquillity	.56	.60

---

A confirmatory factor analysis of the affective manner items was also performed using the on-site data. The factor analysis (see Table 66) resulted in one major factor explaining an acceptable level of variance (63.9%). Communality for the three items was also found to be acceptable.

Table 66

Affective Manner Index: Confirmatory Factor Analysis (On-site Data Set)


---

First eigenvalue = 1.92, variance explained = 63.9 %

---

Item Number and Item	Loading	Communality
13. Releasing or reducing built-up tensions	.85	.72
16. Experiencing excitement	.72	.52
21. Experiencing tranquillity	.82	.67

---

Mail-out data set.

When data from the mail-out questionnaire are examined, many of the same trends are found. As Table 67 shows, items 13 and 21 are more closely related to each other than either is to item 16 ("experiencing excitement"). Also noteworthy is the increase in ratings for items 13 (from  $\underline{M}$  = 3.94 to  $\underline{M}$  = 4.17) and 21 (from  $\underline{M}$  = 3.76 to  $\underline{M}$  = 3.96) from the on-site to the mail-out data sets, respectively.

Table 67

Affective Manner Index: Mean, Standard Deviation, and Inter-Item Correlation (Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation		
			13	16	21
13. Releasing or reducing built-up tensions	4.17	0.98	1.0	.31	.52
16. Experiencing excitement	4.02	1.00		1.0	.17
21. Experiencing tranquillity	3.96	1.01			1.0

A Cronbach coefficient alpha score of .60 was found (Table 68). Deletion of item 16 would increase the alpha to .68.

Table 68

Affective Manner Index: Cronbach Coefficient Alpha (Mail-out Data Set)


---

Cronbach Coefficient Alpha for Index = .60

---

Item Number and Item	Correlation with Total	Alpha if Deleted
13. Releasing or reducing built-up tensions	.54	.29
16. Experiencing excitement	.28	.68
21. Experiencing tranquillity	.42	.47

---

The confirmatory factor analysis (Table 69) found one major eigenvalue which explained 56.2% of the variance. Item 16's communality score was low (.34).

Table 69

Affective Manner Index: Confirmatory Factor Analysis (Mail-out Data Set)


---

First eigenvalue = 1.69, variance explained = 56.2 %

---

Item Number and Item	Loading	Communality
13. Releasing or reducing built-up tensions	.85	.73
16. Experiencing excitement	.58	.34
21. Experiencing tranquillity	.79	.62

---

Summary.

As the literature review reported, and as these statistical analyses demonstrate, excitement and tranquillity are separate and distinct kinds of mood. It should be remembered, however, that the affective manner index is a measure of the emotional intensity a person experiences during his or her overall outdoor recreation trip and not how he or she feels at a specific moment in time. All three affect items will, therefore, continue to be used for this index.

Absorption Manner, Attention Dimension, IndexOn-site data set.

As noted earlier, one characteristic of absorption is the intense focusing of attention on a specific stimuli. As a consequence, other stimuli in the environment are often unattended to, as is the passing of time. Three items are used in the Absorption Manner, Attention Dimension, Index to try and understand this attribute of absorption.

Table 70 illustrates the means, standard deviations, and inter-item correlations for each of these items using data from the on-site questionnaire.

Table 70

Absorption Manner, Attention Dimension, Index: Mean, Standard Deviation, and Inter-Item Correlation (On-site Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation		
			18	24	26
18. Becoming so absorbed in my experience that I lose track of everything around me	3.19	1.31	1.0	.38	.53
24. Living only in the moment; forgetting the everyday worries of life	3.76	1.22		1.0	.48
26. Enjoying this visit so much I lose track of time	3.77	1.13			1.0

Table 71 reports a Cronbach coefficient alpha of .72 for this index and recommends that no items be deleted.



Table 71

Absorption Manner, Attention Dimension, Index: Cronbach Coefficient Alpha (On-site Data Set)

---

Cronbach Coefficient Alpha for Index = .72

---

Item Number and Item	Correlation with Total	Alpha if Deleted
18. Becoming so absorbed in my experience that I lose track of everything around me	.53	.64
24. Living only in the moment; forgetting the everyday worries of life	.49	.70
26. Enjoying this visit so much I lose track of time	.61	.55

---

Table 72, the confirmatory factor analysis, found one major eigenvalue which explained 64.2% of the variance. Loadings and communality scores for the three items were satisfactory.

Table 72

Absorption Manner, Attention Dimension, Index: Confirmatory Factor Analysis (On-site Data Set)

---

First eigenvalue = 1.93, variance explained = 64.2 %

---

Item Number and Item	Loading	Communality
18. Becoming so absorbed in my experience that I lose track of everything around me	.80	.63
24. Living only in the moment; forgetting the everyday worries of life	.76	.57
26. Enjoying this visit so much I lose track of time	.85	.72

---

Mail-out data set.

When data from the mail-out questionnaire are used to examine the Absorption Manner, Attention Dimension, index, many of the same trends are found. In Table 73, for example, item 18 once again has the lowest mean score, and items 18 and 24 the lowest inter-item correlation (albeit higher at .44 than the on-site questionnaire's .38). Similarly, while Table 74 shows that item 24 once again has the lowest correlation with the total, the Cronbach coefficient alpha for the favorite experience has increased to .76 from .72 for the on-site data set.

Table 73

Absorption Manner, Attention Dimension, Index: Mean, Standard Deviation, and Inter-Item Correlation (Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation		
			18	24	26
18. Becoming so absorbed in my experience that I lose track of everything around me	3.43	1.24	1.0	.44	.57
24. Living only in the moment; forgetting the everyday worries of life	3.88	1.09		1.0	.52
26. Enjoying this visit so much I lose track of time	3.97	1.07			1.0

Table 74

Absorption Manner, Attention Dimension, Index: Cronbach Coefficient Alpha (Mail-out Data Set)

---

Cronbach Coefficient Alpha for Index = .76

---

Item Number and Item	Correlation with Total	Alpha if Deleted
18. Becoming so absorbed in my experience that I lose track of everything around me	.58	.68
24. Living only in the moment; forgetting the everyday worries of life	.54	.72
26. Enjoying this visit so much I lose track of time	.64	.61

---

In regard to the confirmatory factor analysis for this index using the mail-out questionnaire data, only one factor was again found. Further, the level of variance explained increased slightly (to 67.3% from 64.2% for the on-site experience), as did the loadings and communality levels for all three items. Table 75 describes the confirmatory factor analysis findings for the Absorption Manner, Attention Dimension, Index using data from the mail-out data set.

Table 75

Absorption Manner, Attention Dimension, Index: Confirmatory Factor Analysis (Mail-out Data Set)

---

First eigenvalue = 2.02, variance explained = 67.3 %

---

Number and Item	Loading	Communality
18. Becoming so absorbed in my experience that I lose track of everything around me	.82	.67
24. Living only in the moment; forgetting the everyday worries of life	.79	.62
26. Enjoying this visit so much I lose track of time	.86	.73

---

Summary.

When data from both questionnaires are examined, the inter-item correlations, Cronbach coefficient alphas, and confirmatory factor analyses' loadings and communality levels indicate that these three items do represent a common concept. These three items, therefore, appear to measure the attention dimension of absorption.

Absorption Manner, Challenge Dimension, Index

On-site data set.

The second dimension of absorption--challenge--is a function of risk-taking and creative activity. Table 76 illustrates the means, standard deviations, and inter-item correlation for the two items used to develop this index using data from the on-site data set.

Table 76

Absorption Manner, Challenge Dimension, Index: Mean, Standard Deviation, and Inter-Item Correlation (On-site Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation	
			1	2
1. Taking risks	2.76	1.28	1.0	.40
2. Being creative	3.00	1.17		1.0

As illustrated in the above table, the means and standard deviations for these two items are similar, and the correlation between them is low but acceptable. As Table 77 demonstrates, however, the Cronbach coefficient alpha for these two items was low at .57, indicating a potential reliability problem. Table 78, the confirmatory factor analysis, does exhibit only one major factor which explains 70.0% of the total variance. In addition, the loadings (.84) and communality (.70) are both at satisfactory levels.

Table 77

Absorption Manner, Challenge Dimension, Index: Cronbach Coefficient Alpha (On-site Data Set)

Cronbach Coefficient Alpha for Index = .57

Item Number and Item	Correlation with Total	Alpha if Deleted
1. Taking risks	.40	--
2. Being creative	.40	--

Table 78

Absorption Manner, Challenge Dimension, Index: Confirmatory Factor Analysis (On-site Data Set)

First eigenvalue = 1.40, variance explained = 70.0 %

Item Number and Item	Loading	Communality
1. Taking risks	.84	.70
2. Being creative	.84	.70

Mail-out data set.

When the challenge dimension of absorption is examined, data from the mail-out questionnaire seems to parallel many of the aspects of the on-site data set. Table 79 shows, for example, little difference in the standard deviation for each item for the two data sets. Similarly, the inter-item correlation for these two items is alike, although it has dropped slightly from .40 for the on-site data set to .38 for the mail-out data set. Most noticeable, however, is the increase in the "being creative" item, which rose from a mean of 3.00 to a mean of 3.61 for the on-site and mail-out data sets, respectively.

Table 79

Absorption Manner, Challenge Dimension, Index: Mean, Standard Deviation, and Inter-Item Correlation (Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation	
			1	2
1. Taking risks	2.88	1.20	1.0	.38
2. Being creative	3.61	1.10		1.0

The Cronbach coefficient alpha for the mail-out data set is also very similar to the on-site data set. As illustrated by Table 80, the alpha is .56 for the mail-out data set versus .57 for the on-site data set. Each item's correlation with the total has also dropped slightly, from .40 (on-site data set) to .38 (mail-out data set).



Table 80

Absorption Manner, Challenge Dimension, Index: Cronbach Coefficient Alpha (Mail-out Data Set)

---

Cronbach Coefficient Alpha for Index = .56

---

Item Number and Item	Correlation with Total	Alpha if Deleted
1. Taking risks	.38	--
2. Being creative	.38	--

---

Information from the confirmatory factor analysis performed on the these two items, using data from the mail-out questionnaire, is also very similar to that found when data from the on-site questionnaire was analyzed. In both cases, only one factor was found, the variance explained was almost equal (70.0% on-site, 69.2% mail-out), and the loadings (.84 on-site, .83 mail-out), and communalities (.70 on-site, .69 mail-out) were almost identical. Table 81 describes the information outlined above when the confirmatory factor analysis is performed using items 1 and 2.

Table 81

Absorption Manner, Challenge Dimension, Index: Confirmatory Factor Analysis (Mail-out Data Set)

---

First eigenvalue = 1.38, variance explained = 69.2 %

---

Item Number and Item	Loading	Communality
1. Taking risks	.83	.69
2. Being creative	.83	.69

---

Summary.

Overall, analysis of the two items used for the challenge dimension of the absorption index vary little no matter which data set is being examined. Inter-item correlation is somewhat low in both cases, as are the Cronbach coefficient alpha scores. Findings using confirmatory factor analysis were, however, more supportive. Thus, while there are some concerns about the relationship between these two items--and how well they measure the challenge dimension of absorption--they will continue to be used as an index.

Interdependent Self-Construal Index

On-site data set.

As noted in the literature review, some individuals--particularly non-Westerners, Native Americans, and possibly women and residents of small towns or rural communities--may have an interdependent self-construal. For these interdependent individuals, the content of the five manners may differ from that of traditional

recreationists (who are thought to have independent self-construals). For example, people with independent self-construals value being unique, expressing one's self, and promoting one's own goals, while individuals with interdependent self-construals value belonging, fitting in, and promoting other's goals. Based on Markus and Kitayama's (1991) research, three items have been developed which measure the types of recreation experiences interdependent individuals may expect and prefer: (a) "understanding my companions' thoughts and feelings" (item 4); (b) "finding happiness in my companions' achievements" (item 10); and (c) "finding harmony with my companions" (item 19). Table 82 displays the mean, standard deviation, and inter-item correlations for these three items using the on-site data set. Item means are relatively similar and all correlations are above .56.

Table 82

Interdependent Self-Construal: Mean, Standard Deviation, and Inter-Item Correlation  
(On-site Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation		
			4	10	19
4. Understanding my companions' thoughts and feelings	3.18	1.13	1.0	.57	.60
10. Finding happiness in my companions' achievements	3.50	1.17		1.0	.61
19. Finding harmony with my companions	3.51	1.09			1.0

Tables 83 and 84, respectively, describe the Cronbach coefficient alphas and the confirmatory factor analysis for the three interdependent self-construal items. The alpha for this index was .81, and item deletion was not required. Analysis of these three items resulted in one factor with an eigenvalue greater than 1.0, which explained 72.8% of the variance. Item loadings were above .80, and item communality was over .70.

Table 83

Interdependent Self-Construal Index: Cronbach Coefficient Alpha (On-site Data Set)

---

Cronbach Coefficient Alpha for Index = .81

---

Item Number and Item	Correlation with Total	Alpha if Deleted
4. Understanding my companions' thoughts & feelings	.65	.76
10. Finding happiness in my companions' achievements	.66	.75
19. Finding harmony with my companions	.68	.72

Table 84

Interdependent Self-Construal Index: Confirmatory Factor Analysis (On-site Data Set)


---

First eigenvalue = 2.18, variance explained = 72.8 %

---

Item Number and Item	Loading	Communality
4. Understanding my companions' thoughts & feelings	.85	.71
10. Finding happiness in my companions' achievements	.85	.72
19. Finding harmony with my companions	.86	.75

---

Mail-out data set.

Table 85 displays the mean, standard deviation, and inter-item correlations for the interdependent self-construal index when data from the mail-out questionnaire was used. As with the on-site data set, item 4 was rated lower than the other two items. Overall, inter-item correlations were higher for the favorite experience (between .62 and .72) than for the on-site experience (between .57 and .61).

Table 85

Interdependent Self-Construal: Mean, Standard Deviation, and Inter-Item Correlation  
(Mail-out Data Set)

Item Number and Item	<u>M</u>	<u>SD</u>	Inter-Item Correlation		
			9	22	32
4. Understanding my companions' thoughts and feelings	3.27	1.04	1.0	.62	.64
10. Finding happiness in my companions' achievements	3.56	1.02		1.0	.72
19. Finding harmony with my companions	3.68	1.10			1.0

Table 86 and Table 87 show the Cronbach coefficient alpha and confirmatory factor analyses, respectively, for the interdependent self-construal index. An alpha of .85 was found and no items required deletion. Factor analysis resulted in only one major factor which explained 77.5% of the variance. Item loadings were above .80 and communality was above .70.

Table 86

Interdependent Self-Construal Index: Cronbach Coefficient Alpha (Mail-out Data Set)


---

Cronbach Coefficient Alpha for Index = .85

---

Item Number and Item	Correlation with Total	Alpha if Deleted
4. Understanding my companions' thoughts & feelings	.68	.84
10. Finding happiness in my companions' achievements	.74	.78
19. Finding harmony with my companions	.76	.77

---

Table 87

Interdependent Self-Construal Index: Confirmatory Factor Analysis (Mail-out Data Set)


---

First eigenvalue = 2.32, variance explained = 77.5%

---

Item Number and Item	Loading	Communality
4. Understanding my companions' thoughts & feelings	.85	.72
10. Finding happiness in my companions' achievements	.89	.79
19. Finding harmony with my companions	.90	.81

---

### Summary.

Based on the statistical analyses performed above, these three items do appear to form an index which measures Markus and Kitayama's (1991) interdependent self-construal concept.

### Overall Factor Analysis

Table 88 displays the results of the factor analysis of the 31 on-site data set items. Table 89 displays the results of the factor analysis of the 32 mail-out data set items. Results of the overall factor analyses are discussed after each table.



Table 88

Factor Analysis using Varimax Rotation (On-site Data Set)

Category	Factor							
	1	2	3	4	5	6	7	8
Eigenvalue	12.04	1.79	1.65	1.33	1.27	1.04	.91	.85
Percent of Variance	38.9	5.8	5.3	4.3	4.1	3.3	2.9	2.7
Cumulative Percent	38.9	44.6	49.9	54.2	58.3	61.7	64.6	67.4
<b>Functional Manner, Activity Mode, Index</b>								
Keep fit	.14	-.08	.22	-.01	-.02	<b>.55</b>	.31	-.26
Develop skills	.18	.15	.15	.46	.41	.42	.24	-.16
<b>Functional Manner, Place Mode, Index</b>								
View scenery	.14	.13	<b>.79</b>	.01	.08	.12	-.07	-.06
Away from crowds/noise	.14	.05	<b>.65</b>	.15	.20	.03	.21	.04
<b>Functional Manner, Social Environment Mode, Index</b>								
Meet similar people	.13	.16	.08	<b>.78</b>	.08	.03	.29	.14
Meet new people	.17	.20	.06	<b>.82</b>	.11	.06	.03	.01
Share skills	.22	.44	.20	.42	.21	.21	.08	-.09
<b>Functional Manner, Cognitive Mode, Index</b>								
Learn about nature	<b>.51</b>	.24	.29	.34	.20	.01	.00	-.36
Develop new ideas	.45	<b>.50</b>	.03	.20	.30	.21	-.03	-.12

Table 88 (continued)

Factor Analysis using Varimax Rotation (On-site Data Set)

Category	Factor							
	1	2	3	4	5	6	7	8
<b>Self-Evaluative Manner Index</b>								
Feel self-confident	.44	.44	.06	.06	.11	.30	.39	.08
Control time/activities	.30	.17	.13	.17	.10	-.13	<b>.74</b>	-.03
Achieve my goals	.19	.18	.13	.24	.22	.28	<b>.69</b>	.05
See me as I really am	.28	.44	.06	.43	.17	.17	.01	.40
Control thoughts/feelings	.48	.09	.13	.33	.48	-.07	.17	-.13
Feel more self-reliant	<b>.60</b>	.14	.04	.19	.43	.33	.16	.01
<b>Identity Manner Index</b>								
Things that matter most	<b>.67</b>	.21	.36	.17	-.06	.04	.15	.10
Think about life/values	<b>.74</b>	.19	.22	.12	.13	.05	.10	-.08
Part of something bigger	<b>.56</b>	.23	.15	.05	.12	.27	.35	.25
Oneness with nature	<b>.64</b>	.19	.37	.16	.02	.11	.17	.13
Learn who I am	<b>.71</b>	.14	.03	.18	.37	.17	.17	.11
<b>Affective Manner Index</b>								
Reduce tensions	.46	.18	.48	.02	.11	.11	.23	.05
Experience excitement	.18	.30	.36	.23	.37	.26	.15	-.13
Experience tranquillity	.43	.15	<b>.55</b>	.06	.20	.04	.20	.13

Table 88 (continued)

Factor Analysis using Varimax Rotation (On-site Data Set)

Category	Factor							
	1	2	3	4	5	6	7	8
<b>Absorption Manner, Attention Dimension, Index</b>								
Absorbed in experience	.11	.16	.20	.11	<b>.74</b>	.16	.20	.08
Live in the moment	.32	.14	.39	.25	.29	.06	.06	<b>.50</b>
Lose track of time	.26	.20	.40	.07	<b>.59</b>	.03	-.04	.23
<b>Absorption Manner, Challenge Dimension, Index</b>								
Take risks	-.02	.06	-.03	.01	.15	<b>.81</b>	-.03	.16
Be creative	.31	.19	.15	.15	.04	<b>.64</b>	-.02	.02
<b>Interdependent Self-Construal Index</b>								
Comp's thoughts\feelings	.34	<b>.80</b>	.10	.02	-.02	.08	.10	.01
Comp's achievements	.11	<b>.75</b>	.10	.27	.10	.08	.15	.12
Harmony with comp's	.09	<b>.74</b>	.23	.19	.26	-.05	.14	.01

Note. **Items are grouped by conceptual dimensions.** Numbers in bold are >.50.

Discussion of the on-site data set factors.

Eight factors were selected based on the results of a scree test (Rencher, 1995). The eigenvalue of the first factor was much larger than that of the second factor (12.04 and 1.79, respectively). Of the 31 on-site experience items, 24 loaded at or above .50 on at least one factor.

Two items were used in the functional manner, activity mode, index: (a) "keeping physically fit," which loaded on factor six (.55); and (b) "developing skills and abilities," which did not load on any factor above .50. Because the latter item did, however, load highly on the sixth factor (.42), these two items will continue to be used for this index.

Two items were also included in the functional manner, place mode, index: (a) "viewing the scenery" and "being away from the crowds and noise." Both items loaded above .60 on factor three; "viewing the scenery" at .79 and "being away from the crowds and noise" at .65.

The functional manner, social environment mode, index was composed of three items: (a) "meeting new and interesting people," which loaded on the fourth factor at .82; (b) "meeting people having similar interests," which loaded on the fourth factor at .78; and (c) "sharing your outdoor skills with others," which, although it did not load on any factors above .50, did load on the fourth factor at .42.

The functional manner, cognitive mode, index consisted of two items: (a) "learning more about nature," which loaded on the first factor at .51; and (b) "developing new ideas," which loaded highest on the second factor at .50. The latter item did, however, have its second highest loading on factor one at .45.

Two dimensions of the self were measured with the self-evaluative manner index, self-efficacy and self-authenticity. Five items were used to measure self-efficacy: (a) "feeling more self-reliant," which loaded on factor one (.60); (b) "controlling my thoughts and feelings," which loaded on factors one (.48) and five (.48); (c) "feeling more self-confident," which loaded on factors one (.44) and two (.44); and (d) "control over my time and activities" and "being able to achieve my goals," both of which loaded on the seventh factor (.74 and .69, respectively). The loading of the latter two items on a different factor is somewhat surprising, however these two items may be more

representative of freedom from perceived external limitations rather than self-evaluation. Finally, while the self-authenticity item--"letting others see me as I really am"--did not load above .50 on any factor, it did load at .44 on the second factor along with "feeling more self-confident" (also at .44).

Five items, all of which loaded on the first factor, were used in the identity manner index: (a) "thinking about my life and personal values" (.74), (b) "learning more about who I am" (.71), (c) "being reminded of the things that matter most in my life" (.67), (d) "feeling a sense of oneness with nature" (.64), and (e) "feeling part of something much bigger" (.56). One self-evaluative manner item also loaded strongly on the first factor ("feeling more self-reliant," .60), which was not unexpected as both self-evaluation and identity are related aspects of self-concept. More surprising is the discovery that the functional manner, cognitive mode items also load highly on factor one; an outcome which may be due to the cognitive nature of all of these items.

The affective manner index included three items: (a) "experiencing tranquillity," which loaded on factors three (.55) and one (.43); (b) "releasing or reducing built-up tensions," which also loaded on factors three (.48) and one (.46); and (c) "experiencing excitement," which loaded highest on factors five (.37) and three (.36). That the three items loaded together on the third factor was somewhat surprising, as excitement and tranquillity, while both pleasurable moods, involve very different levels of arousal. Less surprising, however, was that the secondary loadings for the tension and tranquillity items were on the same factor as some of the identity, self-evaluation, and functional manner, cognitive mode, items--an outcome Borrie (1995) also found when he factor analyzed his self-focused, cognitive, and affective items.

The absorption manner, attention dimension, index was composed of three items: (a) "becoming so absorbed in my experience that I lose track of everything around me,"

which loaded at .74 on factor five; (b) "enjoying this visit so much I lose track of time," which loaded at .59 of factor five; and (c) "living only in the moment; forgetting the everyday worries of life," which loaded on factor eight at .50. It is unclear why the last item loaded on a separate factor, especially since all three items exhibited high loadings on the same factor when favorite experiences were analyzed.

Two items, "taking risks" and "being creative," were used in the absorption manner, challenge dimension, index. Both items loaded on factor six, "taking risks" at .81 and "being creative" at .64. That these two items load on a different factor than the other absorption items may indicate that they are aspects of some, but not all, types of absorbing experiences.

The last index measures experiences associated with an interdependent self-construal. All three items loaded on factor two: (a) "understanding my companions' thoughts and feelings" (.80); (b) "finding happiness in my companions' achievements" (.75); and (c) "finding harmony with my companions" (.74). These three items high loadings on the same factor supports their continued use as an index.

In the following section, the mail-out data set will be examined. Table 89 reports the factors and loadings for people's favorite experiences.

Table 89

Factor Analysis using Varimax Rotation (Mail-out Data Set)

Category	Factor								
	1	2	3	4	5	6	7	8	9
Eigenvalue	11.87	2.33	1.98	1.54	1.40	1.22	1.03	.95	.90
Percent of Variance	37.1	7.3	6.2	4.8	4.4	3.8	3.2	3.0	2.8
Cumulative Percent	37.1	44.4	50.5	55.3	59.7	63.5	66.7	69.7	72.5
<b>Functional Manner, Activity Mode, Index</b>									
Keep fit	-.01	.11	.10	.09	.07	<b>.76</b>	.18	.15	.16
Develop skills	.36	.34	.00	.12	.16	<b>.60</b>	.20	.00	.02
<b>Functional Manner, Place Mode, Index</b>									
View scenery	.07	-.17	.07	.13	.02	.42	-.17	.19	<b>.66</b>
Away from crowds/noise	.20	.20	.11	.00	.37	-.06	.03	-.12	<b>.74</b>
<b>Functional Manner, Social Environment Mode, Index</b>									
Meet similar people	.00	<b>.81</b>	.19	.19	.17	.16	-.09	.02	.05
Meet new people	.23	<b>.77</b>	.30	.01	.03	.10	.07	.17	-.10
Share skills	.18	.49	.38	.03	.13	.24	.20	-.42	.16
Spend time with family	.15	-.11	<b>.66</b>	-.17	.14	.34	-.34	-.07	-.17

Table 89 (continued)

Factor Analysis using Varimax Rotation (Mail-out Data Set)

Category	Factor								
	1	2	3	4	5	6	7	8	9
<b>Functional Manner, Cognitive Mode, Index</b>									
Learn about nature	<b>.58</b>	.23	.02	.20	.11	.31	-.17	.29	.10
Develop new ideas	<b>.62</b>	.40	.27	.17	-.02	.13	.21	.15	.05
<b>Self-Evaluative Manner Index</b>									
Feel self-confident	.24	.35	.26	.49	.13	.11	.39	.20	.23
Control time/activities	.18	.07	.14	<b>.83</b>	.00	.10	.02	.05	-.01
Achieve my goals	.27	.29	-.04	<b>.54</b>	.14	.47	.12	.03	-.04
See me as I really am	.44	<b>.57</b>	.31	.15	.03	.06	.29	-.01	.07
Control thoughts/feelings	.44	.27	.15	.45	.31	.10	-.08	-.17	.11
Feel more self-reliant	.44	.45	.05	.34	.28	.20	.24	.26	.18
<b>Identity Manner Index</b>									
Part of something bigger	.20	.21	.16	<b>.52</b>	.27	.04	.10	.49	.12
Oneness with nature	.26	.18	.12	.17	.26	.24	.03	<b>.69</b>	.01
Things that matter most	.37	.02	.33	<b>.56</b>	.25	.09	.02	.24	.18
Think about life/values	<b>.59</b>	.13	.13	.46	.22	.01	.03	.22	.00
Learn who I am	.48	<b>.52</b>	.10	.35	.24	.12	.18	.21	.11



Table 89 (continued)

Factor Analysis using Varimax Rotation (Mail-out Data Set)

Category	Factor								
	1	2	3	4	5	6	7	8	9
<b>Affective Manner Index</b>									
Reduce tensions	<b>.67</b>	.07	.21	.18	.24	.14	.10	-.13	.06
Experience excitement	.12	.22	.10	.31	.25	.45	.39	-.25	-.14
Experience tranquillity	<b>.55</b>	.03	.25	.22	.22	-.12	.23	.28	.18
<b>Absorption Manner, Attention Dimension, Index</b>									
Absorbed in experience	.11	.15	.06	.12	<b>.76</b>	.16	.28	.09	-.05
Live in the moment	.42	.11	-.06	.03	<b>.65</b>	-.01	.11	.05	.13
Lose track of time	.10	.05	.13	.18	<b>.77</b>	.14	-.04	.17	.29
<b>Absorption Manner, Challenge Dimension, Index</b>									
Take risks	.02	.00	-.03	-.06	.15	.14	<b>.81</b>	-.05	-.13
Be creative	.30	.15	.21	.21	.10	.23	<b>.60</b>	.16	.12
<b>Interdependent Self-Construct Index</b>									
Comp's thoughts\feelings	.17	.25	<b>.70</b>	.17	-.03	.02	.20	.21	.15
Comp's achievements	.07	.24	<b>.84</b>	.19	.05	.05	.06	.01	-.02
Harmony with comp's	.18	.33	<b>.73</b>	.19	.08	-.06	.05	.01	.20

Note. Items are grouped by conceptual dimensions. Numbers in bold are >.50.

### Discussion of the mail-out data set factors.

Nine factors were selected as a result of the scree test. Once again the first factor's eigenvalue was much larger than that of the second factor (11.87 and 2.33, respectively). Of the 32 experience items used in the mail-out data set, 27 items loaded above .50 on at least one factor.

The functional manner, activity mode, index was composed of two items, both of which loaded on the sixth factor: (a) "keeping physically fit" (.76), and (b) "developing skills and abilities" (.60).

Two items were used for the functional manner, place mode, index. Both "viewing the scenery" and "being away from the crowds and noise" loaded on the ninth factor (.66 and .74, respectively). This result is the same as the on-site data set where both items also loaded on the same factor.

Three items, all of which loaded on the second factor, were used in the functional manner, social environment mode, index: (a) "meeting people having similar interests," which loaded at .81; (b) "meeting new and interesting people," which loaded at .77; and (c) "sharing your outdoor skills with others," which loaded at .49. "Spending time with your family," the item deleted from this index, loaded at -.11 on the second factor but did load at .66 on the same factor as the interdependent self-construal items.

Both of the functional manner, cognitive mode, index's items loaded on the first factor. "Learning more about nature" loaded at .58 while "developing new ideas" loaded at .62. This result was similar to that found when the on-site data set was factor analyzed.

Four of the five items used to measure the self-efficacy dimension of the self-evaluative manner index loaded highest on the fourth factor: (a) "control over my time and activities" loaded at .83; (b) "being able to achieve my goals" at .54; (c) "feeling

more self-confident" at .49; and (d) "controlling my thoughts and feelings" at .45. The other item thought to measure self-efficacy--"feeling more self-reliant"--loaded high on the first and second factors (.44 and .45, respectively). "Letting others see me as I really am," the item used to measure self-authenticity also loaded high on factor one (.44), although its highest loading was on factor two (.57). That the self-authenticity item does not load strongly with the self-efficacy items is not unexpected as each measures a different dimension of self-concept. In addition, the wording of the self-authenticity item--with its reference to "others"--may have resulted in it loading with the other social interaction items rather than with the self-efficacy items.

The identity manner index was composed of five items which loaded on four different factors: (a) "think about my life and personal values," which loaded on factor one (.59); (b) "learning more about who I am," which loaded on factor two (.52); (c) "being reminded of the things that matter most in my life" and "feeling part of something much bigger," which loaded on factor four (.56 and .52, respectively); and (d) "feeling a sense of oneness with nature," which loaded on factor eight (.69). It is unclear why these five identity items loaded on so many different factors with the mail-out data set but on only one factor with the on-site data set.

In contrast with on-site data set--where the affective manner index's items of "experiencing tranquillity" and "experiencing excitement" loaded on the same factor--with the mail-out data set the two items loaded on different factors. "Experiencing tranquillity" loaded at .55 on factor one while "experiencing excitement" loaded at .45 on factor six. "Experiencing tranquillity" did, however, load on the same factor as the third affective manner item, "releasing or reducing built-up tensions" (.67). For favorite experiences, therefore, it appears that the release or reduction of built-up tension is more closely related to pleasurable low arousal events than pleasurable high arousal events.

The three absorption manner, attention dimension, index items all loaded on factor five: (a) "enjoying this visit so much I lose track of time" (.77), "becoming so absorbed in my experience that I lose track of everything around me" (.76), and "living only in the moment; forgetting the everyday worries of life" (.65). This outcome was expected.

When the absorption manner, challenge dimension, index items were factor analyzed, the results were similar to those found with on-site experiences. Specifically, the two items used for this index, "taking risks" and "being creative," both loaded on the same factors (.81 and .60, respectively, with the mail-out data set, and .81 and .64, respectively, for the on-site data set). This finding supports the continued use of these items as a measure of the absorption manner's challenge dimension.

The last index measured interdependent self-construal. Three items were used, all of which loaded on the third factor: (a) "finding happiness in my companions' achievements" (.84), (b) "finding harmony with my companions" (.73), and (c) "understanding my companions' thoughts and feelings" (.70). These results are the same as those found when the on-site data set items were factored; that is, in both cases all three interdependent self-construal items loaded on the same factor above .70.

In summary, the two factor analyses provide some support for the conceptual experience indices. Many items, for example, did "hang together" as originally conceptualized. Several indices were found, however, to load together, particularly on the first factor. In addition, some items thought to form one index loaded on more than one factor. Therefore, continued--albeit cautious--use of these experience indices appears warranted.

### Conclusion

In conclusion, 10 experience indices have been developed; four indices which measure each type of mode's functional manner, two indices which measure the attention and challenge dimensions of absorption, one index which measures identity, one index which measures self-evaluation, one index which measures affect, and one index which measures interdependent self-construal. In the next chapter, these 10 recreation experiences will be utilized in order to answer the research questions.

## Chapter Five - Study Results

### Introduction

The results of the data analyses for each research question are reported in this chapter.

### Research Question One

#### Introduction and Data Analysis

The first research question asks: "is there empirical evidence that recreation experiences (e.g., identity, absorption) not included in the REP scales exist?" In order to answer this research question, two issues must be addressed: (a) are the new recreation experiences different from the REP experiences (and, if so, are the new recreation experiences also different from each other)? and (b) do people report having these new experiences? These issues will be examined using: (a) the factor analyses conducted earlier on the experience items (Tables 88 and 89); (b) correlations between the measures of the experiences; (c) comparisons among experience means using a one-way ANOVA (analysis of variance) of the 10 experiences and Tukey's multiple comparison test; and (d) the percent of study participants who report having these experiences above the "somewhat" level (i.e., a mean of 3.49 or higher on the five point scale used for this question). Based on the results of these analyses, a new recreation experience will be deemed to either exist or not exist.

Five new recreation experiences are of particular interest to this dissertation because they are thought to be conceptually different from REP experiences, including: (a) functional manner, cognitive mode, experiences, composed of one REP item ("learning more about nature") and one non-REP item ("develop new ideas"); (b) self-evaluative manner experiences, composed of three REP items ("control over my time and activities," "feeling more self-confident," and "feeling more self-reliant") and three non-

REP items ("controlling my thoughts and feelings," "being able to achieve my goals" and "letting others see me as I really am"); (c) identity manner experiences, composed of one REP item ("thinking about my life and personal values") and four non-REP items ("being reminded of the things that matter most in my life," "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," and "learning more about who I am"); (d) absorption manner, attention dimension, experiences, composed of three non-REP items ("becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," and "enjoying this visit so much I lose track of time"); and (e), interdependent self-construal experiences, composed of three non-REP items ("understanding my companions' thoughts and feelings," "finding happiness in my companions achievements," and "finding harmony with my companions").

#### Reexamining the Recreation Experience Factor Analyses

One method for determining if the hypothesized new recreation experiences exist (i.e., are different from both REP experiences and each other) is to reexamine the factor analyses performed on the experience items (Table 88, on-site data set; Table 89, mail-out data set). For example, with the on-site data set, all five REP experiences loaded highly on three of the eight factors. The following four REP items loaded above .45 on the third factor: "viewing the scenery" (.79) and "being away from the crowds and noise" (.65) (the two items composing the functional manner, physical environment mode, experience), and "experiencing tranquillity" (.55) and "releasing or reducing built-up tensions" (.48) (two of the items composing the affective manner experience). Similarly, two REP items--"meeting new and interesting people" (.82) and "meeting people having similar interests" (.78) -- loaded above .50 on the fourth factor. Both items are part of the functional manner, social environment mode, experience. Finally, the sixth factor has

four REP items above .40: "taking risks" (.81) and "being creative" (.64) (the two items which compose the absorption manner, challenge dimension, experience); and "keeping physically fit" and "developing skills and abilities" (.42) (the two items which compose the functional manner, activity mode, experience).

With the on-site data set, the five new experiences loaded highly on the five remaining factors. For example, all five of the identity manner experience item's loaded above .50 on the first factor, as did one of the self-evaluative manner experience's items ("feel more self-reliant," .60) and one of the functional manner, cognitive mode, experience's items ("learn about nature," .51). The other functional manner, cognitive mode, experience item ("develop new ideas"), loaded on the second factor (.50), as did the three interdependent self-construal experience items ("understanding my companions' thoughts and feelings," .80; "finding happiness in my companions' achievements," .75; and "finding harmony with my companions," .74). The three absorption manner, attention dimension, experiences loaded on two factors; with the "becoming so absorbed in my experience that I lose track of everything around me" item and the "enjoying this visit so much I lose track of time" item loading on the fifth factor (.74 and .59, respectively), while the "living only in the moment; forgetting the everyday worries of life" item loaded on the eighth factor (.50). Finally, only two of the self-evaluative manner experience's items loaded together, with both the "control over my time and activities" item and the "being able to achieve my goals" item loading on the seventh factor (.74 and .69, respectively).

Based on the above findings, it would appear that, at least for the on-site data set, the new experience items and the REP experience items seldom load on the same factor. This outcome is repeated when the mail-out data set is analyzed. With this data set, four REP experiences loaded highly on four factors, four new experiences loaded highly on



four factors, and one factor had loadings from both a new and an REP experience. For example, two of the three REP items which compose the functional manner, social environment mode, experience loaded above .60 on the second factor: "meeting new and interesting people" (.81) and "meeting people having similar interests" (.77). In addition, the third item in this experience, "sharing your outdoor skills with others," loaded at .49 on this factor. Similarly, the sixth factor was dominated by the two REP items which make up the functional manner, activity mode, experience: "keeping physically fit" (.76) and "developing skills and abilities" (.60). No other items loaded above .50 on this factor. The differentiation between REP and non-REP experiences is even more pronounced when the seventh and ninth factors are examined. On factor seven, only two items--"taking risks" and "being creative"--loaded above .40 (.81 and .60, respectively); these two REP items are elements of the absorption manner, challenge dimension, experience. Similarly, only two REP items loaded above .30 on factor nine, "being away from crowds and noise" (.74) and "viewing the scenery" (.66). These two items make up the functional manner, place mode, experience. Finally, one REP experience did not load on a separate factor--the affective manner experience. Rather, two of the three items which make up this experience--"releasing or reducing built-up tensions" (.67) and "experience tranquillity" (.55)--loaded on the first factor along with the functional manner, cognitive mode, experience's items "developing new ideas" (.62) and "learn more about nature" (.58). (Although not part of this research question, it's worth noting that the affective manner experience loaded on the same factor as the functional manner, place mode, experience--on-site data set--and the functional manner, cognitive mode, experience--mail-out data set--perhaps because both of these functional experiences help facilitate pleasurable mood states.)

In conclusion, based on these findings it would appear that, for the mail-out data set as with the on-site data set, the new experience items and the REP experience items seldom load on the same factor and, therefore, they may each measure different kinds of recreation experiences. However, as found with the correlations examined earlier, the new recreation experiences appear more closely related to each other than to the REP experiences. For example, some of the self-evaluative manner items loaded with the items believed to measure the identity manner; a finding that was expected as both experiences measure dimensions of the self-concept. The factor loadings for two self-evaluative items, however, were more surprising. For example, the loading for the item "control over my time and activities" dominated the fourth mail-out data set factor, and also loaded highly with "being able to achieve my goals" on the seventh on-site data set factor. This finding may indicate that these two items--although both part of the self-evaluative manner experience--are sufficiently similar to each other so that they form a separate self-efficacy index (possibly freedom from external constraints). Finally, it should be noted that two new experiences had items which loaded strongly by themselves, including: (a) the absorption manner, attention dimension, experience; and (b) the interdependent self-construal experience. In summary, although not all of the new recreation experience items loaded on separate factors, two did. Further, new recreation experience items which did load on the same factor often did so as expected.

#### Recreation Experience Correlations

A second method for determining if the new recreation experiences are different from both REP experiences and each other is to examine their correlations (Tables 90 and 91, on-site and mail-out data sets, respectively). As shown, the absorption manner, attention dimension, experience is most closely correlated with the REP affective manner experience (.63 on-site data set, .55 mail-out data set). This outcome is consistent with

Csikszentmihalyi's (1988) concept of flow, which includes an affective component. Similarly, the affective manner experience is also highly correlated with the identity manner and self-evaluative manner experiences. These high correlations are not surprising as a person's mood may affect--or be affected by--how he or she answers the self-concept questions of "who or what am I?" and "how do I feel about myself?" Finally, the affective manner experience also appears to be related to the functional manner, cognitive mode, experience (.61 on-site data set, .59 mail-out data set). This relationship was unexpected, however, since mood states can be affected by cognitions it is understandable. Other findings worth noting include: (a) the relatively low correlations between the absorption manner, challenge dimension, experience and the five new recreation experiences; only the self-evaluative manner experience's correlation was over .40 for both on-site (.41) and mail-out data sets (.46). This finding is not unreasonable since flow experiences--which often includes elements of risk and challenge--have been found to affect self-evaluations such as self-esteem (Wells, 1988). In addition, (b) both the functional manner, activity mode, and the functional manner, social environment mode, experiences also had high correlations with the self-evaluative manner experience. These findings appear sensible as improving one's fitness and developing one's skills (i.e., the functional manner, activity mode, experience), and either meeting new and interesting people or sharing your skills with others (i.e., the functional manner, social environment mode, experience), would also likely affect how an individual feels about him or herself. Finally, (c) the interdependent self-construal experience also exhibits high correlations with the functional manner, social environment mode, experience (.56 on-site data set, .59 mail-out data set). This finding is also understandable when it is remembered that both experiences involve social interaction. Thus, although some of the REP and new recreation experiences do exhibit high

correlations, perhaps as a result of response set bias (i.e., respondents answering all the items similarly), in many instances these findings are both expected and consistent with the theoretical foundation underlying the Recreation Experience Matrix.

A similar argument can also be put forth when the new recreation experience correlations are examined. For example, although the identity manner experience has a high correlation with the self-evaluative manner experience, this outcome is also not surprising since both measure related aspects associated with a person's self-concept. What is more surprising, however, is the high correlations these self-concept experience have with the functional manner, cognitive mode, experience. This finding may be due to the cognitive nature of all three--i.e., identity manner experiences entail a recreationist thinking about who or what he or she is, self-evaluative manner experiences entail a recreationist thinking about how he or she feels about him or herself, and functional manner, cognitive mode, experiences entail a recreationist either "developing new ideas" or "learning about nature." Thus, although some of the REP and new recreation experiences once again exhibit high correlations, possibly due to response set bias, in many instances these findings are both expected and consistent with the theoretical foundation underlying the Recreation Experience Matrix (REM).

Table 90

Recreation Experience Correlations (On-site Data Set)

Experiences	New Recreation Experience				
	Abs-Att	Identity	S-Eval	F-Cog	Inter S-C
	$r$ (df)	$r$ (df)	$r$ (df)	$r$ (df)	$r$ (df)
<b>REP Experiences</b>					
Absorption, Challenge	.34 (379)	.36 (379)	.41 (379)	.34 (376)	.27 (375)
Affective	.63 (390)	.72 (392)	.68 (390)	.61 (382)	.53 (383)
Functional, Activity	.44 (391)	.50 (398)	.58 (393)	.47 (388)	.33 (385)
Functional, Place	.49 (391)	.48 (398)	.40 (392)	.37 (388)	.33 (386)
Functional, Social Env.	.49 (390)	.53 (396)	.66 (391)	.58 (389)	.56 (386)
<b>New Experiences</b>					
Absorption, Attention	1.0	.62 (394)	.65 (392)	.53 (384)	.50 (385)
Identity		1.0	.76 (395)	.68 (390)	.55 (388)
Self-Evaluative			1.0	.65 (386)	.62 (385)
Functional, Cognitive				1.0	.62 (384)
Interdependent Self-Construal					1.0

Note. Recreation experience abbreviations: (a) Abs-Att = Absorption Manner, Attention Dimension; (b) Identity = Identity Manner; (c) S-Eval = Self-Evaluative Manner; (d) F-Cog = Functional Manner, Cognitive Mode; (e) Inter S-C = Interdependent Self-Construal. All recreation experience correlations  $p < .005$ .

Table 91

Recreation Experience Correlations (Mail-out Data Set)

Experiences	New Recreation Experience				
	Abs-Att	Identity	S-Eval	F-Cog	Inter S-C
	<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )
<b>REP Experiences</b>					
Absorption, Challenge	.35 (162)	.34 (163)	.46 (163)	.32 (163)	.25 (163)
Affective	.55 (163)	.65 (164)	.71 (164)	.59 (163)	.48 (163)
Functional, Activity	.39 (163)	.46 (164)	.57 (164)	.47 (164)	.27 (164)
Functional, Place	.43 (163)	.36 (164)	.34 (164)	.32 (164)	.25 (164)
Functional, Social Env.	.32 (163)	.46 (164)	.64 (164)	.52 (164)	.59 (164)
<b>New Experiences</b>					
Absorption, Attention	1.0	.57 (163)	.53 (163)	.40 (162)	.27 (162)
Identity		1.0	.81 (164)	.70 (163)	.52 (163)
Self-Evaluative			1.0	.71 (163)	.55 (163)
Functional, Cognitive				1.0	.50 (164)
Interdependent Self-Construal					1.0

Note. Recreation experience abbreviations: (a) Abs-Att = Absorption Manner, Attention Dimension; (b) Identity = Identity Manner; (c) S-Eval = Self-Evaluative Manner; (d) F-Cog = Functional Manner, Cognitive Mode; (e) Inter S-C = Interdependent Self-Construal. All recreation experience correlations  $p < .005$ .

### Recreation Experience Means and Standard Deviations

A third method for determining if the new experiences are different from both the REP experiences and each other is to compare their means using a one-way ANOVA and Tukey's multiple comparison test. Mean scores--which are an average of all of an experience's items--are illustrated in Figure 2 (on-site data set) and Figure 3 (mail-out data set). A rating of 3.0 on the five point scale indicates that study participants enjoyed this recreation experience at least "somewhat." The overall mean for the 10 experience was 3.62 for the on-site data set and 3.79 for the mail-out data set. The REP functional manner, place mode, experience had the highest mean score for both the on-site ( $\underline{M}$  = 4.50) and mail-out data sets ( $\underline{M}$  = 4.63). In contrast, the REP absorption manner, challenge dimension, experience had the lowest mean score for both data sets ( $\underline{M}$  = 2.88 on-site data set;  $\underline{M}$  = 3.24 mail-out data set). Of the new recreation experiences, the interdependent self-construal experience had the lowest mean scores ( $\underline{M}$  = 3.41 on-site data set;  $\underline{M}$  = 3.50 mail-out data set), while the new identity manner experience had the highest mean scores ( $\underline{M}$  = 3.79 on-site data set;  $\underline{M}$  = 3.83 mail-out data set).

Standard deviations for these experiences are shown in Table 92.

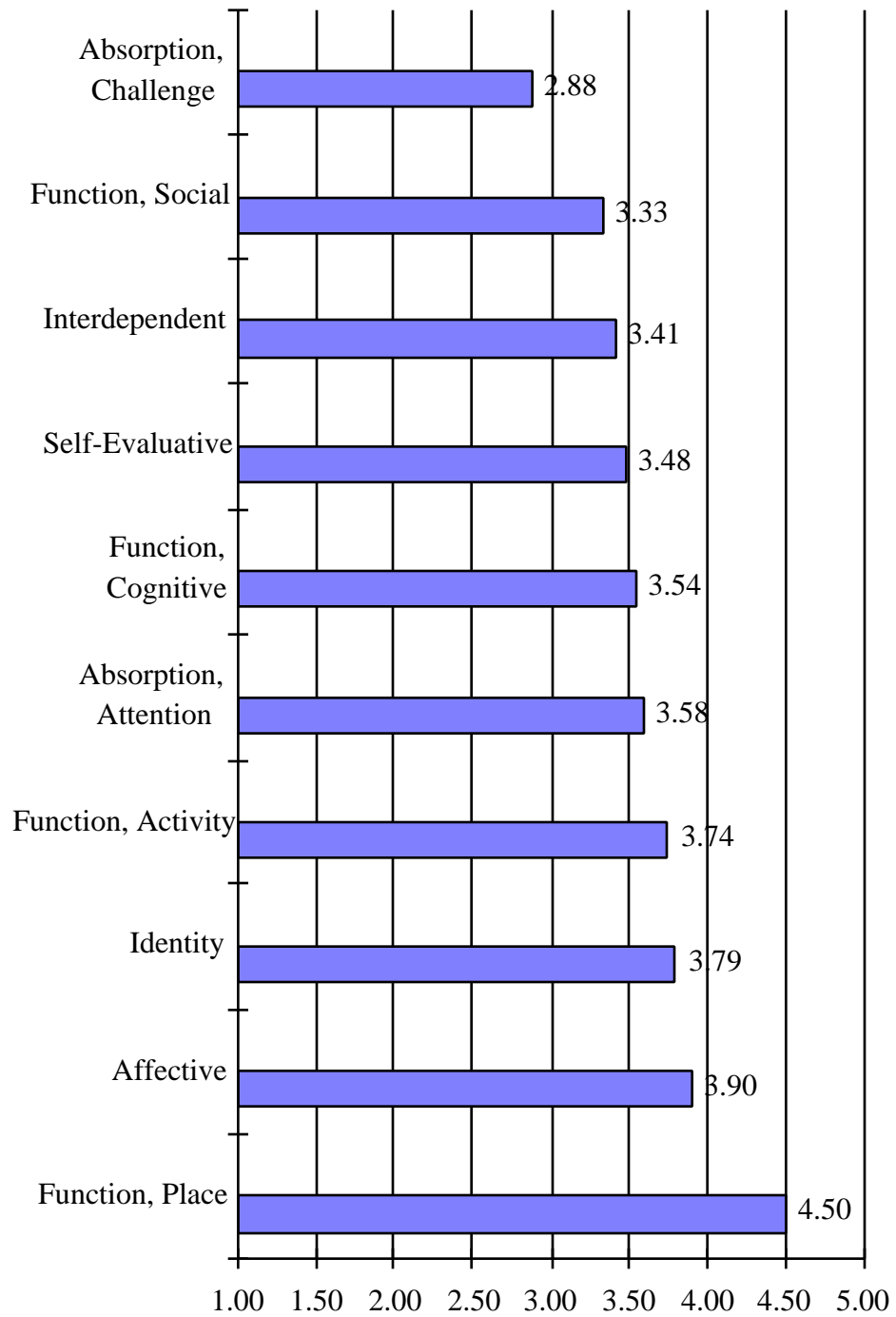


Figure 2: Mean Scores for Experiences (On-site Data Set)



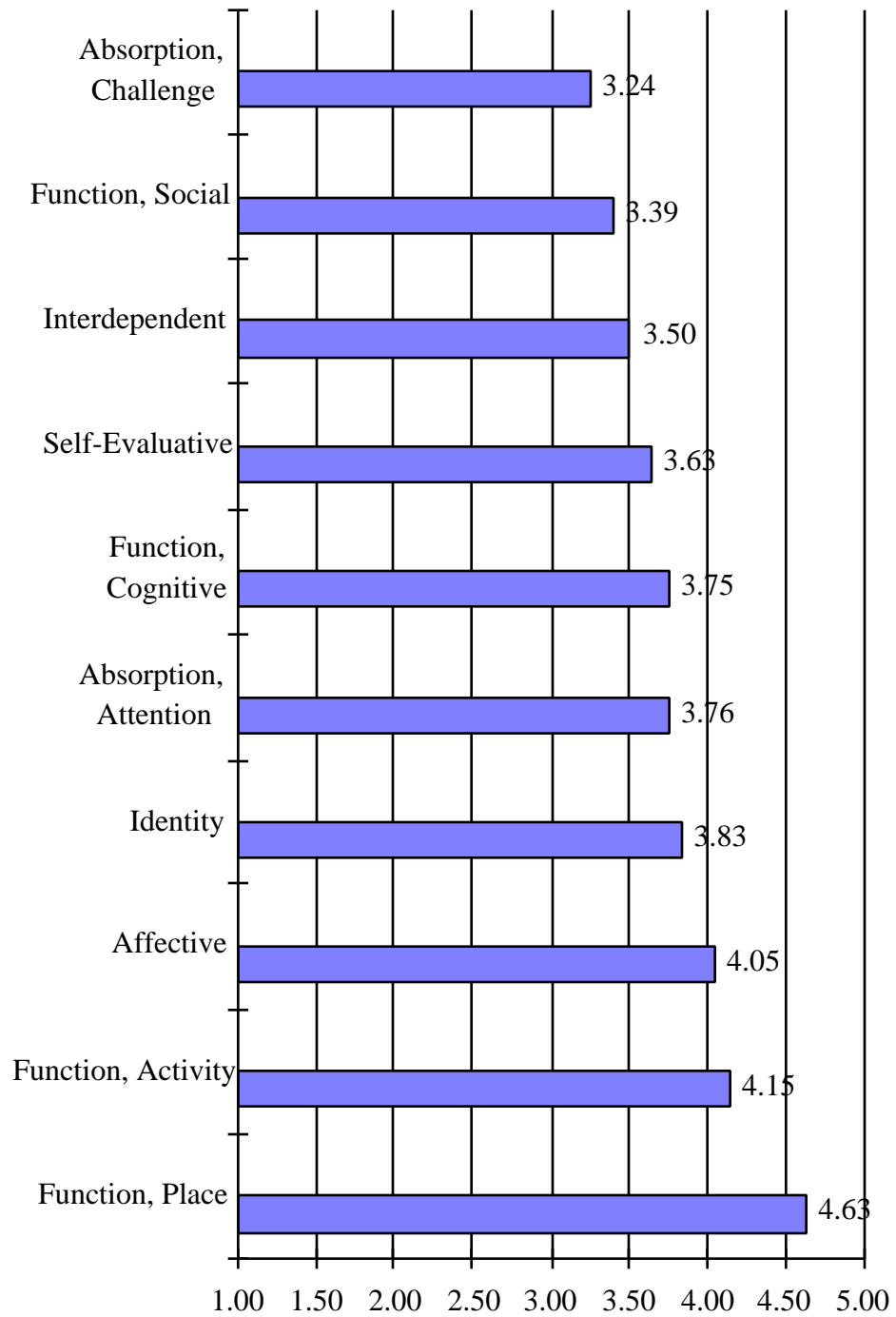


Figure 3: Mean Scores for Experiences (Mail-out Data Set)

Table 92

Recreation Experience Standard Deviations

Recreation Experience (Origin)	SD	
	On-Site	Mail-out
Functional Manner, Activity Mode (REP)	.89	.75
Functional Manner, Place Mode (REP)	.74	.52
Functional Manner, Social Environment Mode (REP)	1.01	.90
Functional Manner, Cognitive Mode (New)	.93	.89
Self-Evaluative Manner (New)	.89	.86
Identity Manner (New)	.98	.89
Affective Manner (REP)	.89	.74
Absorption Manner, Challenge Dimension (REP)	1.03	.96
Absorption Manner, Attention Dimension (New)	.98	.93
Interdependent Self-Construal (New)	.98	.93

A one-way ANOVA (Table 93, on-site data set; Table 94, mail-out data set) and a Tukey's multiple comparison test (Table 95, on-site data set; Table 96, mail-out data set) were also conducted. With the on-site data set, all five new recreation experiences are significantly ( $p < .05$ ) different from the REP functional manner, place mode, experience (which had the highest mean score) and the REP absorption manner, challenge dimension, experience (which had the lowest mean score). The identity manner experience is not, however, significantly different from the REP affective manner and functional manner, activity mode, experiences (although the self-evaluative manner and

interdependent self-construal experiences are different from the functional manner, activity mode, experience). Further, two new recreation experiences--the identity manner experience and the absorption manner, attention dimension, experience--are significantly different from the REP functional manner, social environment mode, experience. Overall, therefore, the results of the Tukey's test using the on-site data set does appear to support the proposition that many of the REP and non-REP recreation experiences are significantly different.

This proposition gains additional support when the mail-out data set is examined (Table 96). All five new recreation experiences are significantly ( $p < .05$ ) different from the REP functional manner, place mode, experience (which had the highest mean score) and the functional manner, activity mode, experience (which had the second highest mean score). Further, all but the interdependent self-construal experience are significantly different from the REP absorption manner, challenge dimension, experience (which had the lowest mean score). In addition, the self-evaluative, interdependent self-construal, and functional manner, cognitive mode, experiences are all significantly different from the REP affective manner experience. Finally, the identity, absorption manner, attention dimension, and the functional manner, cognitive mode, experiences are significantly different from the REP functional manner, social environment mode, experience. Overall, therefore, the results of the Tukey's test for both on-site and mail-out data sets does support the proposition that most of the new recreation experiences are significantly different from the REP experiences.

In contrast, many of the new recreation experiences are not significantly different from each other. For example, with the on-site data set only three experience combinations were found to be significantly different, including: (a) the identity manner experience and the functional manner, cognitive mode, experience; (b) the identity

manner experience and the self-evaluative manner experience; and (c) the identity manner experience and the interdependent self-construal experience. For the mail-out data set, only the last combination was found to differ significantly. Based on the results of the Tukey's multiple comparison tests, therefore, many of the new recreation experiences are somewhat similar .

Table 93

One-way ANOVA on the 10 Recreation Experiences (On-site Data Set)

Source	<u>df</u>	<u>SS</u>	<u>F</u>	<u>p</u>	<u>R<sup>2</sup></u>
Between	9	627.834	80.57	0.0001	0.156
Within	3934	3405.960			
Total	3943	4033.794			

Table 94

Tukey's Multiple Comparison Test on the 10 Recreation Experiences (On-site Data Set)

Recreation Experience	<u>M</u>	Tukey's Test
Functional Manner, Place Mode	4.50	A
Affective Manner	3.90	B
Identity Manner	3.79	B C
Functional Manner, Activity Mode	3.74	B C D
Absorption Manner, Attention Dimension	3.58	C D E
Functional Manner, Cognitive Mode	3.54	D E F
Self-Evaluative Manner	3.48	E F
Interdependent Self-Construal	3.41	E F
Functional Manner, Social Environment Mode	3.33	F
Absorption Manner, Challenge Dimension	2.88	G

Note. Means having different letters differ significantly at  $p < .05$ .

Table 95

One-way ANOVA on the 10 Recreation Experiences (Mail-out Data Set)

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Source	<u>df</u>	<u>SS</u>	<u>F</u>	<u>p</u>	<u>R<sup>2</sup></u>
Between	9	247.000	38.46	0.0001	0.174
Within	1643	1172.269			
Total	1652	1419.269			

---

Table 96

Tukey's Multiple Comparison Test on the 10 Recreation Experiences (Mail-out Data Set)

Recreation Experience	<u>M</u>	Tukey's Test
Functional Manner, Place Mode	4.63	A
Functional Manner, Activity Mode	4.15	B
Affective Manner	4.05	B C
Identity Manner	3.83	C D
Absorption Manner, Attention Dimension	3.76	C D E
Functional Manner, Cognitive Mode	3.75	D E
Self-Evaluative Manner	3.63	D E F
Interdependent Self-Construal	3.50	E F G
Functional Manner, Social Environment Mode	3.39	F G
Absorption Manner, Challenge Dimension	3.24	G

Note. Means having different letters differ significantly at  $p < .05$ .

Percent of Mean Scores Exceeding the "Somewhat Experienced" Level

In the previous sections, the issue of whether or not the new recreation experiences were different from the REP experiences--as well as each other--was addressed. In this section, the issue of whether or not people actually have these new experiences will be discussed. In order to do so, the percent of study participants who report having had experience above the "somewhat" level (i.e., a mean of 3.49 or higher on the five point scale used for this question) will be examined.

As shown in Table 97, the REP functional manner, place mode, experience was at least "somewhat experienced" by the highest percent of study respondents (92.7% on-site data set, 97.6% mail-out data set). In contrast, the REP absorption manner, challenge dimension, experience was at least somewhat experienced by the lowest percent of on-site respondents (35.2%), while the REP functional manner, social environment mode, experience was at least somewhat experienced by the lowest percent (48.2%) of mail-out respondents.

Of the five new recreation experiences, all fell in between these two extremes. For on-site respondents, 66.9% reported having at least somewhat experienced the identity manner experience and 62.1% reported having at least somewhat experienced the self-evaluative manner experience.. The other three new recreation experiences were at least somewhat experienced by 62.1% (functional manner, cognitive mode, experience), 58.5% (absorption manner, attention dimension, experience), and 47.0% (interdependent self-construal experience) of on-site respondents.

Overall, the mail-out respondents' percentages were even higher (an outcome which could be expected as these study participants were describing their favorite Mount Rogers NRA experience). For example, 75.2% of respondents reported having at least somewhat experienced the functional manner, cognitive mode, experience; 70.3% of respondents reported having at least somewhat experienced the identity manner experience; and 67.9% of respondents reported having at least somewhat experienced the self-evaluative manner experience. The other new recreation experiences were all at least somewhat experienced by over half of mail-out respondents (65.3% for the absorption manner, attention dimension, experience; and 54.5% for the interdependent self-construal experience). Thus, based on these findings as well as those found with the on-site data



set, it appears that an acceptable percent of study respondents had these new recreation experiences.

Table 97

Recreation Experiences at Least "Somewhat Experienced"

Recreation Experience	<u>Percent of Study Participants</u> <u>having Mean Scores &gt; 3.49</u>	
	On-Site	Mail-out
Functional Manner, Activity Mode	73.0	89.8
Functional Manner, Place Mode	92.7	97.6
Functional Manner, Social Environment Mode	44.6	48.2
Functional Manner, Cognitive Mode	62.1	75.2
Self-Evaluative Manner	56.0	67.9
Identity Manner	66.9	70.3
Affective Manner	74.8	82.4
Absorption Manner, Challenge Dimension	35.2	48.5
Absorption Manner, Attention Dimension	58.5	65.3
Interdependent Self-Construal	47.0	54.5

Note. Participants rated whether they had had an experience using a five point scale (1 = not at all, 3 = somewhat, 5 = a lot).

### Research Question One Conclusion

In conclusion, these results suggest that: (a) the new recreation experiences may be different from both the REP experiences and each other; (b) the experience items, to differing degrees, form new and different recreation experience measures; and (c) between 47% and 75% of Mount Rogers NRA recreationists had at least "somewhat experienced" each of these new recreation experiences. There appears to be empirical evidence that five recreation experiences not included in the REP scales likely exist, including: (a) functional manner, cognitive mode, experiences; (b) self-evaluative manner experiences; (c) identity manner experiences; (d) absorption manner, attention dimension, experiences; and (e), interdependent self-construal experiences.

## Research Question Two

### Introduction

The second research question asks: "do the concepts of mode, primary mode, and mode dependence exist?" In order to determine if the concepts of mode and primary mode exist: (a) the frequency of scores for each mode item will be studied; (b) the mode items' means and standard deviations will be examined, (c) t tests between each mode and the "contribute somewhat" category (3.0 on the five point scale used to measure mode intensity) will be conducted; (d) a one-way ANOVA, using Tukey's multiple comparison test, will be performed on the four types of mode; and (e) the percent of study participants who rated each mode as being the most important contributor to their recreation experiences (i.e., primary mode) will be examined. In addition, correlations among the mode items will also be discussed. Based on these analyses, the concepts of mode and primary mode will be deemed to either exist or not exist.

In order to determine whether the concept of mode dependence exists: (a) the frequency of scores for the two mode dependence items will be studied; (b) the mode dependence items' means, standard deviations, and correlation will be examined; (c) paired comparison t tests will be conducted between each mode dependence item's mean score and a neutral response (3.0 on the five point scale used to measure mode dependence); and (d) a paired comparison t test will be performed on the two mode dependence items. Based on these analyses, the concept of mode dependence will be deemed to either exist or not exist.

## Mode and Primary Mode

### Introduction.

As noted in the literature review, outdoor recreation events involve multiple stimuli. Knopf (1987) and Williams (1988), for example, contend there are at least three fundamental sources of stimulation individuals attend to in the out-of-doors: (a) the place, (b) the activity, and (c) the social environment. In addition, attention can also be directed internally--i.e., on the individual's ideas, thoughts, and feelings--rather than externally (Howard, 1995). Knopf (1987) notes, however, that the limited data available do not make clear the relative contribution each mode makes to an individual's recreation experience. Williams et al. (1992) concur, stating that the place "may be central to the experience for some, but only a backdrop for achieving particular social or activity goals for others" (p. 33). Thus, it appears that: (a) there are at least four different types of stimuli or "modes" outdoor recreationists can attend to, and (b) outdoor recreationists may given primacy to one mode over and above the other three. In the following analyses, therefore, empirical support for the existence of the concepts of mode and primary mode will be examined.

### Frequency of scores for the four types of mode.

As Figures 4 and 5 (on-site and mail-out data sets, respectively) show, when study participants were asked how much the activity mode affected the quality of their experiences, over 40% stated that it "contributed most" (i.e., 44.6% of on-site respondents and 44.0% of mail-out respondents rated it a 5 on a five point scale where 1 = contribute least, 3= contribute some, and 5 = contribute most). Similarly, when participants were asked about the effect the social environment mode had on the quality of their experiences, 40.4% of on-site respondents (Figure 8) and 47.0% of mail-out respondents (Figure 9) indicated that the social environment "contributed most" to their

experience. Even higher percentages were found with the place mode, however; with 65.7% of on-site respondents (Figure 6) and 58.2% of mail-out respondents (Figure 7) stating that the places they visited "contributed most" to their experiences. In contrast, the cognitive mode's percentages were much more evenly distributed across the five response categories, with 20.0% of on-site respondents (Figure 10) and 21.2% of mail-out respondents (Figure 11) stating that this mode did not even "contribute somewhat" to their recreation experiences while 25.3% of on-site and 18.8% of mail-out respondents stating that it "contributed most." Thus, based on these frequency scores, it appears that while all four modes contribute to some people's recreation experiences, the place mode does so for the largest number of people while the cognitive mode does so for the fewest.

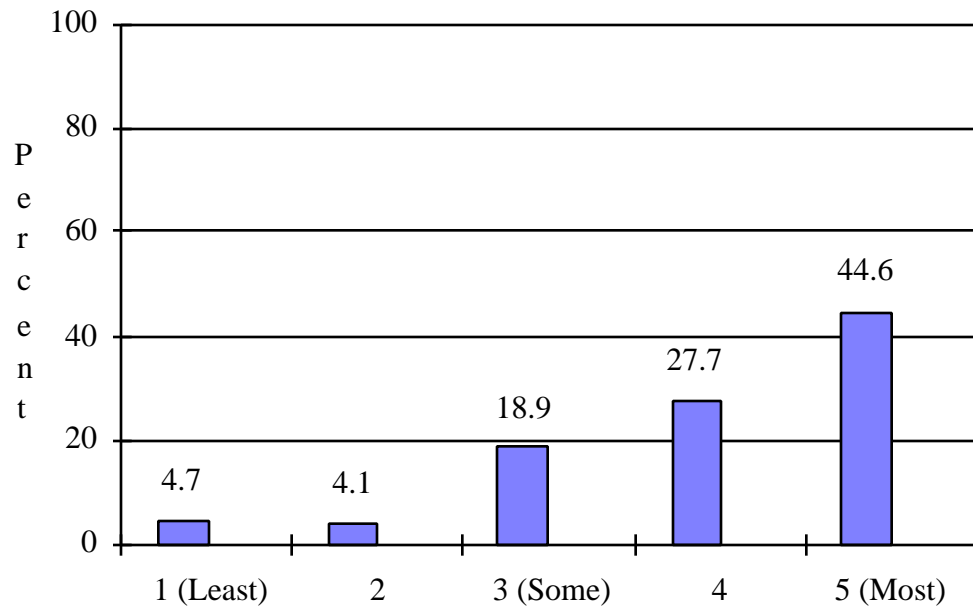


Figure 4: Frequency of Scores for the Activity Mode (On-site Data Set)

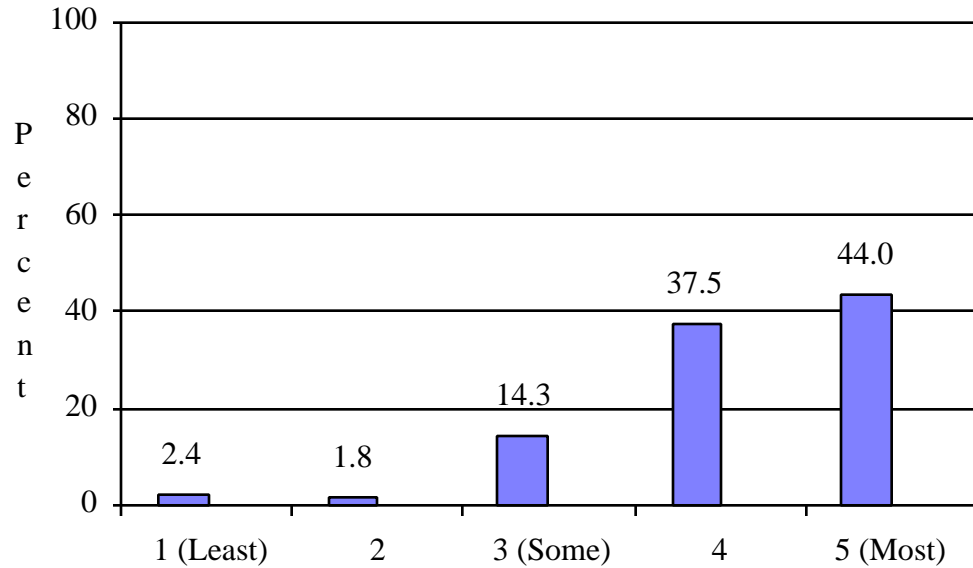


Figure 5: Frequency of Scores for the Activity Mode (Mail-out Data Set)

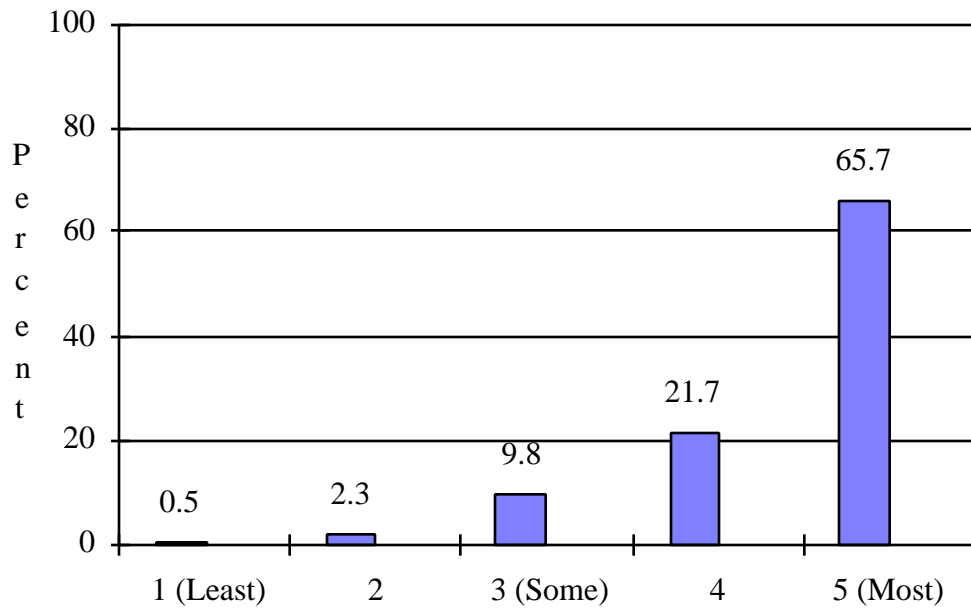


Figure 6: Frequency of Scores for the Place Mode (On-site Data Set)

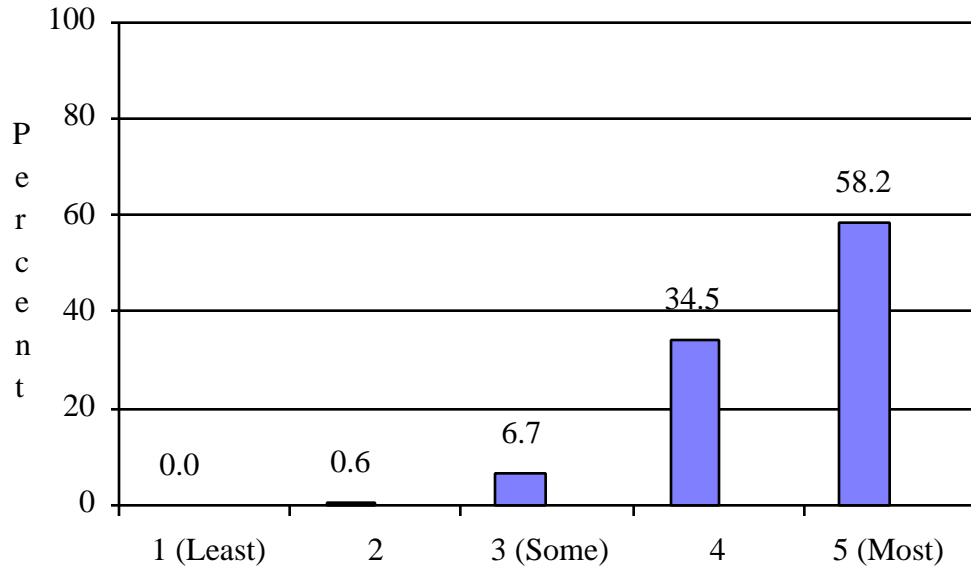


Figure 7: Frequency of Scores for the Place Mode (Mail-out Data Set)

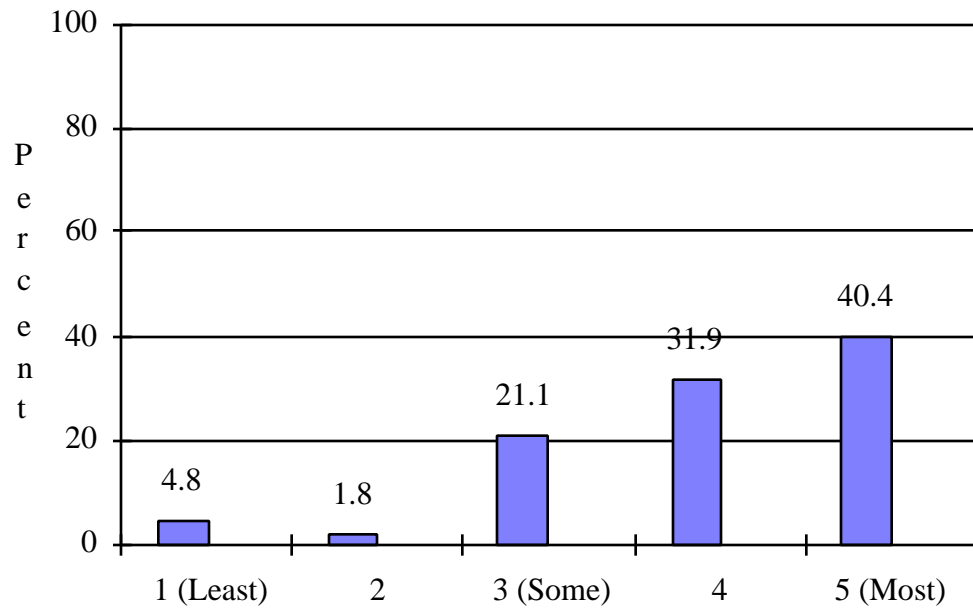


Figure 8: Frequency of Scores for the Social Environment Mode (On-site Data Set)

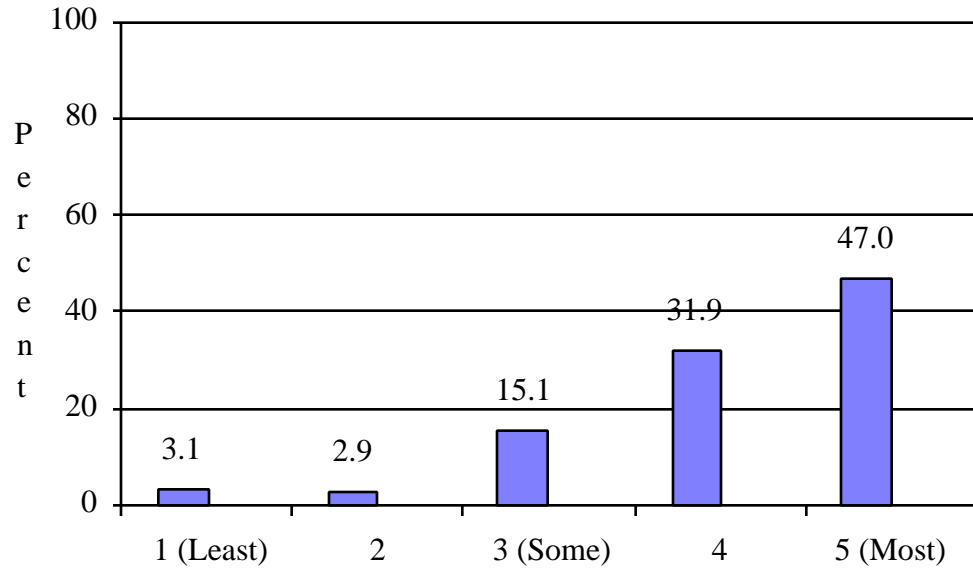


Figure 9: Frequency of Scores for the Social Environment Mode (Mail-out Data Set)



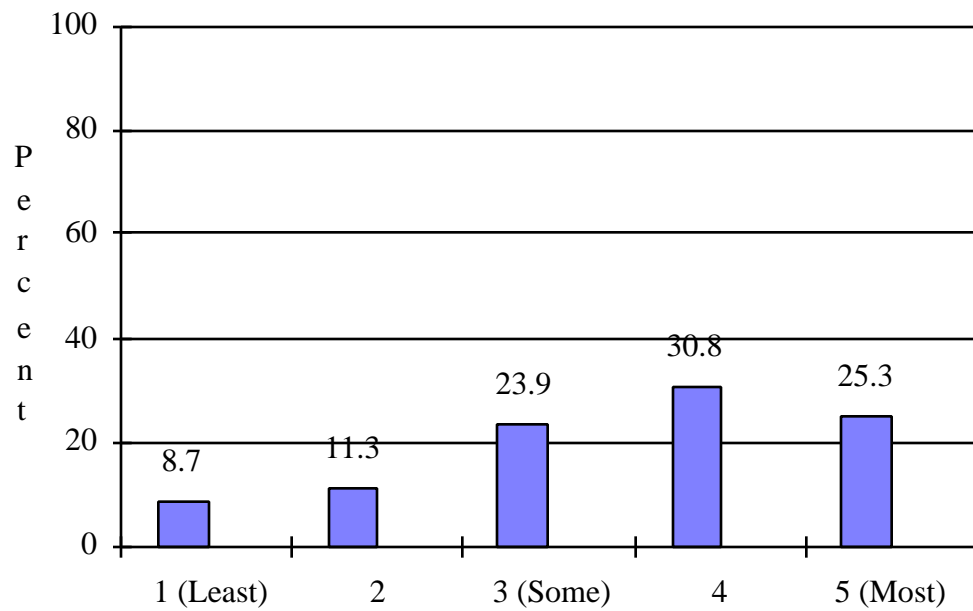


Figure 10: Frequency of Scores for the Cognitive Mode (On-site Data Set)

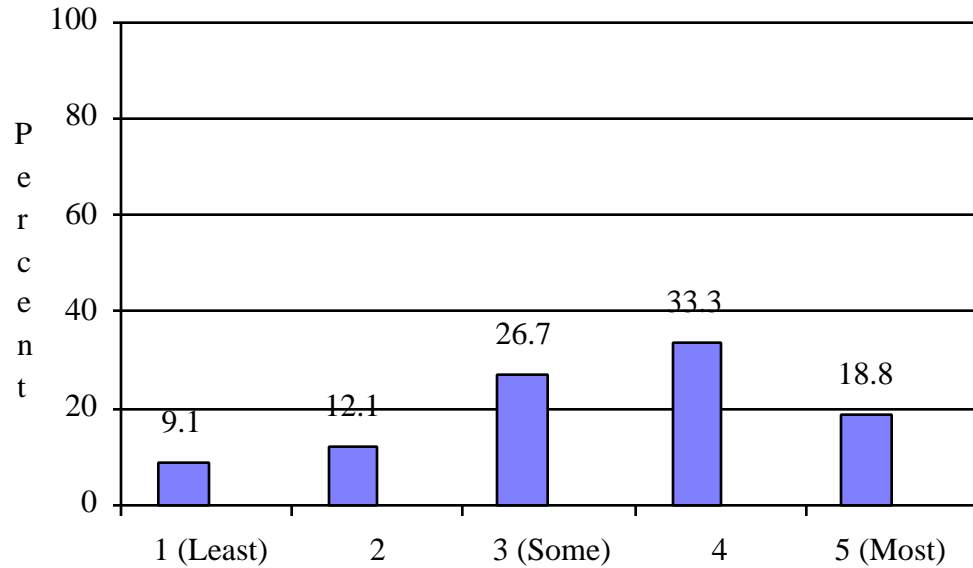


Figure 11: Frequency of Scores for the Cognitive Mode (Mail-out Data Set)

Means and standard deviations for the four types of mode.

As Table 98 illustrates, the place mode had the lowest standard deviations while the cognitive mode had the highest standard deviations. The place mode also had the highest mean scores ( $\underline{M}$  = 4.50 for both on-site and mail-out data sets), while the cognitive mode had the lowest mean scores ( $\underline{M}$  = 3.53 on-site data set,  $\underline{M}$  = 3.41 mail-out data set). Although the social environment mode had a higher mean score than the activity mode with the on-site data set ( $\underline{M}$  = 4.17 and  $\underline{M}$  = 4.03, respectively), the activity mode had a higher mean score than the social environment mode with the mail-out data set ( $\underline{M}$  = 4.19 and  $\underline{M}$  = 4.01, respectively). Thus, as with the frequency scores reported previously, the place mode appears to contribute the most to people's recreation experiences while the cognitive mode contributes the least.

Table 98

Means and Standard Deviations for the Four Types of Mode

Mode	On-Site		Mail-out	
	$\underline{M}$	$\underline{SD}$	$\underline{M}$	$\underline{SD}$
Place	4.50	0.80	4.50	0.65
Social Environment	4.17	1.00	4.01	1.06
Activity	4.03	1.11	4.19	0.92
Cognitive	3.53	1.23	3.41	1.19

Note. Study participants rated how much each mode contributed to their recreation experience (1 = contribute least, 3 = contribute some, 5 = contribute most).

Comparison of mode means to neutral (3).

In the previous section, mean scores for the four types of mode were described. In this section, each mode's mean score is compared with the "contribute some" response category (i.e., 3.0 on the five point scale used to measure mode). The results of these paired comparison t tests are reported in Tables 99 (on-site data set) and 100 (mail-out data set). As shown, all four modes are significantly different from the "contribute some" response category ( $p < .005$ ), indicating that all four types of mode--including the lowest rated cognitive mode--contribute more than somewhat to people's outdoor recreation experiences.

Table 99

Paired Comparison t Tests for the Four Types of Mode (On-site Data Set).

Mode	<u>n</u>	<u>t</u>	<u>p</u>
Activity	386	18.370	.0001***
Place	396	37.088	.0001***
Social Environment	383	22.922	.0001***
Cognitive	380	8.361	.0001***

Note. Study participants rated how much each mode contributed to their recreation experience (1 = contribute least, 3 = contribute some, 5 = contribute most). Mean scores for each mode were then compared to 3, the "contribute some" response category.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

Table 100

T Tests for the Four Types of Mode (Mail-out Data Set).

Mode	<u>n</u>	<u>t</u>	<u>p</u>
Activity	168	16.858	.0001***
Place	165	29.712	.0001***
Social Environment	166	12.282	.0001***
Cognitive	165	4.387	.0001***

Note. Study participants rated how much each mode contributed to their recreation experience (1 = contribute least, 3 = contribute some, 5 = contribute most). Mean scores for each mode were then compared to the "contribute some" response category.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

Tukey's multiple comparison test on the four types of mode.

One way ANOVA's (Table 101, on-site data set; Table 103, mail-out data set) were also conducted on the four types of mode. As the ANOVA's probability levels ( $p < .005$ ) indicate, the four modes were found to be significantly different in their contribution to people's recreation experiences. Tukey's multiple comparison tests were also performed to determine which modes differed from each other (Table 102, on-site data set; Table 104, mail-out data set). As shown, for both the on-site and mail-out data sets, the place mode was significantly higher than the other three types of mode, while the activity and social environment modes were also significantly higher than the cognitive mode.

Table 101

One-way ANOVA on the Four Types of Mode (On-site Data Set)

Source	<u>df</u>	<u>SS</u>	<u>F</u>	<u>p</u>	<u>R<sup>2</sup></u>
Between	3	188.679	57.84	0.0001***	0.101
Within	1541	1675.602			
Total	1544	1864.281			

Note. Study participants rated how much each mode contributed to their recreation experience (1 = contribute least, 3 = contribute some, 5 = contribute most).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

Table 102

Tukey's Multiple Comparison Test for the Four Types of Mode (On-site Data Set)

Mode	<u>M</u>	Tukey's Test
Place	4.50	A
Social Environment	4.17	B
Activity	4.03	B
Cognitive	3.53	C

Note. Means having different letters differ significantly at  $p < .05$ .

Table 103

One-way ANOVA on the Four Types of Mode (Mail-out Data Set)

Source	<u>df</u>	<u>SS</u>	<u>F</u>	<u>p</u>	<u>R<sup>2</sup></u>
Between	3	105.533	37.03	0.0001***	0.144
Within	660	626.923			
Total	663	732.456			

Note. Study participants rated how much each mode contributed to their recreation experience (1 = contribute least, 3 = contribute some, 5 = contribute most).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

Table 104

Tukey's Multiple Comparison Test for the Four Types of Mode (Mail-out Data Set)

Mode	<u>M</u>	Tukey's Test
Place	4.50	A
Activity	4.19	B
Social Environment	4.01	B
Cognitive	3.41	C

Note. Means having different letters differ significantly at  $p < .05$ .

Participants reporting each type of mode as being primary.

As Table 105 illustrates, the place mode contributed the most to the outdoor recreation experience for the largest percentage of study participants (40.8% on-site data set, 37.8% mail-out data set). The second highest percentage was for the activity mode (30.1% on-site data set, 28.0% mail-out data set), followed by the social environment mode (21.1% on-site data set, 26.2% mail-out data set). These findings are consistent with Williams' et al. (1992) proposition that the three primary types of mode during outdoor recreation would be the place mode, the activity mode, and the social environment mode. It must be noted, however, that while the cognitive mode was reported by the smallest percentage of study participants (8.0% on-site data set, 7.9% mail-out data set), it still accounts for nearly one in 12 outdoor recreationists. Thus, while recognizing that the place, activity, and social environment are more likely to be the primary foci of most recreationists, the importance of the cognitive mode as a primary stimulus for some recreationists should not be ignored.

Table 105

Participants Reporting Each Type of Mode as Being Primary

Mode	On-Site Data Set		Mail-out Data Set	
	<u>n</u>	%	<u>n</u>	%
Place	122	40.8	62	37.8
Activity	90	30.1	46	28.0
Social Environment	63	21.1	43	26.2
Cognitive	24	8.0	13	7.9
TOTAL	299	100.0	164	100.0

Note. Participants were asked which single mode contributed the most to their recreation experience.

Discussion of mode and primary mode concepts.

Earlier, it was proposed that individuals could attend to at least four sources of stimulation or "modes" when out-of-doors, including: (a) the place, (b) the activity, (c) the social environment, or (d) their thoughts or feelings. After various analyses were performed, it was found that: (a) all four modes did contribute to at least some people's recreation experiences; (b) on average, these contributions were all significantly ( $p < .005$ ) greater than the "contribute some" response category; and (c) on average, the place mode contributed significantly ( $p < .05$ ) more to people's recreation experiences than did the other three modes, while the cognitive mode contributed significantly ( $p < .05$ ) less to people's experiences than did the other three modes. It follows, therefore, that if each



mode does "contribute most" to some people's recreation experiences; and that, on average, all four modes do so significantly above the "somewhat" level, then the existence of the four specific types of mode, as well as the mode concept, is supported.

Earlier, it was also proposed that individuals might give primacy to one of the four modes over and above the other three. When study participants were asked to select which mode contributed the most to their experience, the largest percentage selected the place mode while the smallest percentage selected the cognitive mode. Although fewer than 10% of respondents selected the latter mode, it is worth restating that this figure represents approximately one in every 12 recreationists sampled. Based on these findings, therefore, the concept of primary mode is also deemed to exist.

#### Correlations among the four types of mode.

As Table 106 (on-site data set) and Table 107 (mail-out data set) show, all of the inter-mode correlations were below .25. In addition, inter-mode correlations which were significant ( $p < .05$ ) for the on-site data set were not significant for the mail-out data set, and vice versa. Based on the size of these correlations and the variation in significant correlations between the two data-sets, it appears that individuals are able to differentiate among the four types of mode.

Table 106

Correlations Among the Four Types of Mode (On-site Data Set)

	<b>Activity</b>	<b>Place</b>	<b>Soc. Env.</b>	<b>Cognitive</b>
Mode	<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )
Activity	1.0	.08 (376)	.23*** (367)	.17*** (366)
Place		1.0	.21*** (377)	.19*** (374)
Social Environment			1.0	.22*** (366)
Cognitive				1.0

Note. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

Table 107

Correlations Among the Four Types of Mode (Mail-out Data Set)

	<b>Activity</b>	<b>Place</b>	<b>Soc. Env.</b>	<b>Cognitive</b>
Mode	<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )
Activity	1.0	.23*** (164)	.05 (165)	-.09 (164)
Place		1.0	-.08 (164)	.08 (164)
Social Environment			1.0	.10 (164)
Cognitive				1.0

Note. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

## Mode Dependence

### Introduction.

As outlined in the literature review, an individual may evaluate the quality of a mode based on how well it satisfies his or her goals. For example, in the case of activity dependence, some people may be very dependent upon a particular activity to satisfy their goals while other people may be able to satisfy the same goals by participating in a variety of different activities. Similarly, in the case of place dependence, some people may be very dependent on a particular place to satisfy their goals while other people may be able to go almost anywhere to do so. In this section, therefore, empirical evidence regarding the existence of mode dependence is examined.

### Frequency of scores for the two types of mode dependence.

Figures 12 and 13 report the percentage of respondents who selected each score for the two mode dependence items (activity and place dependence, respectively) measured in this study. Activity dependence was measured by asking participants if they could have done another activity and had just as good a time, while place dependence was measured by asking respondents if they could have gone to another place and had just as good a time. A five point Likert type scale was used to measure both items (1= strongly disagree, 2= disagree, 3 = neutral, 4 = agree, 5 = strongly disagree). As shown, responses to the activity dependence item are positively skewed, while responses to the place dependence item more closely resembles a normal curve. This difference is reflected in the 54.6% of respondents who either disagreed or strongly disagreed with the statement that they could do another activity and have just as good a time, versus the 38.8% of respondents who either disagreed or strongly disagreed with the statement that they could go to another place and have just as good a time.

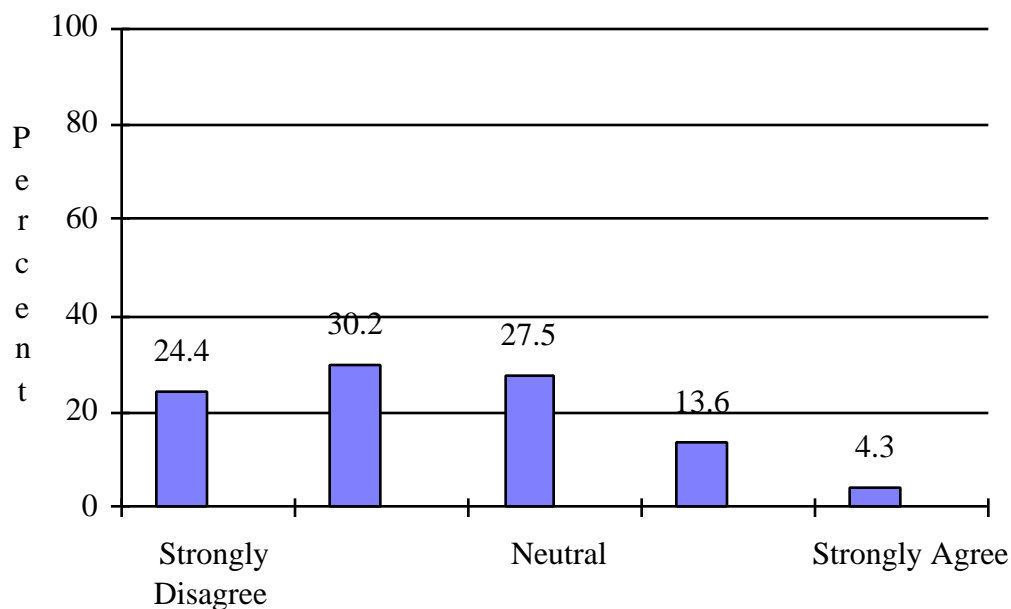


Figure 12: Frequency of Scores for Activity Dependence (D/SD = High Dependence)

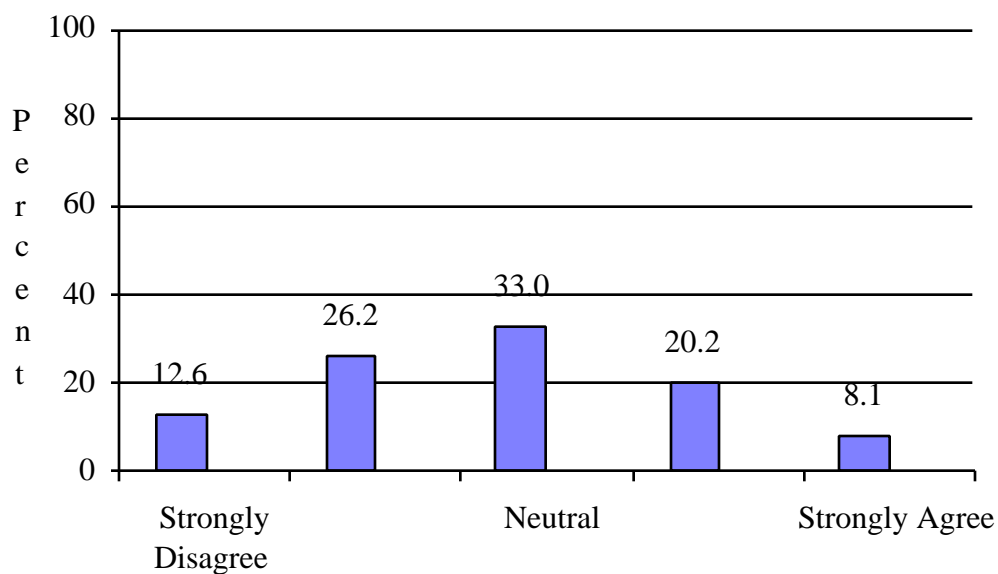


Figure 13: Frequency of Scores for Place Dependence (D/SD = High Dependence)

Means, standard deviations, and correlations for the two types of mode dependence.

Table 108 reports the means, standard deviations, and correlations for the place and activity dependence items. A mean score of 2.43 was found for activity dependence and a mean score of 2.85 was found for place dependence (the lower the number, the more dependent a person is). The two mode items had identical standard deviations (SD = 1.13), and were highly correlated ( $r = .52$ ,  $p < .005$ ). The latter finding suggests that as people become dependent on one mode they may also become dependent on the other. This conclusion is consistent with Bryan's (1977) research which found that as anglers became more specialized in their activity they also became more selective in the types of places they preferred.

Table 108

Means, Standard Deviations, and Correlations for the Two Types of Mode Dependence

Mode Dependence	<u>M</u>	<u>SD</u>	<b>Activity</b>		<b>Place</b>
			<u>r</u> ( <u>df</u> )	<u>r</u> ( <u>df</u> )	
Activity	2.43	1.13	1.0		.52*** (393)
Place	2.85	1.13			1.0

Note. For activity dependence, participants were asked if they "could have done another activity and had just as good a time." For place dependence, participants were asked if they "could have gone to another place and had just as good a time." Both items were measured on a five point scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .005$

T test for the two types of mode dependence.

Paired comparison t tests were also conducted between the activity dependence item's mean score and 3.0 (neutral on the five point scale), and the place dependence item's mean score and 3.0 (neutral on the five point scale). These t tests were conducted to determine if study participants' responses were significantly different from a neutral response. A paired comparison t test was also conducted between the activity dependence item's mean score and the place dependence item's mean score, in order to determine if the study participants rated the two types of mode dependence significantly differently. Both types of mode dependence were found to be significantly different from the neutral response category (Table 109), as well as from each other (Table 110).

Table 109

Paired Comparison t tests for the Two Types of Mode Dependence with the "Neutral" Response Category (3.0)

Mode Dependence	<u>n</u>	<u>t</u>	<u>p</u>
Activity	397	-10.081	.0001***
Place	397	-2.672	.0078**

Note. For activity dependence, participants were asked if they "could have done another activity and had just as good a time." For place dependence, participants were asked if they "could have gone to another place and had just as good a time." Both items were measured on a five point scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Mean scores for each mode were then compared to the "neutral" category (3.0).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

Table 110

Paired Comparison t tests for the Two Types of Mode Dependence with Each Other

<u>Difference</u> <sup>a</sup>	<u>SD</u>	<u>n</u>	<u>t</u>	<u>p</u>
0.409	1.102	394	7.361	.0001***

Note. For activity dependence, participants were asked if they "could have done another activity and had just as good a time." For place dependence, participants were asked if they "could have gone to another place and had just as good a time." Both items were measured on a five point scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree). Mean scores for each mode were then compared with each other.

<sup>a</sup>Difference is the mean of the place dependence item less the mean of the activity dependence item.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

Discussion of mode dependence.

In conclusion, study participants reported: (a) different frequencies of mode dependence (with activity dependence being positively skewed and place dependence resembling a normal curve); (b) mode dependence mean scores which were significantly different from both the neutral response category and from each other; and (c) a high correlation between the two types of mode dependence. It would appear, therefore, that while study participants differ in their levels of mode dependence, many respondents are dependent on either the activity mode, or the place mode, or even both modes (based on the  $r$ ), in order to satisfy their goals. Based on these findings, therefore, the concept of mode dependence--at least in the case of activity and place dependence--is supported.



### Research Question Two Conclusion

Research question two asked: "do the concepts of mode, primary mode, and mode dependence exist?" Based on the numerous analyses outlined above, it appears that there is sufficient empirical support for the existence of all three concepts.

### Research Question Three

#### Introduction

The third research question asks: "how well do the ROS variables of activity, setting, and expertise explain the types of experiences recreationists get (both REP and non-REP types of experiences)?" Activity refers to the kind of recreation a person is doing, setting refers to the type of environment a person is recreating in, and expertise refers to a person's perceived skill level with an activity. In order to answer this question, three two-way ANOVA's will be performed on each recreation experience. (Due to the study's unbalanced design, a single three-way ANOVA cannot be conducted). Three ROS variable combinations will be examined, including: (a) setting and activity, (b) setting and expertise, and (c) activity and expertise. Probability levels for the two main effects and the interaction effect will be reported. By examining these probability levels, it can be determined if the one ROS variable, both ROS variables, or their interaction, affect a recreation experience. In addition, the  $\underline{R}^2$ 's for the main and interaction effects will also be reported. By examining these  $\underline{R}^2$ 's, it can be determined how much of a recreation experience's variability is due to a main effect, both main effects, or their interaction. Finally, it must be noted that because of the study's unbalanced design, the SAS Sum of Squares III method (SAS Institute Inc., 1988) will be used to determine probability levels and  $\underline{R}^2$ 's for the main and interaction effects. This method differs from the more common SAS Sum of Squares I method in that the order in which the variables are listed does not affect the size of the resulting sum of squares.

It should also be noted that, because of the study's unbalanced design, different types of activities and different levels of expertise had to be collapsed into numerically larger categories in order to produce sufficiently large cell sizes for the ANOVA's. For example, the activities of "backcountry camping" and "backpacking" became backpack;

"off-road bicycling" and "on-road bicycling" became cycle; "fishing," "hunting," and "pre-hunting season scouting" became fish or hunt; and "driving for pleasure," "photography," "viewing scenery," and "viewing wildlife" became view. Two activities--day hike and horse riding--were not collapsed. Similarly, the 10 expertise levels were collapsed into two categories: (a) novice (i.e., those who selected one through six on a 10 point scale, where one equaled "beginner" and 10 equaled "expert"); and (b) expert (i.e., those who selected seven through 10 on the same scale).

In the next section, two-way ANOVA's will be performed on each recreation experience using the ROS concepts of setting and activity.

### ROS Setting and ROS Activity

#### Introduction.

Because ROS theory states that activity (i.e., the kind of recreation being done) and setting (i.e., the type of environment the activity is being done in) are influential, ANOVA's using these two variables were performed on the 10 recreation experiences. Unfortunately, due to some activities' small cell sizes, only four activities--viewing, day hiking, horseback riding, and fishing or hunting--could be used for this set of ANOVA's. Similarly, due to the ROS rural setting class's small cell sizes, only the roaded natural and semi-primitive non-motorized ROS classes could be used. Finally, because of the mail-out study's small sample size, two-way ANOVA's using activity and setting could only be performed on the on-site data set.

#### Results summary.

Table 111 summarizes the results of the two-way ANOVA's performed on the 10 recreation experiences using the ROS activity and ROS setting variables (complete results for each recreation experience can be found in Appendix C).

Table 111

Summary of ANOVA's on Recreation Experiences using ROS Setting and ROS Activity

Experience	Setting			Activity			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	0.21	.6463	.001	0.38	.7644	.007	3.56	.0159*	.068
Func., Place	2.89	.0913	.016	10.22	.0001***	.169	5.98	.0007***	.099
Func., Social	7.73	.0062**	.045	2.32	.0776	.041	2.08	.1059	.036
Func., Cognitive	6.19	.0140*	.034	1.32	.2690	.024	2.90	.0372*	.053
Self-Evaluative	1.69	.1955	.010	1.81	.1472	.033	4.25	.0065**	.077
Identity	2.33	.1292	.015	1.54	.2065	.029	3.59	.0154*	.067
Affective	5.06	.0260*	.030	5.99	.0007***	.107	5.44	.0014***	.097
Abs., Challenge	1.75	.1881	.011	3.62	.0148*	.068	0.27	.8495	.005
Abs., Attention	0.76	.3845	.005	5.15	.0021***	.095	3.86	.0108*	.071
Interdependent	8.60	.0039***	.051	2.47	.0649	.043	3.42	.0192*	.060

Note. Two setting categories were examined: roaded natural and semi-primitive non-motorized. Four activity categories were examined: viewing, day hiking, horse riding, fishing or hunting.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

Activity, setting, or the interaction of the two, were significant for all 10 recreation experiences. More specifically, one experience had a significant activity main effect, one experience had a significant setting main effect, three experiences had significant interaction effects, two experiences had significant activity main effects and significant interaction effects, two experiences had significant setting main effects and significant interaction effects, and one experience had a significant setting main effect, a significant activity main effect, and a significant interaction effect. Looking at it another way, setting had four significant main effects, activity had four significant main effects, and the interaction effect was significant nine times.

The recreation experience which had only a significant activity main effect was the Recreation Experience Preference-based absorption manner, challenge dimension, experience (i.e., "taking risks" and "being creative"),  $p < .05$ ,  $R^2 = .068$ . According to the Tukey's multiple comparison test, viewers rated this experience significantly higher than anglers and hunters ( $\underline{M} = 3.10$  and  $\underline{M} = 2.21$ , respectively).

The recreation experience which had only a significant setting main effect was the REP-based functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," and "sharing your outdoor skills with others"),  $p < .01$ ,  $R^2 = .045$ . According to the Tukey's multiple comparison test, recreationists in roaded natural settings rated this experience significantly higher than recreationists in semi-primitive non-motorized settings ( $\underline{M} = 3.73$  and  $\underline{M} = 3.07$ , respectively).

The first recreation experience which had only a significant interaction effect was the REP-based functional manner, activity mode, experience (i.e., "developing skills and abilities" and "keeping physically fit"),  $p < .05$ ,  $R^2 = .068$ . The Tukey's multiple comparison test did not indicate what differences were significant. The second

experience which had only a significant interaction effect was the newly-developed self-evaluative manner experience ("feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," and "letting others see me as I really am"),  $p < .01$ ,  $R^2 = .077$ .

According to the Tukey's multiple comparison test, anglers and hunters in roaded natural settings rated this experience significantly higher than anglers and hunters in semi-primitive non-motorized settings ( $\underline{M} = 3.88$  and  $\underline{M} = 2.75$ , respectively). The final experience which had only a significant interaction effect was the newly-developed identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," and "learning more about who I am"),  $p < .05$ ,  $R^2 = .067$ . According to the Tukey's multiple comparison test, anglers and hunters in roaded natural settings rated this experience significantly higher than anglers and hunters in semi-primitive non-motorized settings ( $\underline{M} = 4.09$  and  $\underline{M} = 2.79$ , respectively).

The first recreation experience which had a significant activity main effect and a significant interaction effect was the REP-based functional manner, place mode, experience (i.e., "viewing the scenery" and "being away from the crowds and noise"), with an interaction effect  $p < .005$ ,  $R^2 = .099$ . According to the Tukey's multiple comparison test conducted on the interaction effect, anglers and hunters in semi-primitive non-motorized settings rated this experience significantly lower ( $\underline{M} = 3.22$ ) than either anglers and hunters ( $\underline{M} = 4.48$ ) or hikers ( $\underline{M} = 4.08$ ) in roaded natural settings. In addition, anglers and hunters in semi-primitive non-motorized settings also rated this experience significantly lower ( $\underline{M} = 3.22$ ) than horse riders ( $\underline{M} = 4.75$ ), viewers ( $\underline{M} = 4.73$ ), and hikers ( $\underline{M} = 4.47$ ) in this same type of setting.

The second recreation experience which had a significant activity main effect and a significant interaction effect was the newly-developed absorption manner, attention dimension, experience (i.e., "becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," and "enjoying this visit so much I lose track of time"), with an interaction effect  $p < .05$ ,  $R^2 = .071$ . According to the Tukey's multiple comparison test conducted on the interaction effect, anglers and hunters in semi-primitive non-motorized settings rated this experience significantly lower ( $M = 2.60$ ) than either viewers in the same setting ( $M = 3.89$ ) or horse riders in roaded natural settings ( $M = 4.33$ ).

The first recreation experience which had a significant setting main effect and a significant interaction effect was the newly-developed functional manner, cognitive mode, experience (i.e., "developing new ideas" and "learning more about nature"), with an interaction effect  $p < .05$ ,  $R^2 = .053$ . According to the Tukey's multiple comparison test conducted on the interaction effect, anglers and hunters in roaded natural settings rated this experience significantly higher ( $M = 4.03$ ) than either anglers and hunters ( $M = 2.61$ ) or hikers ( $M = 3.29$ ) in semi-primitive non-motorized settings. In addition, viewers in roaded natural settings also rated this experience significantly higher than anglers and hunters in semi-primitive non-motorized settings ( $M = 3.85$  and  $M = 2.61$ , respectively).

The second recreation experience which had a significant setting main effect and a significant interaction effect was the newly-developed interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my companions achievements," and "finding harmony with my companions"), with an interaction effect  $p < .05$ ,  $R^2 = .060$ . According to the Tukey's multiple comparison test conducted on the interaction effect, anglers and hunters in roaded natural settings rated this experience significantly higher ( $M = 3.98$ ) than either

anglers and hunters ( $\underline{M} = 2.42$ ) or hikers ( $\underline{M} = 3.04$ ) in semi-primitive non-motorized settings. In addition, viewers in roaded natural settings also rated this experience significantly higher than anglers and hunters in semi-primitive non-motorized settings ( $\underline{M} = 3.77$  and  $\underline{M} = 2.42$ , respectively).

Finally, the recreation experience which had a significant setting main effect, a significant activity main effect, and a significant interaction effect was the REP-based affective manner experience (i.e., "experiencing tranquillity," "experiencing excitement," and "releasing or reducing built-up tensions"). Its interaction effect had a  $p < .01$ , and a  $\underline{R}^2 = .097$ . According to the Tukey's multiple comparison test conducted on the interaction effect, anglers and hunters in semi-primitive non-motorized settings ( $\underline{M} = 2.55$ ) rated this experience significantly lower than hikers ( $\underline{M} = 3.75$ ), viewers ( $\underline{M} = 3.91$ ), and horse riders ( $\underline{M} = 4.08$ ) in the same setting; and significantly lower than hikers ( $\underline{M} = 3.17$ ), viewers ( $\underline{M} = 4.17$ ), horse riders ( $\underline{M} = 4.60$ ), and anglers or hunters ( $\underline{M} = 4.09$ ) in roaded natural settings.

### Discussion.

Either activity, or setting, or their interaction, were significant for all 10 recreation experiences. Setting was a significant main effect four times, activity was a significant main effect four times, and the interaction effect was significant nine times.

A second issue, in addition to how many recreation experiences do these concepts explain, is how much variability do they--alone or in combination--explain. On balance, it appears that the significant effects due to activity explained more variance than the significant effects due to setting. For example,  $\underline{R}^2$ 's for the four significant setting main effects were between .030 and .051, while the  $\underline{R}^2$ 's for the four significant activity main effects were between .068 and .169. However, only one of the four experiences which had a significant setting main effect did not also have a significant interaction effect--the



functional manner, social environment mode, experience. Similarly, only one of the four experiences which had a significant activity main effect did not also have a significant interaction effect--the absorption manner, challenge dimension, experience. Overall, of the eight experiences which had significant interaction effects, the functional manner, cognitive mode, experience had the lowest  $\underline{R}^2$  (.053), while the functional manner, place mode, experience had the highest  $\underline{R}^2$  (.097). Thus, the ROS variables of activity and setting--either alone or in combination--explained between 3.0% and 16.9% of the variance in these 10 recreation experiences.

In the next section, the ROS variables of setting and expertise will be examined to determine how well they explain each recreation experience.

### ROS Setting and ROS Expertise

#### Introduction.

Two-way ANOVA's using the ROS variables of setting (i.e., the type of environment an activity is done in) and expertise (i.e., the person's perceived skill level in an activity) were also performed on the 10 recreation experiences. Three setting classes--semi-primitive non-motorized, roaded natural, and rural--and two levels of expertise--novice and expert--were used. Since the expertise item was not included in the mail-out questionnaire, only the on-site data set was analyzed.

#### Results summary.

Table 112 summarizes the results of the two-way ANOVA's performed on the 10 recreation experiences using the ROS concepts of expertise and setting (complete results for each recreation experience can be found in Appendix D). Expertise, setting, or the interaction of the two, were significant for all 10 recreation experiences. More specifically, four experiences had significant expertise main effects, three experiences

had significant expertise main effects and significant setting main effects, and three experiences had significant expertise main effects and significant interaction effects. Looking at it another way, expertise had 10 significant main effects, setting had three significant main effects, and the interaction effect was significant three times.

Four recreation experiences had only significant expertise main effects. The first of these experiences was the newly-developed functional manner, cognitive mode, experience (i.e., "developing new ideas" and "learning more about nature"),  $p < .01$ ,  $R^2 = .020$ . According to the Tukey's multiple comparison test, experts rated this experience significantly higher than novices ( $\underline{M} = 3.63$  and  $\underline{M} = 3.40$ , respectively).

The second recreation experience which had only a significant expertise main effect was the REP-based functional manner, activity mode, experience (i.e., "developing skills and abilities" and "keeping physically fit"),  $p < .005$ ,  $R^2 = .023$ . According to the Tukey's multiple comparison test, experts rated this experience significantly higher than novices ( $\underline{M} = 3.85$  and  $\underline{M} = 3.61$ , respectively).

The third recreation experience which had only a significant expertise main effect was the newly-developed self-evaluative manner experience ("feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," and "letting others see me as I really am"),  $p < .005$ ,  $R^2 = .037$ . According to the Tukey's multiple comparison test, experts rated this experience significantly higher than novices ( $\underline{M} = 3.63$  and  $\underline{M} = 3.23$ , respectively).

Table 112

Summary of ANOVA on Recreation Experiences using ROS Setting and ROS Expertise

Experience	Setting			Expertise			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	1.76	.1731	.010	8.35	.0041***	.023	0.99	.3728	.006
Func., Place	2.88	.0573	.016	11.98	.0006***	.033	8.84	.0002***	.048
Func., Social	6.70	.0014***	.036	15.67	.0001***	.042	2.41	.0916	.013
Func., Cognitive	0.89	.4105	.005	7.08	.0082**	.020	2.13	.1209	.012
Self-Evaluative	1.02	.3632	.006	13.53	.0003***	.037	1.47	.2306	.008
Identity	0.14	.8689	.001	16.93	.0001***	.046	3.51	.0311*	.019
Affective	1.96	.1424	.011	5.11	.0244*	.015	3.64	.0272*	.021
Abs., Challenge	7.79	.0005***	.044	10.97	.0010***	.031	0.82	.4423	.005
Abs., Attention	0.11	.8959	.001	12.73	.0004***	.036	1.79	.1691	.010
Interdependent	5.49	.0045***	.031	7.42	.0068**	.021	2.31	.1007	.013

Note. Three setting categories were examined: rural, roaded natural, and semi-primitive non-motorized. Two expertise categories were examined: novice and expert.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

The final recreation experience which had only a significant expertise main effect was the newly-developed absorption manner, attention dimension, experience (i.e., "becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," and "enjoying this visit so much I lose track of time"),  $p < .005$ ,  $R^2 = .036$ . According to the Tukey's multiple comparison test, experts rated this experience significantly higher than novices ( $\underline{M} = 3.71$  and  $\underline{M} = 3.37$ , respectively).

Three recreation experiences had both significant setting and expertise main effects. The first of these experiences was the newly-developed interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my companions achievements," and "finding harmony with my companions"), which had a setting main effect of  $p < .005$ ,  $R^2 = .031$ , and an expertise main effect of  $p < .01$ ,  $R^2 = .021$ . According to the Tukey's multiple comparison test conducted on the setting main effect, people in roaded natural settings rated this experience significantly higher than people in semi-primitive non-motorized settings ( $\underline{M} = 3.58$  and  $\underline{M} = 3.23$ , respectively). In addition, according to the Tukey's multiple comparison test conducted on the expertise main effect, experts rated this experience significantly higher than novices ( $\underline{M} = 3.49$  and  $\underline{M} = 3.23$ , respectively).

The second recreation experience which had two significant main effects was the REP-based absorption manner, challenge dimension, experience (i.e., "taking risks" and "being creative"), which had a setting main effect of  $p < .005$ ,  $R^2 = .044$ , and an expertise main effect of  $p < .005$ ,  $R^2 = .031$ . According to the Tukey's multiple comparison test conducted on the setting main effect, people in semi-primitive non-motorized settings ( $\underline{M} = 3.05$ ) rated this experience significantly higher than either people in roaded natural settings ( $\underline{M} = 2.68$ ) or people in rural settings ( $\underline{M} = 2.60$ ). In addition, according to the

Tukey's multiple comparison test conducted on the expertise main effect, experts rated this experience significantly higher than novices ( $\underline{M} = 3.02$  and  $\underline{M} = 2.67$ , respectively).

The final recreation experience which had two significant main effects was the REP-based functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," and "sharing your outdoor skills with others"), which had a setting main effect of  $p < .005$ ,  $\underline{R}^2 = .036$ , and an expertise main effect of  $p < .005$ ,  $\underline{R}^2 = .042$ . According to the Tukey's multiple comparison test conducted on the setting main effect, people in roaded natural settings rated this experience significantly higher than people in semi-primitive non-motorized settings ( $\underline{M} = 3.54$  and  $\underline{M} = 3.13$ , respectively). In addition, according to the Tukey's multiple comparison test conducted on the expertise main effect, experts rated this experience significantly higher than novices ( $\underline{M} = 3.46$  and  $\underline{M} = 3.08$ , respectively).

Finally, three recreation experiences had significant interaction effects. The first of these experiences was the newly-developed identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," and "learning more about who I am"),  $p < .05$ ,  $\underline{R}^2 = .019$ . According to the Tukey's multiple comparison test, experts in rural settings ( $\underline{M} = 4.17$ ) rated this experience significantly higher than either novices in rural settings ( $\underline{M} = 3.19$ ) or novices in semi-primitive non-motorized settings ( $\underline{M} = 3.50$ ). In addition, experts in semi-primitive non-motorized settings also rated this experience significantly higher than novices in semi-primitive non-motorized settings ( $\underline{M} = 3.97$  and  $\underline{M} = 3.50$ , respectively).

The second recreation experience which had a significant interaction effect was the REP-based affective manner experience (i.e., "experiencing tranquillity," "experiencing excitement," and "releasing or reducing built-up tensions"),  $p < .05$ ,  $\underline{R}^2 =$

.021. According to the Tukey's multiple comparison test, experts in rural areas rated this experience significantly higher than novices in semi-primitive non-motorized settings ( $\underline{M}$  = 4.19 and  $\underline{M}$  = 3.63, respectively).

The third and final recreation experience which had a significant interaction effect was the REP-based functional manner, place mode, experience (i.e., "viewing the scenery" and "being away from the crowds and noise"),  $p < .005$ ,  $\underline{R}^2 = .048$ .

According to the Tukey's multiple comparison test, novices in rural settings ( $\underline{M}$  = 3.68) rated this experience significantly lower than experts in rural settings ( $\underline{M}$  = 4.75), experts in roaded natural settings ( $\underline{M}$  = 4.48), and experts in semi-primitive non-motorized settings ( $\underline{M}$  = 4.54).

### Discussion.

Either expertise, or setting, or their interaction, were significant for all 10 recreation experiences. Expertise was a significant main effect 10 times, setting was a significant main effect three times, and the interaction effect was significant three times.

A second issue, in addition to how many recreation experiences do these concepts explain, is how much variability do they--either alone or in combination--explain. On balance, it appears that the significant effects due to setting explained more variance than the significant effects due to expertise. For example,  $\underline{R}^2$ s for the three significant setting main effects ranged from .031 to .044, while the  $\underline{R}^2$ s for the four significant expertise main effects ranged from .015 to .046. However, of the 10 experiences which had a significant expertise main effect, three also had significant interaction effects (no experiences had both a significant setting main effect and a significant interaction effect). Of the three experiences which had significant interaction effects, the identity manner experience had the lowest  $\underline{R}^2$  (.019), while the functional manner, place mode, experience had the highest  $\underline{R}^2$  (.048). Finally, three experiences had significant setting and expertise

main effects but no significant interaction effects. Total  $R^2$ s (i.e., the sum of the two significant main effects'  $R^2$ s) for these experiences were between .052 and .078. Thus, the ROS variables of setting and expertise--either alone or in combination--explained between 1.5% and 7.8% of the variance in these 10 recreation experiences.

In the next section, the ROS variables of activity and expertise will be examined to determine how well they explain each of the 10 recreation experiences.

### ROS Activity and ROS Expertise

#### Introduction.

Two-way ANOVA's using the ROS variables of activity (i.e., the kind of recreation being done) and expertise (i.e., the person's perceived skill level in an activity) were also performed on the 10 recreation experiences. Six activity categories--cycling, viewing, day hiking, backpacking, horseback riding, and fishing or hunting--and two levels of expertise--novice and expert--were used. Since the mail-out questionnaire did not include the expertise item, only the on-site data set was analyzed.

#### Results summary.

Table 113 summarizes the results of the ANOVA's performed on the 10 recreation experiences using the ROS activity and expertise variables (complete results for each recreation experience can be found in Appendix E). Activity, expertise, or the interaction of the two, were significant for nine of the 10 recreation experiences. For example, six experiences had significant expertise main effects, while three experiences had significant activity main effects and significant expertise main effects. Looking at it another way, activity had three significant main effects, while expertise had nine significant main effects (no interaction effects were significant).

As noted above, six recreation experiences had significant expertise main effects. The first of these experiences was the REP-based affective manner experience (i.e.,

"experiencing tranquillity," "experiencing excitement," and "releasing or reducing built-up tensions"),  $p < .05$ ,  $R^2 = .012$ . According to the Tukey's multiple comparison test, experts rated this experience significantly higher than novices ( $\underline{M} = 3.99$  and  $\underline{M} = 3.78$ , respectively).

The second recreation experience which had a significant expertise main effect was the REP-based functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," and "sharing your outdoor skills with others"),  $p < .01$ ,  $R^2 = .023$ . According to the Tukey's multiple comparison test, experts rated this experience significantly higher than novices ( $\underline{M} = 3.44$  and  $\underline{M} = 3.07$ , respectively).

The third recreation experience which had a significant expertise main effect was the newly-developed interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my companions achievements," and "finding harmony with my companions"),  $p < .05$ ,  $R^2 = .018$ . According to the Tukey's multiple comparison test, experts rated this experience significantly higher than novices ( $\underline{M} = 3.46$  and  $\underline{M} = 3.24$ , respectively).



Table 113

Summary of ANOVA's on Recreation Experiences using ROS Activity and ROSExpertise

Experience	Activity			Expertise			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	4.94	.0002***	.070	10.56	.0013***	.030	2.21	.0531	.031
Func., Place	3.11	.0094**	.046	6.97	.0087**	.021	1.50	.1884	.022
Func., Social	1.79	.1151	.027	7.56	.0063**	.023	0.16	.9762	.002
Func., Cognitive	2.21	.0531	.034	3.86	.0505	.012	1.11	.3542	.017
Self-Evaluative	0.59	.7084	.009	14.40	.0002***	.043	0.36	.8773	.005
Identity	1.01	.4090	.015	10.39	.0014***	.031	0.95	.4493	.014
Affective	1.06	.3814	.016	3.99	.0467*	.012	1.18	.3168	.018
Abs., Challenge	9.99	.0001***	.137	12.86	.0004***	.035	1.82	.1089	.025
Abs., Attention	1.84	.1055	.027	9.17	.0027***	.027	1.14	.3368	.017
Interdependent	1.80	.1122	.027	5.83	.0163*	.018	1.40	.2250	.021

Note. Six activity categories were examined: view, cycle, backpack, day hike, horse ride, and fish or hunt. Two expertise categories were examined: novice and expert.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

The fourth recreation experience which had a significant expertise main effect was the newly-developed self-evaluative manner experience ("feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," and "letting others see me as I really am"),  $p < .005$ ,  $R^2 = .043$ . According to the Tukey's multiple comparison test, experts rated this experience significantly higher than novices ( $M = 3.64$  and  $M = 3.23$ , respectively).

The fifth recreation experience which had a significant expertise main effect was the newly-developed identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," and "learning more about who I am"),  $p < .005$ ,  $R^2 = .031$ . According to the Tukey's multiple comparison test, experts rated this experience significantly higher than novices ( $M = 3.94$  and  $M = 3.55$ , respectively).

The sixth and final recreation experience which had a significant expertise main effect was the newly-developed absorption manner, attention dimension, experience (i.e., "becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," and "enjoying this visit so much I lose track of time"),  $p < .005$ ,  $R^2 = .027$ . According to the Tukey's multiple comparison test, experts rated this experience significantly higher than novices ( $M = 3.73$  and  $M = 3.35$ , respectively).

Three recreation experiences also had significant activity and expertise main effects. The first of these experiences was the REP-based functional manner, place mode, experience (i.e., "viewing the scenery" and "being away from the crowds and noise"), which had an activity main effect of  $p < .01$ ,  $R^2 = .046$  and an expertise main

effect of  $p < .01$ ,  $R^2 = .021$ . According to the Tukey's multiple comparison test conducted on the activity main effect, viewers rated this experience significantly higher than anglers or hunters ( $\underline{M} = 4.78$  and  $\underline{M} = 4.26$ , respectively). In addition, experts rated this experience significantly higher than novices ( $\underline{M} = 4.55$  and  $\underline{M} = 4.40$ , respectively).

The second recreation experience having two significant main effects was the REP-based functional manner, activity mode, experience (i.e., "developing skills and abilities" and "keeping physically fit"); which had an activity main effect of  $p < .005$ ,  $R^2 = .070$  and an expertise main effect of  $p < .005$ ,  $R^2 = .030$ . According to the Tukey's multiple comparison test conducted on the activity main effect, cyclists ( $\underline{M} = 4.03$ ) rated this experience significantly higher than either dayhikers ( $\underline{M} = 3.57$ ) or anglers or hunters ( $\underline{M} = 3.55$ ). Experts also rated this experience significantly higher than novices ( $\underline{M} = 3.85$  and  $\underline{M} = 3.60$ , respectively).

The third recreation experience having two significant main effects was the REP-based absorption manner, challenge dimension, experience (i.e., "taking risks" and "being creative"); which had an activity main effect of  $p < .005$ ,  $R^2 = .137$  and an expertise main effect of  $p < .005$ ,  $R^2 = .035$ . According to the Tukey's multiple comparison test, backpackers ( $\underline{M} = 3.26$ ) rated this experience significantly higher than dayhikers ( $\underline{M} = 2.60$ ), horse riders ( $\underline{M} = 2.60$ ), or anglers or hunters ( $\underline{M} = 2.27$ ). Additionally, viewers ( $\underline{M} = 3.11$ ) and cyclists ( $\underline{M} = 2.91$ ) also rated this experience higher than anglers or hunters ( $\underline{M} = 2.27$ ). Finally, experts rated this experience higher than novices ( $\underline{M} = 2.99$  and  $\underline{M} = 2.68$ , respectively).

### Discussion.

Either activity or expertise were significant for nine of the 10 recreation experiences. Expertise was a significant main effect nine times, while activity was a significant main effect three times (no interaction effects were significant).

A second issue, in addition to how many recreation experiences do these concepts explain, is how much variability do they--either alone or in combination--explain. On balance, it appears that the significant effects due to activity explained more variance than the significant effects due to expertise. For example,  $R^2$ s for the three significant activity main effects were between .046 and .137, while the  $R^2$ s for the four significant expertise main effects were between .012 and .043. Three experiences had significant activity and expertise main effects, with total  $R^2$ s of between .067 and .172. (Total  $R^2$  is the sum of the two significant main effects'  $R^2$ s). Thus, the ROS variables of setting and expertise explained between 1.2% and 17.2% of the variance in nine of the 10 recreation experiences.

Results for all three sets of ANOVA's are discussed in the next section.

### Research Question Three Summary.

The third research question asked: "how well do the ROS variables of activity, setting, and expertise explain the types of experiences recreationists get (both REP and non-REP types of experiences)?" Activity refers to the kind of recreation a person is doing, setting refers to the type of environment a person is recreating in, and expertise refers to a person's perceived skill level with an activity. In order to examine this question, two-way ANOVA's were performed on the 10 experiences using: (a) setting and activity, (b) setting and expertise, and (c) activity and expertise. The results of these ANOVA's are displayed in Table 114. Results for the REP experiences will be summarized first, followed by the new recreation experiences.

Table 114

Summary of Two-way ANOVA Significant Effects using the ROS Variables

	<b>Setting &amp; Activity</b>	<b>Setting &amp; Expertise</b>	<b>Setting &amp; Expertise</b>
<b>REP Experiences</b>			
Func., Activity	Int	Exp	Act & Exp
Func., Place	Act & Int	Exp & Int	Act & Exp
Func., Social Env	Set	Set & Exp	Exp
Affective	Set & Act & Int	Exp & Int	Exp
Abs., Challenge	Act	Set & Exp	Act & Exp
<b>New Experiences</b>			
Func., Cognitive	Set & Int	Exp	No Significant Effects
Self-Evaluative	Int	Exp	Exp
Identity	Int	Exp & Int	Exp
Abs., Attention	Act & Int	Exp	Exp
Interdependent	Set & Int	Set & Exp	Exp

Note. Act = activity main effect, Exp = expertise main effect, Int = interaction effect, Set = setting main effect.

With the REP-based functional manner, activity mode, experience (i.e., "developing skills and abilities" and "keeping physically fit"), the interaction effect for the ROS variables of activity and setting was found to be significant ( $p < .05$ ), with an  $R^2$  of .068. With the ROS variables of expertise and setting, however, only the expertise main effect was significant ( $p < .005$ ,  $R^2 = .023$ ). Finally, with the ROS variables of activity and expertise, both main effects were found to be significant ( $p < .005$ ), and to have a total  $R^2$  (i.e., the sum of both main effects'  $R^2$ s) of .100. The finding that activity was a significant main effect in one set of ANOVA's but not in the other may be due to different numbers of activities being used in the two analyses (e.g., four activity categories with the activity by setting ANOVA and six activity categories with the activity by expertise ANOVA). Finally, two-variable combinations of the ROS concepts of expertise, activity, and setting, explained between 2.3% and 10.0% of the variance in functional manner, activity mode, experience.

With the REP-based functional manner, place mode, experience (i.e., "viewing the scenery" and "being away from the crowds and noise"), the interaction effect for the ROS variables of activity and setting was found to be significant ( $p < .005$ ), with an  $R^2$  of .099. Similarly, with the variables of expertise and setting the interaction effect was also found to be significant ( $p < .005$ ), albeit with a smaller  $R^2$  (.048). Finally, with the ROS variables of activity and expertise, both main effects were significant ( $p < .01$ ), with a total  $R^2$  (i.e., the sum of both main effects'  $R^2$ s) of .067. Thus, for the functional manner, place mode, experience, two-variable combinations of the ROS concepts of expertise, activity, and setting, explained between 4.8% and 9.9% of the variance.

With the REP-based functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," and "sharing your outdoor skills with others"), the setting effect for the ROS variables of

activity and setting was found to be significant ( $p < .01$ ), with an  $R^2$  of .045. With the ROS variables of expertise and setting, both main effects were significant ( $p < .005$ ). The total  $R^2$  was .078. Finally, with the ROS variables of activity and expertise, only the expertise effect was significant ( $p < .01$ ), with an  $R^2$  of .023. For the functional manner, social environment mode, experience, therefore, two-variables combinations of the ROS concepts of activity, expertise, and setting explained between 2.3% and 7.8% of the variance.

With the REP-based affektive manner experience (i.e., "experiencing tranquillity," "experiencing excitement," and "releasing or reducing built-up tensions"), the interaction effect was significant for both setting and activity ( $p < .005$ ), and setting and expertise ( $p < .05$ ), ANOVA's.  $R^2$ 's were, respectively, .097 and .021. Only the expertise effect was significant ( $p < .05$ ), however, for the activity and expertise ANOVA ( $R^2 = .012$ ). The finding that activity and setting were significant main effects in one set of ANOVA's but not in the others may be due to different numbers of categories being used in the analyses. Finally, two-variable combinations of the ROS concepts of activity, expertise, and setting, explained between 1.2% and 9.7% of the variance in the affective manner experience.

With the REP-based absorption manner, challenge dimension, experience (i.e., "taking risks" and "being creative"), only the activity effect was found to be significant ( $p < .05$ ) when the ROS variables of setting and activity were analyzed ( $R^2 = .068$ ). Both main effects were, however, significant ( $p < .005$ ) for both the setting and expertise, and activity and expertise, ANOVA's. The finding that setting was a significant main effect in one set of ANOVA's but not in the other may be due to different numbers of setting categories being used in the two analyses. Total  $R^2$ 's were .075 (setting and expertise main effects) and .172 (activity and expertise main effects). Thus, two-variable

combinations of the ROS concepts explained between 6.8% and 17.2% of the absorption manner, challenge dimension, experience.

With the new functional manner, cognitive mode, experience (i.e., "developing new ideas" and "learning more about nature"), the interaction effect for the variables of activity and setting was found to be significant ( $p < .05$ ), with an  $R^2$  of .053. With the ROS variables of expertise and setting, however, only the expertise effect was significant ( $p < .01$ ,  $R^2 = .020$ ). The finding that setting and expertise were significant main effects in one set of ANOVA's but not in the others may be due to different numbers of setting categories being used in the analyses (it should also be noted that expertise was very close to being significant,  $p < .0505$  with the activity by expertise ANOVA). Finally, with the ROS variables of activity and expertise, neither the main nor the interaction effects were significant ( $p < .05$ ). Thus, for the functional manner, cognitive mode, experience, two-variables combinations of the ROS concepts of activity, expertise, and setting explained between a "negligible" amount of the variance and 5.3% of the variance.

With the new self-evaluative manner experience ("feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," and "letting others see me as I really am"), the interaction effect for the ROS variables of activity and setting was found to be significant ( $p < .01$ ), with an  $R^2$  of .077. With both the ROS combinations of expertise and setting, and expertise and activity, only the expertise effect was significant ( $p < .005$ ). The expertise effect's  $R^2$ 's were .037 (expertise and setting ANOVA) and .043 (expertise and activity ANOVA). With the self-evaluative manner experience, therefore, two-variable combinations of the three ROS concepts explained between 3.7% and 7.7% of the variance.



With the new identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," and "learning more about who I am"), the interaction effect was significant ( $p < .05$ ) for both the setting and activity, and setting and expertise, ANOVA's.  $R^2$ 's were, respectively, .067 and .019. With the activity and expertise ANOVA, only expertise was significant ( $p < .005$ ,  $R^2 = .031$ ). Two-variable combinations of the ROS concepts of activity, expertise, and setting, therefore, explained between 1.9% and 6.7% of the variance in the identity manner experience.

With the new absorption manner, attention dimension, experience (i.e., "becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," and "enjoying this visit so much I lose track of time"), the setting by activity interaction effect was found to be significant ( $p < .05$ ,  $R^2 = .071$ ). With the setting and expertise, and activity and expertise, ANOVA's, however, only the expertise effect was significant ( $p < .005$ ).  $R^2$ 's were .36 and .027, respectively. The finding that activity was a significant main effects in one set of ANOVA's but not in the other may be due to different numbers of activities being used in the two analyses. Thus, two-variable combinations of the ROS concepts of activity, expertise, and setting, explained between 2.7% and 7.1% of the variance in this recreation experience.

Finally, with the new interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my companions achievements," and "finding harmony with my companions"), the setting by activity interaction effect was found to be significant ( $p < .05$ ,  $R^2 = .060$ ). Additionally, both main effects were significant for the setting and expertise ANOVA, (setting effect,

$p < .005$ ; expertise effect,  $p < .05$ ), with a total  $R^2$  of .052. Finally, only the expertise effect was significant ( $p < .05$ ) with the activity and expertise ANOVA ( $R^2 = .018$ ). Two-variable combinations of the ROS concepts of activity, expertise, and setting, therefore, explained between 1.8% and 6.0% of the variance in the interdependent self-construal experience.

### Research Question Three Discussion.

Based on these findings, it appears that the interaction between activity and setting is the primary explanatory factor for many of the recreation experiences; both new and REP experiences. For example, the interaction between activity and setting explained the largest percentage of variability in the new functional manner, cognitive mode, experience (5.3%); the largest percentage of variability in the new interdependent self-construal experience (6.0%); the largest percentage of variability in the new identity manner experience (6.7%); the largest percentage of variability in the new absorption manner, attention dimension, experience (7.1%); the largest percentage of variability in the new self-evaluative manner experience (7.7%); the largest percentage of variability in the REP affective manner experience (9.7%); and the largest percentage of variability in the REP functional manner, place mode, experience (9.9%).

Expertise may be a secondary explanatory variable. For example, with the new self-evaluative manner experience, the new absorption manner, attention dimension, experience, and the new interdependent self-construal experience, expertise was a significant main effect independent of activity and setting. Further, the largest percentage of variability in the REP functional manner, activity mode, experience, was explained by the activity main effect (7.0%) and the expertise main effect (3.0%), combined, (10.0%). Similarly, the largest percentage of variability in the REP absorption manner, challenge dimension experience, was explained by the activity main effect (13.7%) and the

expertise main effect (3.5%), combined (17.2%). Finally, the largest percentage of the variability in the REP functional manner, social environment mode, experience was explained by the setting main effect (3.6%) and the expertise main effect (4.2%), combined (7.8%). Thus, although the interaction between activity and setting is likely the primary explanatory variable, expertise may be a secondary explanatory variable.

Unfortunately, it is difficult to compare these findings with other studies which have examined the relationship between ROS variables and recreation experiences. For example, although this study is somewhat similar to Yuan and McEwen's (1989), it differs in the number of activities that are used; the setting classes that are utilized; and the experience items that are employed. In addition, Yuan & McEwen (1989) do not examine how expertise affects recreation experiences, nor do they examine the setting variable's effect size. Yuan and McEwen (1989) do benefit, however, from having a slightly larger sample size than the current study.

Having noted these differences, there are still some comparisons which can be made since both studies use REP items. For example, in Yuan and McEwen's (1989) study, setting was not significant for the REP item "thinking about values;" while in this study, setting was not significant for the identity manner experience (which included this REP item). Similarly, in Yuan and McEwen's (1989) study, setting was not significant for the REP item "taking risks;" while in this study, setting was not significant for the absorption manner, challenge dimension, experience (which included this REP item). In addition, in Yuan and McEwen's (1989) study, setting was not significant for the REP item "viewing scenery;" while in the study reported here, setting was not significant for the functional manner, place mode, experience (which included this REP item). It should be added, however, that while Yuan and McEwen (1989) found setting was significant for two other REP items ("being away from noise" and "being away from human sights

and sounds"), setting was not significant for the functional manner, place mode, experience which combined these two items into one. Yuan and McEwen (1989) also found that setting was significant for the REP item "teaching outdoor skill;" while in this study, setting was significant for the functional manner, social environment mode, experience (which included this REP item). It must be added, however, that Yuan and McEwen (1989) found setting was not significant for another REP item ("meeting others") used in the functional manner, social environment mode, experience. Yuan and McEwen (1989) also found setting was significant for the REP item "learning about nature;" while only one of two ANOVA's conducted in this study found setting was significant for the functional manner, cognitive mode, experience (which included this item). Finally, Yuan and McEwen (1989) found setting was not significant for the REP item "experience tranquillity;" while only one of two ANOVA's conducted in this study found setting was not significant for the affective manner experience (which included this item).

Viriden and Knopf (1989) also conducted a study somewhat similar to this one. Viriden and Knopf's (1989) study does differ from the current study, however, in terms of the activities and settings that are examined, the experience items and scales that are employed, and the statistical analyses that are conducted (specifically, one-way ANOVA's rather than the two-way ANOVA's used in this dissertation). In addition, Viriden and Knopf (1989), like Yuan and McEwen (1989), do not examine either how expertise affects recreation experiences, or the size of effect the ROS variables have on recreation experiences. (Nor do any other studies I have been able to find). Viriden and Knopf (1989) do benefit, however, from having a much larger sample size.

Having noted these differences, there are still some comparisons which can be made with Viriden and Knopf (1989) since both studies use REP items. For example,

recreation experiences. (Nor do any other studies I have been able to find). Virden and Knopf (1989) do benefit, however, from having a much larger sample size.

Having noted these differences, there are still some comparisons which can be made with Virden and Knopf (1989) since both studies use REP items. For example, with both Virden and Knopf's (1989) escape/rest experience and this study's affective manner experience (which share two REP items, "experience tranquillity" and "releasing built-up tensions"), activity and setting were significant (albeit only for one of the two sets of ANOVA's in the current study). Similarly, with both Virden and Knopf's (1989) nature appreciation experience and this study's functional manner, place mode, experience (which share one REP item, "viewing the scenery"), activity--but not setting--was significant. Additionally, with both Virden and Knopf's (1989) sharing/leading experience and this study's functional manner, social environment mode, experience (which share one REP item, "sharing with others"), setting was significant. Finally, with both Virden and Knopf's (1989) personal values experience and this study's identity manner experience (which share one REP item, "thinking about personal values"), activity was not significant. Setting, however, was significant for Virden and Knopf's (1989) personal values experience, although their follow-up multiple comparison test found only one activity was significantly different from the other three. This finding suggests that there may be an interaction between activity and setting for this type of recreation experience, a result that was found with the current study's similar identity manner experience.

In conclusion, although the current study differs significantly with those of both Virden and Knopf (1989) and Yuan and McEwen (1989), some results are similar and may, therefore, indicate some patterns in the relationship between activity and setting and recreation experiences.

In the next research question, the explanatory ability of the ROS concepts of activity, setting, and expertise will be compared with the new concept of primary mode.

## Research Question Four

### Introduction

The fourth research question asks: "does the concept of primary mode improve ROS's explanation level for both REP and non-REP types of experiences?" Primary mode refers to the principal stimuli a person is focusing on, while ROS theory involves three concepts: (a) activity (i.e., the kind of recreation a person is doing), (b) setting (i.e., the type of environment a person is recreating in), and (c) expertise (i.e., a person's perceived skill level in an activity). Once again, two-way ANOVA's will be performed on each recreation experience. These ANOVA's will be composed of the primary mode classification variable and one ROS classification variable. Three classification variable combinations will be examined, including: (a) primary mode and ROS activity, (b) primary mode and ROS setting, and (c) primary mode and ROS expertise.

Probability levels for the two main effects and the interaction effect will be reported. By examining the probability levels, it can be determined if the primary mode variable by itself, or in interaction with an ROS variable, significantly affects a recreation experience.  $R^2$ 's for the main and interaction effects will also be reported. By examining these  $R^2$ 's, it can be determined how much of a recreation experience's variability is due to the primary mode variable by itself, or in interaction with an ROS variable. Additionally, Tukey's multiple comparison test will be performed on significant effects involving the primary mode variable. Finally, it must be noted that because of the study's unbalanced design, the SAS Sum of Squares III method (SAS Institute Inc., 1988) will once again be used to determine probability levels and  $R^2$ 's for the main and interaction effects.

The first set of variables--primary mode and ROS activity--will be examined in the following section.

## Primary Mode and ROS Activity

### Introduction.

Primary mode refers to the principal stimuli a person is focusing on, while activity refers to the kind of recreation a person is doing. In an earlier section it was proposed that the concept of primary mode might improve upon the explanatory ability of ROS concepts such as activity. In order to determine if this proposition is correct, ANOVA's using primary mode and activity were performed on each recreation experience. Unfortunately, due to the cognitive mode's small cell sizes, only three primary modes--activity, place, and social environment--could be used for this set of ANOVA's. Similarly, due to some activities small cell sizes, only cycling, day hiking, and backpacking could be used. Finally, because of the mail-out study's small sample size, two-way ANOVA's using activity and primary mode could only be performed on the on-site data set.

### Results summary.

Table 115 summarizes the results of the ANOVA's performed on the 10 recreation experiences using the primary mode and ROS activity variables (complete results for each recreation experience can be found in Appendix F).

Either primary mode or activity were significant for five of the 10 recreation experiences. More specifically, three experiences had significant activity main effects, while two experiences had significant primary mode main effects. There were no interaction effects.



Table 115

Summary of ANOVA's on Recreation Experiences using Primary Mode and ROSActivity

	Activity			Primary Mode			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	5.60	.0046***	.071	2.19	.1164	.028	0.67	.6168	.017
Func., Place	0.76	.4714	.010	5.51	.0050**	.073	1.68	.1575	.045
Func., Social	1.38	.2556	.019	0.62	.5408	.009	1.39	.2419	.038
Func., Cognitive	1.98	.2556	.028	0.29	.5408	.004	0.63	.2419	.018
Self-Evaluative	2.15	.1209	.030	0.78	.4591	.011	1.46	.2182	.026
Identity	3.44	.0348*	.047	0.49	.6108	.007	1.20	.3159	.033
Affective	1.33	.2684	.018	1.23	.2952	.017	1.25	.2935	.035
Abs., Challenge	5.61	.0046***	.075	0.13	.8822	.002	1.20	.3142	.032
Abs., Attention	1.20	.3036	.017	0.76	.4679	.011	1.96	.1036	.055
Interdependent	0.26	.7687	.004	4.66	.0111*	.065	0.11	.9795	.003

Note. Three activity categories were examined: backpack, cycle, day hike. Three primary mode categories were examined: place, activity, social environment.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

The three recreation experiences which had significant activity main effects were: (a) the REP-based functional manner, activity mode, experience (i.e., "developing skills and abilities" and "keeping physically fit"),  $p < .005$ ,  $R^2 = .071$ ; (b) the REP-based absorption manner, challenge dimension, experience (i.e., "taking risks" and "being creative"),  $p < .005$ ,  $R^2 = .075$ ; and (c) the newly-developed identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," and "learning more about who I am"),  $p < .05$ ,  $R^2 = .047$ .

The first recreation experience which had a significant primary mode main effect was the REP-based functional manner, place mode, experience (i.e., "viewing the scenery" and "being away from the crowds and noise"),  $p < .005$ ,  $R^2 = .073$ . According to the Tukey's multiple comparison test (Table 191, Appendix F), people who were focused on the place mode ( $M = 4.66$ ) rated the functional manner, place mode, experience significantly higher than people who were focused on either the social environment mode ( $M = 4.36$ ) or the activity mode ( $M = 4.33$ ). The second recreation experience which had a significant primary mode main effect was the newly-developed interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my companions' achievements," and "finding harmony with my companions"),  $p < .05$ ,  $R^2 = .065$ . According to the Tukey's multiple comparison test, (Table 208, Appendix F), people who were focused on the social environment mode ( $M = 3.56$ ) rated the interdependent self-construal experience significantly higher than people who were focused on either the place mode ( $M = 3.07$ ) or the activity mode ( $M = 2.96$ ).

## Discussion.

Either activity or primary mode was significant for five of the 10 recreation experiences. Activity was a significant main effect three times, while primary mode was a significant main effect two times. On balance, both concepts explain similar levels of variance; with activity explaining between 4.7% and 7.5% of the variability in three experiences, while primary mode explained between 6.5% and 7.3% of the variability in two experiences. The two experiences primary mode was significant for were different than the three experiences activity was significant for. Although this result suggests that primary mode may improve on the explanatory ability of the ROS concept of activity for these two experiences, in practical terms the finding that people who focus on the place mode rate the functional manner, place mode experience higher than those who don't, and that people who focus on the social environment mode rate the interdependent self-construal experience higher than those who don't, seems intuitive and of limited value.

In the next section, primary mode and ROS setting will be examined.

## Primary Mode and ROS Setting

### Introduction.

Primary mode refers to the principal stimuli a person is focused on, while setting refers to the type of environment an activity is being done in. In an earlier section it was proposed that the concept of primary mode might improve upon the explanatory ability of ROS concepts such as setting. In order to determine if this proposition is correct, ANOVA's using primary mode and setting were performed on each recreation experience. Unfortunately, due to the cognitive mode's small cell sizes, only three primary modes--activity, place, and social environment--could be used for this set of ANOVA's. All three ROS setting classes used at Mount Rogers NRA--roaded, rural natural, and semi-primitive non-motorized--were of sufficient size to be used in the

ANOVA's. Finally, because of the mail-out study's small sample size, two-way ANOVA's using setting and primary mode could only be performed on the on-site data set.

#### Results summary.

Table 116 summarizes the results of the ANOVA's performed on the recreation experiences using the primary mode and ROS setting variables (complete results for each recreation experience can be found in Appendix G). Primary mode, setting, or the interaction of the two, were significant for four of the 10 recreation experiences. More specifically, three experiences had significant interaction effects, and one experience had a significant setting main effect and a significant primary mode main effect. Looking at it another way, setting had one significant main effect, primary mode had one significant main effect, and the interaction effect was significant three times.

The recreation experience which had both a significant setting main effect and a significant primary mode main effect was the newly-developed interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my companions' achievements," and "finding harmony with my companions"). The activity main effect's  $p < .05$ ,  $R^2 = .026$ , while the primary mode main effect's  $p < .05$ ,  $R^2 = .025$ . The total  $R^2$  for this experience (i.e., the sum of the two main effects'  $R^2$ s) was .051. According to the Tukey's multiple comparison test performed on the primary mode main effect (Table 232, Appendix G), people who focus on the social environment mode rated the interdependent self-construal experience significantly higher than people who emphasized the place mode ( $\underline{M} = 3.63$  and  $\underline{M} = 3.19$ , respectively).

Table 116

Summary of ANOVA's on Recreation Experiences using Primary Mode and ROS Setting

Experience	Setting			Primary Mode			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	2.03	.1334	.015	1.29	.2771	.010	0.50	.7383	.007
Func., Place	0.17	.8472	.001	0.79	.4556	.005	7.09	.0001***	.094
Func., Social	1.56	.2116	.011	2.98	.0525	.021	2.40	.0507	.034
Func., Cognitive	2.92	.0556	.021	0.16	.8485	.001	2.56	.0392*	.037
Self-Evaluative	1.28	.2785	.009	1.34	.2682	.010	2.18	.0714	.032
Identity	2.35	.0973	.017	0.33	.7184	.002	3.29	.0118*	.047
Affective	1.57	.2095	.012	0.01	.9922	.000	1.52	.1971	.023
Abs., Challenge	0.85	.4280	.006	2.88	.0578	.022	0.43	.7887	.006
Abs., Attention	0.85	.4293	.006	0.09	.9156	.001	1.81	.1274	.027
Interdependent	3.62	.0283*	.026	3.50	.0317*	.025	1.05	.3815	.015

Note. Three setting categories were examined: semi-primitive non-motorized, roaded natural, rural. Three primary mode categories were examined: place, activity, social environment.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

The three recreation experiences which had significant interaction effects were:

(a) the newly-developed functional manner, cognitive mode, experience (i.e., "developing new ideas" and "learning more about nature"),  $p < .05$ ,  $R^2 = .037$ . Unfortunately, the Tukey's multiple comparison test conducted on this experience (Table 218, Appendix G) did not indicate any significant differences.

(b) The identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," and "learning more about who I am"),  $p < .05$ ,  $R^2 = .047$ . Unfortunately, the Tukey's multiple comparison test conducted on this experience (Table 223, Appendix G) also did not indicate any significant differences.

And (c) the REP-based functional manner, place mode, experience (i.e., "viewing the scenery" and "being away from the crowds and noise"),  $p < .005$ ,  $R^2 = .094$ . According to the Tukey's multiple comparison test conducted on this experience (Table 213, Appendix G), recreationists in semi-primitive non-motorized settings who focus on either the place mode ( $\underline{M} = 4.73$ ) or the social environment mode ( $\underline{M} = 4.50$ ) rate this experience significantly higher than recreationists in the same setting who focus on the activity mode ( $\underline{M} = 3.90$ ). In addition, recreationists in roaded natural settings who focus on either the place mode ( $\underline{M} = 4.59$ ) or the activity mode ( $\underline{M} = 4.57$ ) also rate this experience significantly higher than recreationists in semi-primitive non-motorized settings who focus on the activity mode ( $\underline{M} = 3.90$ ). And finally, recreationists in semi-primitive non-motorized settings who focus on the place mode ( $\underline{M} = 4.73$ ) rate this experience significantly higher than recreationists in roaded natural settings who focus on the social environment mode ( $\underline{M} = 4.03$ ).

### Discussion.

Either setting, primary mode, or their interaction, were significant for four of the 10 recreation experiences. Setting was a significant main effect once, primary mode was a significant main effect once, and the interaction effect was significant three times.

Alone, setting and primary mode appear to have limited explanatory ability. Even in the case of the interdependent self-construal experience--which had both significant setting and primary mode main effects--a total of only 5.1% of the variance was explained. And as noted earlier, the discovering that people who focus on the social environment mode rate the interdependent self-construal experience higher than those people who focus on the place mode appears to be of limited value.

In contrast, the finding that primary mode, in interaction with setting, helps explain three experiences may be of value. Overall, the  $R^2$ s for these three experiences were between .037 and .094. Although two of the Tukey's multiple comparison tests did not indicate any significant differences, the test conducted on the functional manner, place mode, experience does suggest that people in the same setting who focus on different modes may rate this experience significantly different, as may people who are focusing on the same mode but who are located in different settings. Thus, based on three recreation experiences having significant interaction effects, the concept of mode does appear to improve upon the explanatory ability of ROS setting.

In the next section, primary mode and ROS expertise will be examined.

### Primary Mode and ROS Expertise

#### Introduction.

Primary mode refers to the principal stimuli a person is focusing on, while expertise refers to a person's perceived skill level in an activity. In an earlier section it was proposed that the concept of primary mode might improve upon the explanatory

ability of ROS concepts such as expertise. In order to determine if this proposition is correct, ANOVA's using primary mode and expertise were performed on each recreation experience. Two levels of expertise--novice and expert--and four types of primary mode--cognitive, activity, place, and social environment--were utilized.

#### Results summary.

Table 117 summarizes the results of the ANOVA's performed on the 10 recreation experiences using the primary mode and ROS expertise variables (complete results for each recreation experience can be found in Appendix H).

Either primary mode or expertise were significant for six of the 10 recreation experiences. More specifically, five experiences had significant primary mode main effects, while one experience had a significant expertise main effect. There were no interaction effects.

The recreation experience which had a significant expertise main effect was the newly-developed self-evaluative manner experience (i.e., "feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," and "letting others see me as I really am"),  $p < .05$ ,  $R^2 = .016$ .



Table 117

Summary of ANOVA's on Recreation Experiences using Primary Mode and ROSExpertise

Experience	Expertise			Primary Mode			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	0.63	.4229	.002	1.39	.2452	.016	1.46	.2251	.016
Func., Place	0.01	.9267	.000	3.29	.0213*	.037	0.61	.6103	.007
Func., Social	3.83	.0516	.014	2.69	.0468*	.030	0.12	.9460	.001
Func., Cognitive	1.27	.2607	.005	1.34	.2603	.016	0.13	.9413	.002
Self-Evaluative	4.50	.0349*	.016	2.33	.0746	.025	0.55	.6496	.006
Identity	2.17	.1421	.008	4.37	.0051**	.047	1.32	.2682	.014
Affective	0.43	.5110	.002	1.24	.2973	.014	1.52	.2098	.017
Abs., Challenge	0.99	.3199	.004	5.16	.0018***	.057	0.69	.5584	.008
Abs., Attention	2.48	.1167	.008	2.39	.0690	.024	1.90	.1298	.019
Interdependent	1.74	.1888	.006	3.07	.0285*	.034	0.97	.4060	.011

Note. Two levels of expertise were examined: novice, expert. Four primary mode categories were examined: place, activity, cognitive, social environment.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

The first recreation experience which had a significant primary mode main effect was the REP-based functional manner, place mode, experience (i.e., "viewing the scenery" and "being away from the crowds and noise"),  $p < .05$ ,  $R^2 = .037$ . According to the Tukey's multiple comparison test (Table 237, Appendix H), people who focus on the place mode rate the functional manner, place mode, experience significantly higher than people who focus on the activity mode ( $\underline{M} = 4.64$  and  $\underline{M} = 4.33$ , respectively). The second experience which had a significant primary mode main effect was the REP-based functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," and "sharing your outdoor skills with others"),  $p < .05$ ,  $R^2 = .030$ . Unfortunately, the Tukey's multiple comparison test (Table 240, Appendix H) did not indicate which modes were significantly different. The third experience which had a significant primary mode main effect was the REP-based absorption manner, challenge dimension, experience (i.e., "taking risks" and "being creative"),  $p < .005$ ,  $R^2 = .057$ . According to the Tukey's multiple comparison test (Table 252, Appendix H), people who focus on the cognitive ( $\underline{M} = 3.50$ ) and social environment ( $\underline{M} = 3.10$ ) modes rate absorption manner, challenge dimension, experience significantly higher than people who focus on the activity mode ( $\underline{M} = 2.62$ ). The fourth experience which had a significant primary mode main effect was the newly developed identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," and "learning more about who I am"),  $p < .01$ ,  $R^2 = .047$ . According to the Tukey's multiple comparison test (Table 247, Appendix H), people who focus on the cognitive mode ( $\underline{M} = 4.42$ ) rate the identity manner experience significantly higher than people who focus on the activity mode ( $\underline{M} = 3.75$ ), the place mode ( $\underline{M} = 3.75$ ), or the social environment mode ( $\underline{M} =$

3.68). Finally, the fifth experience which had a significant primary mode main effect was the newly-developed interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my companions' achievements," and "finding harmony with my companions"),  $p < .05$ ,  $R^2 = .034$ .

According to the Tukey's multiple comparison test (Table 257, Appendix H), people who focus on the social environment mode ( $M = 3.64$ ) rate the interdependent self-construal experience significantly higher than people who focus on the place mode ( $M = 3.19$ ).

#### Discussion.

In contrast with the two other two analyses using primary mode (i.e., activity by primary mode, setting by primary mode), this analysis was able to include the cognitive mode because of sufficient sample size. With the inclusion of this mode, either expertise or primary mode were found to be significant for six of the 10 recreation experiences. Expertise was a significant main effect once, while primary mode was a significant main effect five times. Based on this finding, primary mode appears to be a better explanatory variable than expertise. This proposition is further supported when the  $R^2$ 's are examined; while the  $R^2$  for the expertise main effect was .016, the  $R^2$ 's for the primary mode main effects were between .030 and .057.

Although the Tukey's multiple comparison test performed on the functional manner, social environment mode, experience did not indicate how primary mode affected this experience's ratings, the Tukey's tests conducted on the other four experiences were more successful. For example, people who focused on the cognitive and social environment modes were found to rate the absorption manner, challenge dimension, experience significantly higher than people who focused on the activity mode. This finding may be due to the large number of hunters who chose the activity mode, and their not surprising aversion to one of the items included in this experience--"taking

risks." Similarly, people who focused on the cognitive mode were found to rate the identity manner experience significantly higher than people who focused on either the place or activity modes. This finding suggests that the identity manner experience may be associated with an internal, rather than external, focus--and, perhaps, therefore more indicative of introspection rather than identity. Additionally, the finding that people who focus on the place mode rate the functional manner, place mode experience significantly higher than people who focus on the activity mode, seems somewhat intuitive. What is surprising, however, is that people who focus on the cognitive and social environment modes are not significantly different from those who focus on the place mode for this experience. Similarly, the finding that people who focus on the social environment mode rate the interdependent self-construal experience significantly higher than people who focus on the place mode, also seems somewhat intuitive. Once again, what is surprising is that people who focus on the activity and cognitive modes are not significantly different from those who focus on the social environment mode for this experience.

In the next section, the results of all of two-way ANOVA's will be discussed.

#### Research Question Four Summary

The fourth research question asked: "does the concept of primary mode improve ROS's explanation level for both REP and non-REP types of experiences?" Primary mode refers to the principal stimuli a person is focusing on, while ROS theory involves three concepts: (a) activity (i.e., the kind of recreation a person is doing), (b) setting (i.e., the type of environment a person is recreating in), and (c) expertise (i.e., a person's perceived skill level in an activity). In order to examine this question, two-way ANOVA's were performed on the 10 recreation experiences using: (a) primary mode and ROS activity, (b) primary mode and ROS setting, and (c) primary mode and ROS

expertise. The results of these ANOVA's are displayed in Table 118. Results for the REP experiences will be summarized first, followed by the new recreation experiences.

With the REP-based functional manner, activity mode, experience (i.e., "developing skills and abilities" and "keeping physically fit"), the only significant effect found with the activity by primary mode ANOVA was an activity main effect ( $p < .005$ ,  $R^2 = .071$ ).

With the REP-based functional manner, place mode, experience (i.e., "viewing the scenery" and "being away from the crowds and noise"), primary mode was a significant main effect with both the activity by primary mode ANOVA and the expertise by primary mode ANOVA ( $p < .01$ ,  $R^2 = .073$ ;  $p < .05$ ,  $R^2 = .037$ , respectively). Although primary mode was not a significant main effect with the setting by primary mode ANOVA, it was part of a significant interaction effect,  $p < .005$ ,  $R^2 = .094$ . Excluding this interaction effect, none of the ROS variables had any other significant effects. Thus, primary mode as a main effect explained 3.7% more variance in the functional manner, place mode, experience than ROS expertise, and 7.3% more variance than ROS activity. In addition, primary mode in interaction with ROS setting explained 9.4% of the variance in this experience.

Table 118

Summary of Two-way ANOVA Significant Effects using Primary Mode and the ROSVariables

	<b>Primary Mode &amp; Activity</b>	<b>Primary Mode &amp; Setting</b>	<b>Primary Mode &amp; Expertise</b>
<b>REP Experiences</b>			
Func., Activity	Act	No Significant Effects	No Significant Effects
Func., Place	PM	Int	PM
Func., Social	No Significant Effects	No Significant Effects	PM
Affective	No Significant Effects	No Significant Effects	No Significant Effects
Abs., Challenge	Act	No Significant Effects	PM
<b>New Experiences</b>			
Func., Cognitive	No Significant Effects	Int	No Significant Effects
Self-Evaluative	No Significant Effects	No Significant Effects	Exp
Identity	Act	Int	PM
Abs., Attention	No Significant Effects	No Significant Effects	No Significant Effects
Interdependent	PM	Set & PM	PM

Note. Act = activity effect, Exp = expertise effect, Int = interaction effect, PM = primary mode effect, Set = setting effect.

With the REP-based functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," and "sharing your outdoor skills with others"), the only significant effect was a primary mode main effect ( $p < .05$ ,  $R^2 = .030$ ) found with the expertise by primary mode ANOVA. This significant primary mode main effect may have been found because this ANOVA--unlike the other two ANOVA's--included the cognitive mode. Thus, for the functional manner, activity mode, experience, when all four types of mode were used, primary mode explained 3.0% more variance than ROS activity, setting, and expertise.

With the REP-based affective manner experience (i.e., "experiencing tranquillity," "experiencing excitement," and "releasing or reducing built-up tensions"), no significant effects of any kind were found.

With the REP-based absorption manner, challenge dimension, experience (i.e., "taking risks" and "being creative"), only the activity main effect was significant ( $p < .005$ ,  $R^2 = .075$ ) with the activity by primary mode ANOVA, while only the primary mode main effect was significant ( $p < .005$ ,  $R^2 = .057$ ) with the expertise by primary mode ANOVA. This significant primary mode main effect may have been found because this ANOVA--unlike the other two ANOVA's--included the cognitive mode. Thus, for the functional manner, activity mode, experience, when all four types of mode were used, primary mode explained an additional 5.7% of the variance.

With the new functional manner, cognitive mode, experience (i.e., "developing new ideas" and "learning more about nature"), the only significant effect was an interaction between setting and primary mode,  $p < .05$ ,  $R^2 = .037$ . Excluding this interaction effect, none of the ROS variables had significant effects. Thus, for the functional manner, cognitive mode, experience, primary mode in interaction with activity

explained an additional 3.7% of the variance beyond that found with ROS activity, setting, and expertise.

With the new self-evaluative manner experience ("feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," and "letting others see me as I really am"), the only significant effect was an expertise main effect with the expertise by primary mode ANOVA ( $p < .05$ ,  $R^2 = .016$ ).

With the new identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," and "learning more about who I am"), activity was a significant main effect ( $p < .05$ ,  $R^2 = .047$ ) with the activity by primary mode ANOVA. In addition, setting and primary mode had a significant interaction, ( $p < .05$ ,  $R^2 = .047$ ), while primary mode was a significant main effect ( $p < .01$ ,  $R^2 = .047$ ) with the expertise by primary mode ANOVA. This significant primary mode main effect may have been found with this ANOVA because it--unlike the other two ANOVA's--included the cognitive mode.

Thus, primary mode as a main effect explained 4.7% more variance in the identity manner experience than ROS expertise, while primary mode in interaction with ROS setting explained 4.7% of the variance in this experience.

With the new absorption manner, attention dimension, experience (i.e., "becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," and "enjoying this visit so much I lose track of time"), no significant effects of any kind were found.

Finally, with the new interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my



companions achievements," and "finding harmony with my companions"), primary mode was a significant main effect with the activity by primary mode ANOVA ( $p < .05$ ,  $R^2 = .065$ ), with the expertise by primary mode ANOVA ( $p < .05$ ,  $R^2 = .034$ ), and with the setting by primary mode ANOVA ( $p < .05$ ,  $R^2 = .025$ ). With the latter ANOVA, setting was also a significant main effect ( $p < .05$ ,  $R^2 = .026$ ). With the interdependent self-construal experience, therefore, primary mode explained between 2.5% and 6.5% more variance in this experience than the ROS variables of activity, setting, and expertise.

#### Research Question Four Discussion

The previous section's findings suggest that primary mode may improve upon the explanatory ability of the ROS variables in at least two ways: (a) as a main effect, when all four types of mode are used; and (b) in interaction with setting. For example, with the expertise by primary mode ANOVA (the only analysis which used all four modes), primary mode was a significant main effect for five of the 10 recreation experiences and explained between 3.0% and 5.7% of the variance. Similarly, with the setting by primary mode ANOVA, three of the 10 recreation experiences had significant interaction effects which explained between 3.7% and 9.4% of the variance. Primary mode does appear, therefore, to improve upon ROS's explanatory ability.

Having stated this, it is important to add that primary mode's explanatory ability was often--but not always--in accord with what was hypothesized. For example, the finding that primary mode was not significant for the affective and self-evaluative manner experiences, as well as for the absorption manner, attention dimension experience, was anticipated since it was thought that these types of recreation experiences could occur regardless of which mode was being focused upon. In contrast, although primary mode was not expected to be significant for two other experiences, statistical analyses showed it was. With the absorption manner, challenge dimension, experience,

primary mode's significance may be due to the large percentage of hunters who focused on the activity mode but who were also inclined to rate one of the item's used in this experience (i.e., "taking risks") very low. With the identity manner experience, primary mode's significance appears to be the result of this experience being rated significantly higher by people who focus on the cognitive mode (versus any other mode); a finding which suggests that it may not be identity (i.e., the act of identifying with a referent of some type, such as a role, group, place, activity, or concept) but rather introspection (i.e., the examination of one's ideas, thoughts, or feelings) that this recreation experience is measuring. Also unexpected was the finding that primary mode was not significant for the functional manner, activity mode, experience, as it was thought that people who focused on the activity mode would rate this experience higher than people who were focused on another mode. Similarly, it was also thought that people who focused on the social environment mode would rate the functional manner, social environment mode, experience higher than people who focused on another mode. This result did not occur, however, possibly because the items used in the functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," "sharing your outdoor skills with others") measure social interaction with new or non-intimate others, while the social environment mode item (i.e., "the companionship of the people in my group") measures social interaction with significant others. These findings cannot, unfortunately, be compared with those of other studies as, to date, no one else has examined the relationship between primary mode and recreation experiences in a similar fashion.

In conclusion, primary mode does appear to slightly improve upon ROS's explanatory ability. In the next research question, the explanatory ability of the ROS

concept's of activity, setting and expertise will be compared with the new concepts of activity dependence and place dependence.

## Research Question Five

### Introduction

The fifth research question asks: "does the concept of mode dependence improve ROS's explanation level for both REP and non-REP types of experiences?" Mode dependence refers to how dependent a person is on a specific activity (i.e., activity dependence) or a specific place (i.e., place dependence) in order to obtain the recreation experiences he or she desires. ROS theory involves three concepts: (a) activity (i.e., the kind of recreation a person is doing), (b) setting (i.e., the type of environment a person is recreating in), and (c) expertise (i.e., a person's perceived skill level in an activity). Once again, two-way ANOVA's will be performed on each recreation experience. As with research question four, each two-way ANOVA will be composed of one ROS classification variable and one mode dependence classification variable. Six variable combinations will be examined, including: (a) activity dependence and ROS activity, (b) activity dependence and ROS setting, (c) activity dependence and ROS expertise, (d) place dependence and ROS activity, (e) place dependence and ROS setting, and (f) place dependence and ROS expertise.

Probability levels for the two main effects and the interaction effect will be reported. By examining the probability levels, it can be determined if a mode dependence variable by itself, or in interaction with an ROS variable, significantly affects a recreation experience.  $R^2$ s for the main and interaction effects will also be reported. By examining these  $R^2$ s, it can be determined how much of a recreation experience's variability is due to a mode dependence variable by itself, or in interaction with an ROS variable. Additionally, Tukey's multiple comparison test will be performed on significant effects involving a mode dependence variable. Finally, it must be noted that because of the study's unbalanced design, the SAS Sum of Squares III method (SAS Institute Inc.,

1988) will once again be used to determine probability levels and  $R^2$ s for the main and interaction effects.

### Activity Dependence and ROS Activity

#### Introduction.

Activity dependence refers to how dependent a person is on a specific activity in order to obtain the recreation experiences he or she desires, while ROS activity refers to the kind of recreation a person is doing. In order to measure activity dependence, recreationists were asked to respond to the item "I probably could have done another activity and had just as good a time" using a five point Likert scale. People who either disagreed or strongly disagreed were classified as "high activity dependence;" people who either agreed or strongly agreed were classified as "low activity dependence;" and people who responded neutrally were classified as "neutral." A set of two-way ANOVA's using activity dependence and five kinds of activities--cycling, viewing, day hiking, backpacking, and fishing or hunting--were conducted in order to determine whether the concept of activity dependence improved upon the explanatory ability of the ROS concept of activity. Because the activity dependence item was not included in the mail-out questionnaire, only the on-site data set was examined.

#### Results summary.

Table 119 summarizes the results of the ANOVA's performed on the 10 recreation experiences using the activity dependence and ROS activity variables (complete results for each recreation experience can be found in Appendix I). Either ROS activity or activity dependence were significant for seven of the 10 recreation experiences. More specifically, five experiences had significant primary activity main effects while two experiences had significant activity dependence main effects.

Table 119

Summary of ANOVA's on Recreation Experiences using Activity Dependence and ROSActivity

Experience	Activity			Activity Dependence			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	3.52	.0079**	.046	0.69	.5018	.004	0.73	.6664	.019
Func., Place	1.99	.0958	.026	0.62	.5385	.004	0.74	.6587	.019
Func., Social	3.14	.0151*	.040	0.31	.7331	.002	1.22	.2862	.031
Func., Cognitive	3.09	.0163*	.040	1.01	.3668	.006	0.63	.7561	.016
Self-Evaluative	1.25	.2892	.016	3.53	.0305*	.022	1.72	.0934	.044
Identity	1.72	.1447	.022	2.80	.0624	.018	1.56	.1356	.039
Affective	0.76	.5502	.010	6.79	.0013***	.043	1.51	.1544	.038
Abs., Challenge	8.10	.0001***	.099	0.81	.4462	.004	0.49	.8611	.012
Abs., Attention	1.63	.1674	.021	1.32	.2694	.009	0.73	.6608	.019
Interdependent	2.60	.0364*	.035	1.65	.1942	.011	0.46	.8855	.012

Note. Activities examined were: backpack, cycle, day hike, view, fish or hunt. Activity dependence had three levels: low activity dependence, neutral, high activity dependence.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

The two experiences which had significant activity dependence main effects were: (a) the new self-evaluative manner experience (i.e., "feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," "letting others see me as I really am"),  $p < .05$ ; and (b) the REP-based affective manner experience (i.e., "releasing or reducing built-up tensions," "experiencing tranquillity," "experiencing excitement"),  $p < .005$ .  $R^2$ s for these experiences were, respectively, .022 and .043. A Tukey's multiple comparison test (Table 268, Appendix I) conducted on the self-evaluative manner experience indicated that people with high activity dependence rated this experience significantly higher than people with low activity dependence ( $M = 3.56$  and  $M = 3.17$ , respectively). A Tukey's multiple comparison test (Table 273, Appendix I) on the affective manner experience indicated that people with either high activity dependence ( $M = 3.99$ ) or who were neutral ( $M = 3.91$ ) rated this experience significantly higher than people with low activity dependence ( $M = 3.54$ ).

### Discussion.

Either ROS activity or activity dependence were significant for seven of the 10 recreation experiences. Activity dependence was a significant main effect twice, while ROS activity was a significant main effect five times. Although activity dependence was significant for fewer experiences than was ROS activity, it should be noted that the two experiences activity dependence was significant for were not significant with ROS activity. With the REP-based affective manner experience and the new self-evaluative manner experience, therefore, activity dependence may be a better explanatory variable than ROS activity.

In the next section, activity dependence and ROS setting will be examined.

## Activity Dependence and ROS Setting

### Introduction.

Activity dependence refers to how dependent a person is on a specific activity in order to obtain desired recreation experiences, while setting refers to the type of environment a person is recreating in. A series of two-way ANOVA's were performed on the 10 recreation experiences using activity dependence and three ROS setting categories--rural, roaded natural, and semi-primitive non-motorized. These ANOVA's were conducted in order to determine whether the concept of activity dependence improved upon the explanatory ability of the ROS concept of setting. Because the activity dependence item was not included in the mail-out questionnaire, only the on-site data set was examined.

### Results summary.

Table 120 summarizes the results of the two-way ANOVA's performed on the 10 recreation experiences using the activity dependence and ROS setting variables (complete results for each recreation experience can be found in Appendix J). ROS setting was significant for three of the 10 recreation experiences, while activity dependence was not significant for any of the experiences either as a main effect or as an interaction effect.



Table 120

Summary of ANOVA's on Recreation Experiences using Activity Dependence and ROSSetting

Experience	Setting			Activity Dependence			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	1.57	.2096	.008	0.53	.5895	.003	0.85	.4955	.009
Func., Place	1.59	.2047	.008	0.52	.5947	.003	2.12	.0777	.022
Func., Social	5.90	.0030***	.030	0.70	.4657	.004	0.68	.6074	.007
Func., Cognitive	0.35	.7037	.002	2.26	.1057	.012	0.75	.5593	.008
Self-Evaluative	1.32	.2685	.007	1.86	.1577	.009	1.08	.3657	.011
Identity	2.09	.1249	.010	0.01	.9884	.000	2.02	.0914	.020
Affective	2.01	.1355	.010	2.06	.1287	.010	1.14	.3395	.011
Abs., Challenge	3.19	.0423*	.017	0.47	.6282	.002	0.57	.6820	.006
Abs., Attention	1.75	.1759	.009	1.56	.2119	.008	1.32	.2616	.013
Interdependent	3.65	.0270*	.019	1.16	.3152	.008	0.08	.9883	.001

Note. Settings were: rural, roaded natural, semi-primitive non-motorized. Activity dependence had three levels: low activity dependence, neutral, high activity dependence.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

### Discussion.

Based on the above, activity dependence does not appear to explain any of the recreation experiences examined in this dissertation. Additionally, the finding that activity dependence was not significant for either the affective or self-evaluative manner experiences is at odds with the results found when two-way ANOVA's were conducted using activity dependence and ROS activity. Thus, the explanatory value of activity dependence for even these two recreation experiences is called into doubt.

In the next section, activity dependence and ROS expertise will be examined.

### Activity Dependence and ROS Expertise

#### Introduction.

Activity dependence refers to how dependent a person is on a specific activity in order to obtain the recreation experiences he or she desires, while expertise refers to a person's perceived skill level and familiarity with an activity. A series of ANOVA's were performed on the 10 recreation experiences using activity dependence and two levels of expertise--novice and expert. Analyses were conducted in order to determine whether activity dependence improved upon the explanatory ability of ROS expertise.

#### Results summary.

Table 121 summarizes the results of the two-way ANOVA's performed on the 10 recreation experiences using the activity dependence and ROS expertise variables (complete results for each recreation experience can be found in Appendix K). ROS expertise and/or activity dependence were significant for nine of the 10 recreation experiences. More specifically, seven experiences had significant expertise main effects, one experience had a significant activity dependence main effect, and one experience had both significant expertise and activity dependence main effects.

Table 121

Summary of ANOVA's on Recreation Experiences using Activity Dependence and ROSExpertise

Experience	Expertise			Activity Dependence			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	4.15	.0425*	.012	0.35	.7062	.002	0.16	.8512	.001
Func., Place	1.79	.1814	.007	0.26	.7679	.002	1.47	.2307	.009
Func., Social	11.72	.0007***	.033	0.12	.8828	.001	0.38	.6865	.005
Func., Cognitive	5.41	.0207*	.016	0.89	.4100	.005	1.57	.2087	.009
Self-Evaluative	15.68	.0001***	.043	3.09	.0466*	.017	0.21	.8093	.001
Identity	16.98	.0001***	.047	1.90	.1514	.011	1.31	.2713	.007
Affective	3.07	.0805	.009	4.77	.0091**	.027	0.74	.4757	.004
Abs., Challenge	6.82	.0094**	.020	0.14	.8709	.001	0.18	.8329	.001
Abs., Attention	9.47	.0023***	.027	0.40	.6699	.002	1.07	.3454	.006
Interdependent	8.23	.0040***	.024	1.25	.2867	.007	1.83	.1625	.011

Note. Two expertise levels were used: novice and expert. Activity dependence had three levels: low activity dependence, neutral, high activity dependence.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

The experience which had a significant activity dependence main effect was the REP-based affective manner experience (i.e., "releasing or reducing built-up tensions," "experiencing tranquillity," "experiencing excitement"),  $p < .01$ ,  $R^2 = .027$ . The Tukey's multiple comparison test (Table 273, Appendix K) indicated that people who had high activity dependence ( $M = 3.98$ ) rated the affective manner experience significantly higher than people who had low activity dependence ( $M = 3.55$ ).

The experience which had both a significant activity dependence main effect and a significant expertise main effect was the new self-evaluative manner experience (i.e., "feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," "letting others see me as I really am"). This experience had an activity dependence main effect of  $p < .05$ ,  $R^2 = .017$ , and an expertise main effect of  $p < .005$ ,  $R^2 = .043$ . Thus, these two variables combined explained 6.0% of the variance in the self-evaluative manner experience. According to the Tukey's multiple comparison test (Table 310, Appendix K), people who had high activity dependence rated the self-evaluative manner experience significantly higher than people who had low activity dependence ( $M = 3.56$ ,  $M = 3.19$ , respectively).

### Discussion.

Either ROS expertise or activity dependence were significant for nine of the 10 recreation experiences. Expertise was a significant main effect eight times. Activity dependence was a significant main effect twice, once by itself and once in conjunction with expertise. Although activity dependence was significant for fewer experiences than was expertise, it should be noted that activity dependence did explain the affective manner experience while expertise did not, and that activity dependence did improve upon expertise's explanatory ability with the self-evaluative manner experience.

### Activity Dependence Summary and Conclusion.

Activity dependence refers to how dependent a person is on a specific activity in order to obtain the recreation experiences he or she desires, while ROS theory involves three concepts: (a) activity (i.e., the kind of recreation a person is doing), (b) setting (i.e., the type of environment a person is recreating in), and (c) expertise (i.e., a person's perceived skill level in an activity). Table 122 summarizes the two-way ANOVA's performed using activity dependence and ROS activity, activity dependence and ROS setting, and activity dependence and ROS expertise.

As Table 122 shows, activity dependence was significant for only two of the 10 recreation experiences. With the REP-based affective manner experience (i.e., "experiencing tranquillity," "experiencing excitement," and "releasing or reducing built-up tensions"), activity dependence was a significant main effect in two of the three ANOVA's (i.e., the ROS activity by activity dependence ANOVA and the ROS expertise by activity dependence ANOVA, but not ROS setting by activity dependence ANOVA). With the two ANOVA's where activity dependence was a significant main effect, it explained between 2.7% and 4.3% of the variance in the affective manner experience.

Similarly, with the new self-evaluative manner experience ("feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," and "letting others see me as I really am"), activity dependence was a significant main effect in two of the three ANOVA's (i.e., the ROS activity by activity dependence ANOVA and the ROS expertise by activity dependence ANOVA, but not ROS setting by activity dependence ANOVA). With the two ANOVA's where activity dependence was a significant main effect, it explained between 1.7% and 2.2% of the variance in this experience.

Table 122

Summary of Two-way ANOVA Significant Effects using Activity Dependence and the ROS Variables

	<b>Activity Dependence &amp; Activity</b>	<b>Activity Dependence &amp; Setting</b>	<b>Activity Dependence &amp; Expertise</b>
<b>REP Experiences</b>			
Func., Activity	Act	No Significant Effects	Exp
Func., Place	No Significant Effects	No Significant Effects	No Significant Effects
Func., Social	Act	Set	Exp
Affective	Act Dep	No Significant Effects	Act Dep
Abs., Challenge	Act	Set	Exp
<b>New Experiences</b>			
Func., Cognitive	Act	No Significant Effects	Exp
Self-Evaluative	Act Dep	No Significant Effects	Exp & Act Dep
Identity	No Significant Effects	No Significant Effects	Exp
Abs., Attention	No Significant Effects	No Significant Effects	Exp
Interdependent	Act	Set	Exp

Note. Effects: Act = activity, Act. Dep. = activity dependence, Exp = expertise, Int = interaction, Set = setting.

These findings suggest that, regardless of whether people have high, neutral, or low activity dependence, they generally receive the same level of most recreation experiences. However, the affective and self-evaluative manner experiences may be exceptions; with people who have high activity dependence obtaining significantly higher levels of these two experiences than people who have low activity dependence. This interpretation should be viewed with caution, however, as activity dependence was a significant main effect only when used in conjunction with the ROS activity and ROS expertise variables and not with the ROS setting variable. These findings suggest, therefore, that even if activity dependence is a significant main effect for the affective and self-evaluative manner experiences, overall it improves only marginally on the explanatory ability of the ROS concepts of activity, setting, and expertise.

In the next section, place dependence rather than activity dependence will be examined in order to determine if it is able to improve upon the explanatory ability of the ROS concepts of activity, setting, and expertise.

### Place Dependence and ROS Activity

#### Introduction.

Place dependence refers to how dependent a person is on a specific place in order to obtain the recreation experiences he or she desires, while ROS activity refers to the kind of recreation a person is doing. In order to measure place dependence, recreationists were asked to respond to the item "I probably could have gone to another place and had just as good a time" using a five point Likert scale. People who either disagreed or strongly disagreed were classified as "high place dependence;" people who either agreed or strongly agreed were classified as "low place dependence;" and people who responded neutrally were classified as "neutral." A series of two-way ANOVA's using place dependence and five kinds of activities--cycling, viewing, backpacking, day hiking, and

fishing or hunting--were conducted in order to determine whether the concept of place dependence improved upon the explanatory ability of the ROS concept of activity. Because the place dependence item was not included in the mail-out questionnaire, only the on-site data set was examined.

#### Results summary.

Table 123 summarizes the results of the ANOVA's performed on the 10 recreation experiences using the place dependence and ROS activity variables (complete results for each recreation experience can be found in Appendix L). Activity and place dependence, either alone or in combination, were significant for all 10 recreation experiences. More specifically, one experience had only a significant place dependence main effect, three experiences had only significant activity main effects, three experiences had both significant activity and place dependence main effects, and three experiences had significant interaction effects. Looking at it another way, activity had nine significant main effects, place dependence had seven significant main effects, and the interaction effect was significant three times.

The recreation experience which had only a significant place dependence main effect was the REP-based affective manner experience (i.e., "experiencing tranquillity," "experiencing excitement," "releasing or reducing built-up tensions"),  $p < .005$ ,  $R^2 = .047$ . According to the Tukey's multiple comparison test (Table 340, Appendix L), recreationists with high place dependence ( $\underline{M} = 4.12$ ) rated the affective manner experience significantly higher than recreationists who were either neutral ( $\underline{M} = 3.84$ ) or who had low place dependence ( $\underline{M} = 3.61$ ).



Table 123

Summary of ANOVA's on Recreation Experiences using Place Dependence and ROSActivity

Experience	Activity			Place Dependence			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	3.53	.0079**	.046	1.89	.1526	.012	0.81	.5962	.021
Func., Place	2.55	.0392*	.033	2.61	.0750	.017	1.11	.3575	.028
Func., Social.	4.56	.0014***	.056	3.48	.0323*	.021	2.00	.0465*	.049
Func., Cognitive	5.21	.0005***	.064	5.02	.0072**	.031	1.48	.1652	.036
Self-Evaluative	3.10	.0161*	.038	7.35	.0008***	.045	2.30	.0209*	.056
Identity	3.28	.0120*	.040	4.06	.0183*	.025	2.37	.0176*	.058
Affective	1.40	.2349	.017	7.53	.0007***	.047	1.62	.1175	.041
Abs., Challenge	8.37	.0001***	.103	1.36	.2580	.008	0.39	.9261	.010
Abs., Attention	2.94	.0208*	.038	5.20	.0061**	.033	0.56	.8126	.014
Interdependent	4.04	.0033***	.051	3.71	.0257*	.023	1.95	.0527	.049

Note. Activities examined were: backpack, cycle, day hike, view, fish or hunt. Place dependence had three levels: low place dependence, neutral, high place dependence.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

Three recreation experiences had significant activity and place dependence main effects. The first experience was the new functional manner, cognitive mode, experience (i.e., "developing new ideas," "learning more about nature"), which had an activity main effect  $p < .005$ ,  $R^2 = .064$ , and a place dependence main effect  $p < .01$ ,  $R^2 = .031$ . The total  $R^2$  for this experience (i.e., the sum of the two main effects'  $R^2$ s) was .095. According to the Tukey's multiple comparison test performed on the place dependence main effect (Table 331, Appendix L), recreationists with either high place dependence ( $M = 3.69$ ), or who were neutral ( $M = 3.56$ ), rated the functional manner, cognitive mode, experience significantly higher than recreationists with low place dependence ( $M = 3.24$ ).

The second experience was the new absorption manner, attention dimension, experience (i.e., "becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," "enjoying this visit so much I lose track of time"), which had an activity main effect  $p < .05$ ,  $R^2 = .038$ , and a place dependence main effect  $p < .01$ ,  $R^2 = .033$ . The total  $R^2$  for this experience (i.e., the sum of the two main effects'  $R^2$ s) was .071. According to the Tukey's multiple comparison test performed on the place dependence main effect (Table 345, Appendix L), recreationists with either high place dependence ( $M = 3.78$ ) or who were neutral ( $M = 3.51$ ), rated the absorption manner, attention dimension, experience significantly higher than recreationists with low place dependence ( $M = 3.33$ ).

The third experience was the new interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my companions achievements," "finding harmony with my companions"), which had an activity main effect  $p < .005$ ,  $R^2 = .051$ , and a place dependence main effect  $p < .05$ ,  $R^2 = .023$ . The total  $R^2$  for this experience (i.e., the sum of the two main effects'  $R^2$ s) was .074. According to the Tukey's multiple comparison test performed on the place

dependence main effect (Table 348, Appendix L), recreationists with high place dependence rated the interdependent self-construal experience significantly higher than recreationists who were neutral ( $\underline{M} = 3.53$  and  $\underline{M} = 3.19$ , respectively).

Three recreation experiences had significant interaction effects. The first experience was the REP-based functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," "sharing your outdoor skills with others"), which had an interaction effect  $p < .05$ ,  $R^2 = .049$ . The results of the Tukey's multiple comparison test on the interaction effect (Table 328, Appendix L) showed that: (a) anglers and hunters with low place dependence ( $\underline{M} = 4.29$ ) rated this experience significantly higher than both cyclists with low place dependence ( $\underline{M} = 2.72$ ) and dayhikers who were neutral ( $\underline{M} = 2.68$ ). And (b) anglers and hunters with high place dependence ( $\underline{M} = 3.83$ ) rated this experience significantly higher than both backpackers with low place dependence ( $\underline{M} = 2.68$ ) and dayhikers who were neutral ( $\underline{M} = 2.68$ ).

The second experience was the new self-evaluative manner experience (i.e., "feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," "letting others see me as I really am"), which had an interaction effect  $p < .05$ ,  $R^2 = .056$ . The results of the Tukey's multiple comparison test on the interaction effect (Table 334, Appendix L) indicated that: (a) anglers and hunters with low place dependence ( $\underline{M} = 4.18$ ), anglers and hunters with high place dependence ( $\underline{M} = 3.83$ ), and dayhikers with high place dependence ( $\underline{M} = 3.84$ ), all rated the self-evaluative manner experience significantly higher than dayhikers who were neutral ( $\underline{M} = 2.83$ ). And (b) anglers and hunters with low place dependence ( $\underline{M} = 4.18$ ) and anglers and hunters with high place

dependence ( $\underline{M} = 3.83$ ) also rated this experience significantly higher than cyclists with low place dependence ( $\underline{M} = 2.82$ ).

The third experience was the new identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," "learning more about who I am"), which had an interaction effect  $p < .05$ ,  $\underline{R}^2 = .058$ . The results of the Tukey's multiple comparison test on the interaction effect (Table 337, Appendix L) indicated that: (a) dayhikers with high place dependence ( $\underline{M} = 4.32$ ), viewers who were neutral ( $\underline{M} = 4.21$ ), and backpackers who were neutral ( $\underline{M} = 4.08$ ), all rated the identity manner experience significantly higher than dayhikers who were neutral ( $\underline{M} = 3.13$ ). And (b) dayhikers with high place dependence ( $\underline{M} = 4.32$ ) also rated this experience higher than cyclists with low place dependence ( $\underline{M} = 3.13$ ).

### Discussion.

Either ROS activity or place dependence were significant for all 10 recreation experiences. Place dependence was a significant main effect once, activity was a significant main effect three times, both activity and place dependence were significant main effects three times, and there were three significant interaction effects. Looking at it another way, kind of recreational activity explained nine of the 10 recreation experiences while place dependence explained seven of the 10 experiences. Based on these findings, activity does appear to explain slightly more recreation experiences than does place dependence. Additionally, examination of the activity and place dependence  $\underline{R}^2$ 's suggests that activity may explain more variability than place dependence. For example,  $\underline{R}^2$ 's for the nine significant activity main effects were between .033 and .103, while the  $\underline{R}^2$ 's for the seven significant place dependence main effects were between .021 and .047.

Having noted the above, it is important to remember that this research question did not ask which variable best explained recreation experiences, but rather whether place dependence improved upon activity's ability to explain these experiences. Thus, based on the finding that place dependence explained one experience that activity did not; that place dependence and activity interacted significantly for three experiences and hence improved upon ROS activity; and that place dependence explained between 2.3% and 3.3% additional variance in three experiences beyond that explained by activity; it appears that place dependence does improve upon the explanatory ability of the ROS concept of activity.

In the next section, place dependence and ROS setting will be examined.

### Place Dependence and ROS Setting

#### Introduction.

Place dependence refers to how dependent a person is on a specific place in order to obtain desired recreation experiences, while setting refers to the type of environment a person is recreating in. Two-way ANOVA's were performed on the 10 recreation experiences using place dependence and three ROS setting categories--rural, roaded natural, and semi-primitive non-motorized--in order to determine whether the concept of place dependence improves upon the explanatory ability of the ROS concept of setting.

#### Results summary.

Table 124 summarizes the results of the ANOVA's performed on the 10 recreation experiences using the place dependence and ROS setting variables (complete results for each recreation experience can be found in Appendix M). Setting and/or place dependence were significant for seven of the 10 recreation experiences. More specifically, three experiences had significant setting main effects, four experiences had significant place dependence main effects, and one experience had both significant

setting and place dependence main effects. Looking at it another way, setting had three significant main effects and place dependence had five significant main effects.

The only recreation experience which had both a significant setting main effect and a significant place dependence main effect was the REP-based functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," "sharing your outdoor skills with others"). The setting main effect had a  $p < .01$ ,  $R^2 = .027$ , while the place dependence main effect had a  $p < .05$ ,  $R^2 = .020$ . The total  $R^2$  for this experience (i.e., the sum of the two main effects'  $R^2$ s) was .047. According to the Tukey's multiple comparison test conducted on the place dependence main effect (Table 355, Appendix M), recreationists with high place dependence ( $M = 3.54$ ) rated the functional manner, social environment mode, experience significantly higher than either recreationists with low place dependence ( $M = 3.22$ ) or recreationists who were neutral ( $M = 3.16$ ).

Table 124

Summary of ANOVA's on Recreation Experiences using Place Dependence and ROSSetting

Experience	Setting			Place Dependence			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	2.04	.1313	.010	0.76	.4693	.004	1.19	.3149	.012
Func., Place	0.59	.5525	.003	2.27	.1052	.011	2.01	.0929	.020
Func., Social	5.37	.0050**	.027	4.02	.0187*	.020	0.25	.9083	.002
Func., Cognitive	0.90	.4063	.005	4.74	.0093**	.024	0.36	.8338	.004
Self-Evaluative	0.76	.4701	.004	5.03	.0070**	.025	0.67	.6132	.007
Identity	1.22	.2964	.006	1.47	.2306	.007	1.96	.0999	.019
Affective	1.51	.2230	.007	3.70	.0255*	.018	1.80	.1272	.018
Abs., Challenge	4.72	.0095**	.025	1.29	.2757	.007	0.73	.5708	.008
Abs., Attention	1.23	.2928	.006	3.38	.0351*	.017	0.56	.6930	.006
Interdependent	5.23	.0057**	.026	1.52	.2205	.008	1.30	.2681	.013

Note. Settings were: rural, roaded natural, semi-primitive non-motorized. Place dependence had three levels: low place dependence, neutral, high place dependence.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

As Table 124 shows, four recreation experiences had only significant place dependence main effects. One of these experiences was the REP-based affective manner experience (i.e., "experiencing tranquillity," "experiencing excitement," "releasing or reducing built-up tensions"),  $p < .05$ ,  $R^2 = .018$ . According to the Tukey's multiple comparison test conducted on the place dependence main effect (Table 366, Appendix M), recreationists with high place dependence ( $\underline{M} = 4.11$ ) rated the affective manner experience significantly higher than either recreationists with low place dependence ( $\underline{M} = 3.64$ ) or recreationists who were neutral ( $\underline{M} = 3.83$ ).

The second experience which had only a significant place dependence main effect was the new functional manner, cognitive mode, experience (i.e., "developing new ideas," "learning more about nature"),  $p < .01$ ,  $R^2 = .024$ . According to the Tukey's multiple comparison test conducted on the place dependence main effect (Table 358, Appendix M), recreationists with high place dependence rated the functional manner, cognitive mode, experience significantly higher than recreationists with low place dependence ( $\underline{M} = 3.73$  and  $\underline{M} = 3.31$ , respectively).

The third experience which had only a significant place dependence main effect was the new self-evaluative manner experience (i.e., "feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," "letting others see me as I really am"),  $p < .01$ ,  $R^2 = .025$ . According to the Tukey's multiple comparison test conducted on the place dependence main effect (Table 361, Appendix M), recreationists with high place dependence ( $\underline{M} = 3.71$ ) rated the self-evaluative manner experience significantly higher than either recreationists with low place dependence ( $\underline{M} = 3.31$ ) or recreationists who were neutral ( $\underline{M} = 3.24$ ).



Finally, the fourth experience which had only a significant place dependence main effect was the new absorption manner, attention dimension, experience (i.e., "becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," "enjoying this visit so much I lose track of time"),  $p < .05$ ,  $R^2 = .017$ . According to the Tukey's multiple comparison test conducted on the place dependence main effect (Table 371, Appendix M), recreationists with high place dependence ( $M = 3.80$ ) rated the absorption manner, attention dimension, experience significantly higher than either recreationists with low place dependence ( $M = 3.33$ ) or recreationists who were neutral ( $M = 3.50$ ).

#### Discussion.

Either ROS setting or place dependence were significant for seven of the 10 recreation experiences. Setting was a significant main effect twice, place dependence was a significant main effect four times, and both setting and place dependence were significant main effects once. Looking at it another way, setting explained three of the 10 recreation experiences while place dependence explained five of the 10 experiences.

Based on these findings, setting does appear to explain slightly fewer recreation experiences than does place dependence. However, examination of the setting and place dependence  $R^2$ 's suggests that setting may explain slightly more variability than place dependence. For example,  $R^2$ 's for the three significant setting main effects were between .025 and .027, while the  $R^2$ 's for the five significant place dependence main effects were between .017 and .025.

Having recognized setting's slightly better ability to explain variability in some recreation experiences, it should be remembered that place dependence did explain four experiences that setting did not, and that place dependence explained 2.0% additional variance in one experience--the functional manner, social environment mode--beyond

that explained by activity. These findings suggest that that place dependence does improve upon the explanatory ability of the ROS concept of setting.

In the next section, place dependence and ROS expertise will be examined.

### Place Dependence and ROS Expertise

#### Introduction.

Place dependence refers to how dependent a person is on a specific place in order to obtain desired recreation experiences, while expertise refers to a person's perceived skill level and familiarity with an activity. Two-way ANOVA's were performed on the 10 recreation experiences using place dependence and two levels of expertise--novice and expert--in order to determine whether the concept of place dependence improves upon the explanatory ability of the ROS concept of expertise.

#### Results summary.

Table 125 summarizes the results of the ANOVA's performed on the recreation experiences using the place dependence and expertise variables (complete results for each recreation experience can be found in Appendix N). Expertise and/or place dependence were significant for all 10 recreation experiences. More specifically, two experiences had significant expertise main effects, two experiences had significant interaction effects, and six experiences had both significant expertise and place dependence main effects. Looking at it another way, place dependence had eight significant main effects while expertise had 10 significant main effects.

The two recreation experiences having significant interaction effects were: (a) the new identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," "learning more about who I am"),  $p < .05$ ,  $R^2 = .025$ ; and (b) the REP-based affective manner experience (i.e.,

"experiencing tranquillity," "experiencing excitement," "releasing or reducing built-up tensions"),  $p < .01$ ,  $R^2 = .026$ . The results of the Tukey's multiple comparison test conducted on the identity manner experience's interaction effect (Table 390, Appendix N) showed that: (a) experts with high place dependence ( $\underline{M} = 3.97$ ), experts with low place dependence ( $\underline{M} = 3.94$ ), experts who were neutral ( $\underline{M} = 3.89$ ), and novices with high place dependence ( $\underline{M} = 3.89$ ) all rated the identity manner experience significantly higher than novices with low place dependence ( $\underline{M} = 3.14$ ). And (b) experts with high place dependence ( $\underline{M} = 3.97$ ) also rated this experience significantly higher than novices who were neutral ( $\underline{M} = 3.51$ ). The results of the Tukey's multiple comparison test conducted on the affective manner experience's interaction effect (Table 393, Appendix N) indicated that novices with high place dependence ( $\underline{M} = 4.16$ ), experts with high place dependence ( $\underline{M} = 4.06$ ), experts with low place dependence ( $\underline{M} = 3.81$ ), and experts who were neutral ( $\underline{M} = 3.97$ ), all rated the affective manner experience significantly higher than novices with low place dependence ( $\underline{M} = 3.20$ ).

Table 125

Summary of ANOVA's on Recreation Experiences using Place Dependence and ROSExpertise

Experience	Expertise			Place Dependence			Interaction		
	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>	<u>F</u>	<u>p</u>	<u>R</u> <sup>2</sup>
Func., Activity	5.43	.0204*	.016	1.10	.3333	.006	0.68	.5075	.004
Func., Place	4.03	.0455*	.012	4.00	.0192*	.023	1.97	.1409	.011
Func., Social	14.06	.0002***	.039	6.29	.0021***	.035	2.20	.1127	.012
Func., Cognitive	7.08	.0082**	.020	6.58	.0016***	.037	0.99	.3717	.006
Self-Evaluative	23.90	.0001***	.063	11.33	.0001***	.060	2.18	.1151	.012
Identity	19.06	.0001***	.052	5.57	.0042***	.030	4.57	.0110*	.025
Affective	7.50	.0065**	.021	13.37	.0001***	.073	4.80	.0088**	.026
Abs., Challenge	10.39	.0014***	.031	0.67	.5129	.004	0.48	.6223	.003
Abs., Attention	13.50	.0003***	.037	7.39	.0007***	.041	2.95	.0539	.016
Interdependent	7.68	.0059**	.022	4.05	.0183*	.023	2.82	.0608	.016

Note. Two expertise levels were used: novice and expert. Place dependence had three levels: low place dependence, neutral, high place dependence.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .005$ .

As Table 125 also shows, of the six recreation experiences having both significant expertise and place dependence main effects, two were REP-based experiences while four were new experiences. One of the two REP-based experiences was the functional manner, place mode, experience (i.e., "viewing the scenery," "being away from the crowds and noise"). The expertise main effect had a  $p < .05$ ,  $R^2 = .012$ , while the place dependence main effect had a  $p < .05$ ,  $R^2 = .023$ . The total  $R^2$  for this experience (i.e., the sum of the two main effects'  $R^2$ s) was .035. Unfortunately, the Tukey's multiple comparison test conducted on the place dependence main effect (Table 378, Appendix N) did not identify any significant differences.

The other REP-based experience which had both significant expertise and place dependence main effects was the functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," "sharing your outdoor skills with others"). The expertise main effect had a  $p < .005$ ,  $R^2 = .039$ , while the place dependence main effect had a  $p < .005$ ,  $R^2 = .035$ . The total  $R^2$  for this experience (i.e., the sum of the two main effects'  $R^2$ s) was .074. The Tukey's multiple comparison test conducted on the place dependence main effect (Table 381, Appendix N) indicated that recreationists with high place dependence ( $M = 3.51$ ) rated the functional manner, social environment mode, experience significantly higher than either recreationists with low place dependence ( $M = 3.15$ ) or recreationists who were neutral ( $M = 3.18$ ).

One of the four new recreation experiences which had both significant expertise and place dependence main effects was the functional manner, cognitive mode, experience (i.e., "developing new ideas," "learning more about nature"). The expertise main effect had a  $p < .01$ ,  $R^2 = .020$ , while the place dependence main effect had a  $p < .005$ ,  $R^2 = .037$ . The total  $R^2$  for this experience (i.e., the sum of the two main effects'  $R^2$ s) was

.057. The Tukey's multiple comparison test conducted on the place dependence main effect (Table 384, Appendix N) showed that recreationists with high place dependence rated the functional manner, cognitive mode, experience significantly higher than recreationists with low place dependence ( $\underline{M} = 3.69$  and  $\underline{M} = 3.28$ , respectively).

The second new recreation experience which had both significant expertise and place dependence main effects was the self-evaluative manner experience (i.e., "feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," "letting others see me as I really am"). The expertise main effect had a  $p < .005$ ,  $\underline{R}^2 = .063$ , while the place dependence main effect had a  $p < .005$ ,  $\underline{R}^2 = .060$ . The total  $\underline{R}^2$  for this experience (i.e., the sum of the two main effects'  $\underline{R}^2$ s) was .123. The Tukey's multiple comparison test conducted on the place dependence main effect (Table 387, Appendix N) indicated that recreationists with high place dependence ( $\underline{M} = 3.68$ ) rated the self-evaluative manner experience significantly higher than either recreationists with low place dependence or ( $\underline{M} = 3.23$ ) or recreationists who were neutral ( $\underline{M} = 3.35$ ).

The third new recreation experience which had both significant expertise and place dependence main effects was the absorption manner, attention dimension, experience (i.e., "becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," "enjoying this visit so much I lose track of time"). The expertise main effect had a  $p < .005$ ,  $\underline{R}^2 = .037$ , while the place dependence main effect had a  $p < .005$ ,  $\underline{R}^2 = .041$ . The total  $\underline{R}^2$  for this experience (i.e., the sum of the two main effects'  $\underline{R}^2$ s) was .078. The Tukey's multiple comparison test conducted on the place dependence main effect (Table 398, Appendix N) indicated that people with high place dependence rated the absorption

manner, attention dimension, experience significantly higher than people with low place dependence ( $\underline{M} = 3.75$  and  $\underline{M} = 3.33$ , respectively).

The fourth and final new recreation experience which had both significant expertise and place dependence main effects was the interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my companions achievements," "finding harmony with my companions"). The expertise main effect had a  $p < .01$ ,  $\underline{R}^2 = .022$ , while the place dependence main effect had a  $p < .05$ ,  $\underline{R}^2 = .023$ . The total  $\underline{R}^2$  for this experience (i.e., the sum of the two main effects'  $\underline{R}^2$ s) was .045. The Tukey's multiple comparison test conducted on the place dependence main effect (Table 401, Appendix N) indicated that recreationists with high place dependence rated the interdependent self-construal experience significantly higher than recreationists who were neutral ( $\underline{M} = 3.54$  and  $\underline{M} = 3.24$ , respectively).

#### Discussion.

Either expertise or place dependence were significant for all 10 recreation experiences. Expertise was the only significant main effect twice, expertise and place dependence had significant interactions twice, and both expertise and place dependence were significant main effects six times. Looking at it another way, place dependence explained eight of the 10 recreation experiences, while expertise explained all 10 of the experiences. Although expertise does appear to explain more recreation experiences than place dependence, examination of both variables'  $\underline{R}^2$ s suggest that each explains similar percentages of variance. For example,  $\underline{R}^2$ s for the eight significant place dependence main effects were between .023 and .073, while the  $\underline{R}^2$ s for the 10 significant expertise main effects were between .012 and .063. In addition, place dependence was part of two significant interaction effects and explained between 2.3% and 6.0% additional variance in six experiences beyond that explained by activity. These findings suggest, therefore,

that that place dependence does improve upon the explanatory ability of the ROS concept of expertise.

In the next section, these results will be compared with those found with the ROS variables of activity and setting.

#### Place Dependence Summary and Conclusion

Place dependence refers to how dependent a person is on a specific place in order to obtain the recreation experiences he or she desires, while ROS theory involves three concepts: (a) activity (i.e., the kind of recreation a person is doing), (b) setting (i.e., the type of environment a person is recreating in), and (c) expertise (i.e., a person's perceived skill level in an activity). Two-way ANOVA's were conducted on each of the 10 recreation experiences using place dependence and each of these ROS concepts. The results of these ANOVA's are displayed in Table 126. Results for the REP experiences will be summarized first, followed by the new recreation experiences.

With the REP-based functional manner, activity mode, experience (i.e., "developing skills and abilities" and "keeping physically fit"), the ROS variables of activity and expertise, but not setting, were found to be significant main effects. Place dependence, however, was not a significant main effect nor part of a significant interaction effect with any of the ANOVA's. This finding suggests that the concept of place dependence does not improve upon the explanatory ability of the ROS variables for the REP-based functional manner, activity mode, experience.



Table 126

Summary of Two-way ANOVA Significant Effects using Place Dependence and the ROS Variables

	<b>Place Dependence &amp; Activity</b>	<b>Place Dependence &amp; Setting</b>	<b>Place Dependence &amp; Expertise</b>
<b>REP Experiences</b>			
Func., Activity	Act	No Significant Effects	Exp
Func., Place	Act	No Significant Effects	Exp & Place Dep
Func., Social Env.	Act	Set & Place Dep	Exp & Place Dep
	& Place Dep & Int		
Affective	Place Dep	Place Dep	Exp & Place Dep & Int
Abs., Challenge	Act	Set	Exp
<b>New Experiences</b>			
Func., Cognitive	Act & Place Dep	Place Dep	Exp & Place Dep
Self-Evaluative	Act	Place Dep	Exp & Place Dep
	& Place Dep & Int		
Identity	Act	No Significant Effects	Exp & Place Dep & Int
	& Place Dep & Int		
Abs., Attention	Act & Place Dep	Place Dep	Exp & Place Dep
Interdependent	Act & Place Dep	Set	Exp & Place Dep

Note. Effects: Act = activity, Exp = expertise, Int = interaction, Place Dep. = place dependence, Set = setting.

A similar result was found with the REP-based absorption manner, challenge dimension, experience (i.e., "taking risks" and "being creative"). With this experience, all three ROS variables--activity, setting, and expertise--were significant main effects, while place dependence was not a significant main effect nor part of a significant interaction effect with any of the ANOVA's. This finding suggests that the concept of place dependence does not improve upon the explanatory ability of the ROS variables for the REP-based absorption manner, challenge dimension, experience.

With the REP-based functional manner, place mode, experience (i.e., "viewing the scenery" and "being away from the crowds and noise"), the ROS variables of activity and expertise, but not setting, were found to be significant main effects. Place dependence was also found to be a significant main effect, but only with one of the three ANOVA's (i.e., the expertise and place dependence ANOVA). Thus, although place dependence did explain an additional 2.3% of the variance above that explained by ROS expertise, this interpretation should be viewed with caution as place dependence was not, consistently, a significant main effect. These findings suggest, therefore, that the concept of place dependence may improve upon the explanatory ability of the ROS variables for the REP-based functional manner, place mode, experience; however caution is strongly warranted.

With the REP-based functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," and "sharing your outdoor skills with others"), the ROS variables of activity, setting, and expertise were all significant main effects. In addition, place dependence was a significant main effect across all three ANOVA's, as well as part of a significant interaction effect with activity. Specifically, place dependence's  $R^2$  of .020, combined with setting's  $R^2$  of .027, explained 4.7% of the variance in this experience. Similarly,

place dependence's  $R^2$  of .035, combined with expertise's  $R^2$  of .039, explained 7.4% of the variance in this experience. Finally, the interaction of place dependence and activity explained 4.9% of the variance in this experience. These results suggest, therefore, that the concept of place dependence does improve upon the explanatory ability of the ROS variables for the REP-based functional manner, social environment mode, experience.

With the REP-based affective manner experience (i.e., "experiencing tranquillity," "experiencing excitement," and "releasing or reducing built-up tensions"), the only significant ROS variable was expertise. In contrast, place dependence was a significant main effect across all three ANOVA's, as well as part of a significant interaction effect with expertise. As a significant main effect, place dependence explained between 1.8% and 7.3% of the variance in the affective manner experience. As part of a significant interaction effect with expertise, place dependence explained 2.6% of the variance in this experience. These results suggest, therefore, that the concept of place dependence does improve upon the explanatory ability of the ROS variables for the REP-based affective manner experience.

With the new identity manner experience (i.e., "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," "being reminded of the things that matter most in my life," "thinking about my life and personal values," and "learning more about who I am"), the ROS variables of activity and expertise, but not setting, were found to be significant main effects. Place dependence was also found to be a significant main effect with two of the three ANOVA's, as well as part of significant interaction effects with both activity and expertise. As a significant main effect, place dependence explained between 2.5% and 3.0% of the variance in the identity manner experience. As part of a significant interaction effect with expertise, place dependence explained 2.5% of the variance in the identity manner experience; and as part of a significant interaction

effect with activity, place dependence explained 5.8% of the variance in this experience. These findings suggest, therefore, that the concept of place dependence likely improves upon the explanatory ability of the ROS variables for the new identity manner experience; however some caution is warranted.

A similar recommendation could be extended to the new interdependent self-construal experience (i.e., "understanding my companions' thoughts and feelings," "finding happiness in my companions achievements," and "finding harmony with my companions"). With this experience, all three ROS variables were significant main effects, while place dependence was significant main effect with two of the three ANOVA's. As a significant main effect, place dependence explained 2.3% of the variance in this experience above that of either the activity or expertise variables. These findings suggest, therefore, that the concept of place dependence likely improves upon the explanatory ability of the ROS variables for the new interdependent self-construal experience; however some caution is once again warranted.

With the new functional manner, cognitive mode, experience (i.e., "developing new ideas" and "learning more about nature"), the ROS variables of activity and expertise, but not setting, were significant main effects. Place dependence was also a significant main effect across all three ANOVA's. Specifically, with the setting and place dependence ANOVA, place dependence explained 2.0% of the variance in the functional manner, cognitive mode, experience. Similarly, place dependence's  $R^2$  of .037, combined with expertise's  $R^2$  of .020, explained 5.7% of the variance in this experience. Finally, place dependence's  $R^2$  of .031, combined with activity's  $R^2$  of .064, explained 9.5% of the variance in this experience. These results suggest, therefore, that the concept of place dependence does improve upon the explanatory ability of the ROS variables for the new functional manner, cognitive mode, experience.

Similar results were found with the new absorption manner, attention dimension, experience (i.e., "becoming so absorbed in my experience that I lose track of everything around me," "living only in the moment; forgetting the everyday worries of life," and "enjoying this visit so much I lose track of time"). Once again, the ROS variables of activity and expertise, but not setting, were significant main effects. Place dependence was also a significant main effect across all three ANOVA's. Specifically, with the setting and place dependence ANOVA, place dependence explained 1.7% of the variance in the absorption manner, attention dimension, experience. Similarly, place dependence's  $R^2$  of .033, combined with activity's  $R^2$  of .038, explained 7.1% of the variance in this experience. Finally, place dependence's  $R^2$  of .041, combined with expertise's  $R^2$  of .037, explained 7.8% of the variance in this experience. These results suggest, therefore, that the concept of place dependence does improve upon the explanatory ability of the ROS variables for the new absorption manner, attention dimension, experience.

Finally, with the new self-evaluative manner experience ("feeling more self-confident," "feeling more self-reliant," "control over my time and activities," "being able to achieve my goals," "controlling my thoughts and feelings," and "letting others see me as I really am"), the ROS variables of activity and expertise, but not setting, were significant main effects. Place dependence was also a significant main effect across all three ANOVA's, as well as part of an interaction effect with activity. Specifically, with the setting and place dependence ANOVA, place dependence explained 2.5% of the variance in the self-evaluative manner experience. Similarly, place dependence's  $R^2$  of .060, combined with expertise's  $R^2$  of .063, explained 12.3% of the variance in this experience. Finally, place dependence, in interaction with activity, explained 5.6% of the variance in this experience. These results suggest, therefore, that the concept of place

dependence does improve upon the explanatory ability of the ROS variables for the new self-evaluative manner experience.

Overall, therefore, although place dependence does not improve upon the ROS variables' explanatory ability for two REP-based experiences, it does appear to do so for at least five other experiences, including: (a) the REP-based functional manner, social environment mode, experience; (b) the REP-based affective manner experience; (c) the new self-evaluative manner experience; (d) the new functional manner, cognitive mode, experience; and (e) the new absorption manner, attention dimension, experience. It should also be noted that place dependence had significant interaction effects with activity and expertise for the new identity manner experience; thus improving upon the explanatory ability of these two ROS variables. Finally, place dependence may also help explain at least one other recreation experience. With the new interdependent self-construal experience, for example, place dependence was a significant main effect when activity and expertise were accompanying variables (but not when setting was the secondary variable). In conclusion, the concept of place dependence did improve upon the explanatory ability of the three ROS variables for at least five of the 10 recreation experiences.

#### Research Question Five Summary and Conclusion

The fifth research question asked: "does the concept of mode dependence improve ROS's explanation level for both REP and non-REP types of experiences?" Mode dependence refers to how dependent a person is on a specific activity (i.e., activity dependence) or a specific place (i.e., place dependence) in order to obtain the recreation experiences he or she desires, while ROS theory involves three concepts: (a) activity (i.e., the kind of recreation a person is doing), (b) setting (i.e., the type of environment a person is recreating in), and (c) expertise (i.e., a person's perceived skill level in an

activity). Two-way ANOVA's were conducted on each recreation experience using one ROS variable and one mode dependence variable. ANOVA's were performed on each of the 10 recreation experiences using the two types of mode dependence and three ROS variables: activity, setting, and expertise.

With activity dependence, it was found that people generally received the same recreation experience regardless of whether they had high activity dependence, low activity dependence, or were neutral. The new self-evaluative manner experience and the REP-based affective manner experience were possible exceptions, with people who had high activity dependence generally obtaining higher levels of these two experiences than people who had low activity dependence. This interpretation must be viewed with caution, however, as activity dependence was a significant main effect only when used in conjunction with the ROS activity and ROS expertise variables. Therefore, even if activity dependence is a significant main effect for these two experiences, overall, it improves only marginally on the explanatory ability of the ROS concepts of activity, expertise, and setting.

In contrast, place dependence did improve upon the ROS concepts' explanatory ability for at least five of the 10 recreation experiences. In general, it was found that recreationists who had high place dependence received these experiences at higher levels than recreationists who had either low place dependence or recreationists who were neutral. These findings suggests that the concept of place dependence may be an important factor in explaining and predicting a number of recreation experiences.

There are, however, at least two important issues regarding activity dependence and place dependence which must be recognized. First, because of inconsistent statistical results across the three sets of ANOVA's, it is often unclear whether differences in activity or place dependence do affect recreation experiences. For example, although

place dependence was a significant main effect for the functional manner, place mode, experience when used with expertise, it was not a significant main effect when used with either activity or setting. Such findings may be due to differences in the number of study respondents used for each ANOVA, or due to chance statistical significance resulting from the large number of ANOVA's conducted in this dissertation. Regardless of the causes, these inconsistencies must be recognized as important study limitations.

The second issue concerns whether place and activity dependence are conceived of as the independent variables while recreation experiences are the dependent variables, or whether recreation experiences are the independent variables and place and activity dependence are the dependent variables. Unfortunately, although this dissertation's analyses are based on the former conception, they do in no way rule out the latter conception. That is, the cause of the observed correlation is not known. Thus, until further statistical analyses, such as path analysis or structural equation modeling, are conducted, it remains unclear what the real relationship is between place and activity dependence and recreation experiences.

Further discussion of this research question's findings, as well as the findings from the other four research questions, will occur in the sixth and final chapter.



## Chapter Six - Conclusion

### Introduction

As stated in the introductory chapter, the purpose of this dissertation was to examine three issues involving the Recreation Experience Preference (REP) scales and the Recreation Opportunity Spectrum (ROS) model, including: (a) is REP comprehensive or does it overlook some recreation experiences? (b) Does REP have an underlying structure, and if so, could it be used to develop a framework for classifying recreation experiences? And (c) are there other variables, besides the ROS concepts of activity, setting, and expertise, that could help predict the kinds of experiences a recreationist receives? Conceptual background, empirical findings and conclusions, potential problems and limitations, managerial implications, and recommendations for future research for each of these issues are examined below.

### Recreation Experiences not included in REP

In order to determine the different types of experiences an outdoor recreationist may obtain, Driver and his colleagues studied psychological trait and leisure literature, conducted focus groups, and conducted numerous surveys of recreationists and their experiences. After over two decades of research, 19 recreation experience preference "domains" measuring "the extent to which specific experiences are desired and expected from leisure activities" (Driver, Tinsley, & Manfredi, 1991, p. 275) were identified. Many, although not all, of these domains are composed of two or more REP scales.

Although considerable effort has been expended on testing these scales, REP may be most vulnerable to criticism in regard to its content validity. This contention is based on the belief that the identification of new experiences is an ongoing process which is often affected by such factors as: (a) the development of new types of recreation activities (e.g., snow-boarding); (b) increased participation by new or non-traditional

outdoor recreationists (e.g., women, people of color); and (c) theoretical advances in both leisure and other social science fields. One example of the last point is "flow" (Csikszentmihalyi, 1975, 1990; Csikszentmihalyi & Csikszentmihalyi, 1988), a concept not currently included in REP.

Five new recreation experiences were of particular interest in this dissertation because it was believed that they were missing from, or underdeveloped in, REP. One of these new experiences--called absorption--is similar to flow in that it is characterized by a high level of attention being focused on a specific stimulus, a loss of consciousness of the self, and a loss of awareness of time and surroundings (Quarrick, 1989). The second and third new experiences are related to self-concept, and include: (a) identity experiences, which seek to answer the question "who and what am I?" and (b) self-evaluative experiences, which seek to answer the question "how do I feel about myself?" (Campbell et al., 1996). A fourth new experience is based on Markus and Kitayama's (1991) proposition that while males and Westerners may have an "independent" self-concept, females and recent immigrants from non-Western cultures may have an "interdependent" self-concept. If the authors are correct, individuals having different types of self-concept may also have different types of recreation experiences--and potentially some of these experiences may be missing from REP. Finally, although REP does include recreation experiences involving cognitive activity, they are primarily concerned with either personal or spiritual introspection. Thus, the fifth new experience may involve cognitive activity which is not concerned with either personal or spiritual introspection (e.g., thinking about a financial problem).

Before being able to measure whether people actually have these new recreation experiences, items had to be developed which characterized each type of experience. Three new items were developed for absorbing--or what this dissertation calls absorption

manner, attention dimension--experiences, including: (a) "becoming so absorbed in my experience that I lose track of everything around me;" (b) "living only in the moment; forgetting the everyday worries of life;" and (c) "enjoying this visit so much I lose track of time." In order to measure the types of recreation experiences people having an interdependent self-construal might have, three new items were developed based on Markus and Kitayama's (1991) research, including: (a) "understanding my companions' thoughts and feelings;" (b) "finding happiness in my companions' achievements;" and (c) "finding harmony with my companions." In order to measure identity experiences, four new items (i.e., "being reminded of the things that matter most in my life," "feeling I'm part of something much bigger," "feeling a sense of oneness with nature," and "learning more about who I am") were used in conjunction with one REP item (i.e., "thinking about my life and personal values").

In order to measure self-evaluative experiences, three new items (i.e., "controlling my thoughts and feelings," "being able to achieve my goals" and "letting others see me as I really am") were used in conjunction with three REP items (i.e., "control over my time and activities," "feeling more self-confident," and "feeling more self-reliant"). In order to measure recreation experiences involving cognition but not introspection--what this dissertation calls functional manner, cognitive mode, experiences--one new item (i.e., "develop new ideas") and one REP item (i.e., "learning more about nature") were used. Thus, in total 14 new items and five REP items were combined, based on theory, in order to form five new recreation experiences.

One issue which must be addressed is the use of both new and REP items to form the identity manner experience, the self-evaluative manner experience, and the functional manner, cognitive mode, experience. In the case of the identity manner experience, it was thought that recreationists could interpret the REP item "thinking about my life and

personal values" not only in terms of introspective experiences (what Driver and his colleagues believe this item measures) but also in terms of identity experiences (what this dissertation believes this item may also measure). In the case of the self-evaluative manner experience, it was thought that while the REP items measure some self-evaluative dimensions (e.g., self-confidence), the new items measure other self-evaluative dimensions (e.g., self-authenticity) and, therefore, that use of both kinds of items might support the existence of a superordinate self-evaluative experience category (i.e., the self-evaluation manner experience). Similarly, with the functional manner, cognitive mode, experience, it was thought that the REP item (i.e., "learning more about nature") and the new item (i.e., "develop new ideas") might also form a superordinate cognitive--but non-introspective--experience category.

In order to determine if these five new recreation experiences did exist, two issues were addressed: (a) were the new recreation experiences different from the REP experiences (and, if so, were they also different from each other)? And (b) did people report having had these new experiences? In addressing these issues, factor analyses were conducted, inter-experience correlations were examined, ANOVA's were performed, and the percent of study participants who reported having had these experiences above the "somewhat" level (i.e., a mean of 3.49 or higher on the five point scale used for this question) were studied. After examination of these statistical analyses, it was concluded that: (a) the new recreation experiences were different from both the REP experiences and from each other; and (b) between 47% and 75% of respondents had at least "somewhat experienced" each of these new recreation experiences. Based on the above, it was proposed that there was sufficient empirical evidence to support the existence of these five recreation experiences.

One reason this finding is important is that if natural resource agencies are to successfully accomplish their organizational mandates they must understand the different types of experiences outdoor recreationists obtain. For example, Manfredi et al. (1996) have stated that by being able to measure the different kinds of recreation experiences people have, it can be determined why they took a specific trip, why they engaged in a particular activity, and how satisfied they were with their overall visit. For natural resource agency planners and managers, such information is critical if they are to properly prepare and provide for the people who visit their parks, forests, and wilderness areas. Thus, if these agency professionals are to be successful, they must be knowledgeable of all of the recreation experiences individuals receive--including those experiences involving identity, self-evaluation, absorption, cognition, and interdependence.

It must be noted, however, that there are some important conceptual and methodological issues concerning the existence of these five new recreation experiences. For example, Driver and his colleagues caution against the use of single items from any REP scale as "this increases the likelihood of sampling error and weakens generalizations made to the concepts represented by the scales" (Manfredi, Driver, & Tarrant, 1996, p. 208). Although all the new experiences had two or more items, it is possible that different results would be found if more and different REP items had been used. Because single items were taken from three different REP scales and combined with other items to create indices for the new experiences, it is possible that, had other items from the same REP scale been included in the questionnaires, the study's findings would have been different. For example, with the functional manner, cognitive mode, experience one REP item (i.e., "learning more about nature") and one new item (i.e., "developing new ideas") were used. If a second REP item from the learning more about nature scale (e.g., "to gain

a better appreciation about nature") had been included, then these two REP items may have loaded on the same factor while the new item loaded on a different factor.

A similar problem may exist with the self-evaluative manner experience. Three REP items were used for this recreation experience, however each item was from a different scale. It is not obvious, therefore, whether the self-evaluative manner experience would change if other items from the same REP scales were also used in the questionnaire.

A second problem may also exist with the self-evaluative manner experience. As noted in the literature review, this manner is composed of three motives: (a) self-esteem, i.e., to see oneself favorably and to act in such a way as to maintain, protect, or increase positive evaluations of oneself (Gecas, 1991); (b) self-efficacy, i.e., to see oneself as a causal agent, autonomous and having some degree of power or control (Gecas, 1991); and (c) self-authenticity, i.e., to present oneself in an honest, truthful, or "real" fashion (Turner & Billings, 1991). Unfortunately, none of the on-site or mail-out questionnaire items measured self-esteem while only one item measured self-authenticity (i.e., "letting others see me as I really am"). Further, because there was only one self-authenticity item, it was decided to group it with the five self-efficacy items. According to the statistical analyses, however, this item does appear to represent a separate and distinct aspect of the self-concept. Thus, future research may find it worthwhile to sub-divide the self-evaluative manner experience into three dimensions: self-esteem, self-efficacy, and self-authenticity.

A similar problem may also exist with the identity manner index. While the self-evaluative manner seeks to answer the question "how do I feel about myself?" the identity manner seeks to answer the question "who and what am I?" (Campbell et al., 1996). As noted in the literature review, in order for an individual to answer the latter

question, he or she may examine his or her role-related behaviors (i.e., identity theory) or his or her group memberships (i.e., social identity theory). Both theories, it was believed, could help explain how outdoor recreationists discover who or what they are. Two items were used to measure the personal aspect of identity ("thinking about my life and personal values," "being reminded of the things that matter most in my life"), while two items were used to measure the more communal aspect of identity ("feeling I'm part of something bigger," "feeling a sense of oneness with nature"). Because the fifth identity item's wording (i.e. "learning more about who I am") was very similar to that of the principal identity question--"who or what am I?"--it was thought that it could be used with both identity indices. For analytical purposes, however, it was decided that this item should be used only once in a single index composed of both the personal and communal identity aspects. Thus, future research may find it worthwhile to operationalize personal and communal identity separately.

A second problem may also exist with the identity manner experience. Identity is often conceived of as a person "identifying" with a role, group, place, activity, etc. With this study, however, no referents were provided. What may be being measured by this index, therefore, is not identity but introspection--i.e., the examination of one's own thoughts or feelings. This contention gains further support when it is remembered that one of the items used in this index--"thinking about my life and personal values"--is from the REP introspection domain; and further, that the factor analysis conducted on the on-site data set indicated that this REP item and the four new items all loaded on the same factor. Thus, rather than measuring a new type of recreation experience, the five items used in this index may simply be duplicating a current REP scale.

Having noted these conceptual and methodological issues, we believe the new recreation experience indices as currently constructed are valid and reliable because of

converging theoretical rationale for their existence and because of empirical evidence which suggest they are stable and distinct from other experience domains. We add, however, that further research on these new recreation experiences is clearly necessary. For example, in future studies the identity manner, self-evaluative manner, and functional manner, cognitive mode, experiences should be used along with REP scales in order to determine how well these new experiences' items "hang together." In addition, with the identity and self-evaluative manner experiences, development and testing of the various dimensions of these experiences appears warranted. Finally, with all five new recreation experiences, refinement of index items or possibly the development of some new items for each index, should occur in order to improve validity and reliability.

#### The Recreation Experience Matrix (REM)

Based on previous studies in leisure, sociology, psychology, consumer research, and outdoor recreation, it was proposed that the concepts of mode and manner could be used to develop a framework--called the Recreation Experience Matrix (REM)--that would be able to organize and categorize not only the aforementioned new recreation experiences but also the Recreation Experience Preference (REP) scales. Because REM's ability to classify experiences could not be measured directly, three indirect measures were used, including: (a) empirical support for the concept of mode; (b) how well the new recreation experience items "hung together" after being organized and categorized using REM; and (c) how well the REP items "hung together" after being reorganized and recategorized using REM. Each of these measures is discussed below.

#### Empirical support for the concept of mode.

Outdoor recreation events are composed of a set of, rather than a single, stimulus. Knopf (1987) and Williams (1988) believe there are at least three sources of stimulation



or "modes" individuals attend to in the out-of-doors, including the place, the activity, and the social environment. Attention can also be focused inwardly--i.e., on one's own ideas, thoughts, and feelings--rather than outwardly. Thus, in addition to three external modes there may also be an internal or cognitive mode.

When frequency scores for the four types of mode were examined, all four were found to contribute to the quality of people's outdoor recreation experiences. Similarly, t-tests showed that all four modes contributed above the "somewhat" level (i.e., 3.49 on a five-point scale). Additionally, ANOVA's indicated that there are significant differences in how much people believe each mode contributes to their outdoor recreation experience. For example, when study respondents were asked to rate what contributed the most to the quality of their recreation experience, Tukey's multiple comparison tests indicated that the place mode was rated significantly higher than the activity and social environment modes, and that all three of these modes were rated significantly higher than the cognitive mode. Based on the above, it was put forth that the concept of mode does exist; that there are at least four types of mode; and that the place mode is generally the largest contributor to the quality of outdoor recreation experiences while the cognitive mode is the smallest contributor. Because the concept of mode was indirectly supported, therefore, so too is REM indirectly supported.

#### REM and the new recreation experiences.

In addition to mode, manner may also be used to classify recreation experiences. The concept of manner originates in consumer research, where products are often organized according to the type of role they serve. Fournier (1991) describes a consumer-product typology composed of three categories: (a) those that serve a functional role (e.g., objects that fulfill basic lower-level needs); (b) those that serve an experiential role (e.g., objects that influence moods and emotions); and (c) those that

serve an expressive role (e.g., objects that are associated with identity). However, Fournier's (1991) typology could be improved by: (a) dividing the experiential role into affect and absorption, and (b) dividing the expressive role into identity and self-evaluation. Thus, an individual could experience a product in at least five ways or manners: functional, self-evaluative, identity, affective, and absorption.

If a person can experience a product in five different ways, he or she may also be able to experience an outdoor recreation event in five different manners. As noted earlier, however, outdoor recreation events are composed of not one but four elements or modes. Therefore, in order to organize and categorize outdoor recreation experiences, a four mode by five manner framework is required. This framework--called the Recreation Experience Matrix (REM)--is shown in Figure 14:

Type of Manner	Activity Mode	Place Mode	Social Environment Mode	Cognitive Mode
Absorption				
Affective				
Identity				
Self-Evaluative				
Functional				

Figure 14: The Recreation Experience Matrix (REM)

The Recreation Experience Matrix framework can be used to organize and categorize recreation experiences. For example, recreation experiences involving identity form the identity manner class. However, because people may have identity-based experiences in terms of the activities they do (e.g., mountain bikers defining themselves

in terms of cycling), the places they visit (e.g., recreationists defining themselves in terms of a special site), the companions they go with (e.g., as members of a group or family), or even the cognitions they have (e.g., the ideas or theories one develops), the identity manner class extends across all four modes. In contrast, other recreation experiences are primarily associated with a single mode. For example, recreation experiences such as "developing new ideas" or "learning more about nature" can be seen as functional goals or outcomes which are fulfilled through cognitive activity. These types of experiences, therefore, may best fit into the functional manner, cognitive mode, category. Finally, some manner may have multiple dimensions. For example, the self-evaluative manner could be subdivided into self-esteem, self-efficacy, and self-authenticity dimensions. Similarly, the absorption manner could be subdivided into two dimensions; one which involves risk, challenge, etc. (i.e., what Csikszentmihalyi, 1988, calls flow) and a second which is more passive (i.e., what Quarrick, 1989, calls absorption).

As noted earlier, if these new recreation experiences "hang together" as predicted, then REM will be indirectly supported. As shown in the previous problem statement issue, these new experiences generally do "hang together;" that is, they have acceptable inter-item correlations and factor analyses findings (although some concerns do exist). It follows, therefore, that additional, indirect support--albeit limited--for REM does exist.

### REM and the REP scales.

If REM is to be valid it must not only be able to classify the five new recreation experiences identified in this dissertation, but also recreation experiences traditionally found in the REP scales. In this section, therefore, discussion will focus on: (a) how REM reorganizes and recategorizes the REP-based experiences used in this study, and (b) how REM would reorganize and recategorize other experiences identified by REP.

Based on REM, the REP items used in this study were reclassified into five recreation experiences, including: (a) the functional manner, activity mode, experience (i.e., "developing skills and abilities," "keeping physically fit"); (b) the functional manner, place mode, experience (i.e., "viewing the scenery," "being away from the crowds and noise"); (c) the functional manner, social environment mode, experience (i.e., "meeting people having similar interests," "meeting new and interesting people," "sharing your outdoor skills with others"); (d) the affective manner experience (i.e., "experiencing tranquillity," "experiencing excitement," "releasing or reducing built-up tensions"); and (e) the absorption manner, challenge dimension, experience (i.e., "taking risks," "being creative").

Statistical analyses were subsequently conducted in order to determine if these reconfigured recreation experiences "hung together" as predicted. Empirical support--albeit limited--was found. As noted in the study results chapter, Cronbach coefficients alphas and factor loadings were generally supportive of the new recreation experiences. Based on these results, some empirical support for these five reconfigured REP experiences does appear to exist. It follows, therefore, that REM is also indirectly--albeit limitedly--supported.

It must be noted, however, that there are some concerns regarding these five reconfigured REP experiences. As noted earlier, Manfreda et al. (1996) recommend that

single REP scale items not be used as sampling error may be increased and concept generalizations may be weakened. In order to better test REM, therefore, one should use the complete REP scales rather than the individual REP items as was done in this dissertation. A secondary benefit of this testing method might be that additional manners, or manner dimensions, may be discovered.

Although such testing must be left to future research studies, it is still possible to hypothesize how REM would reorganize and recategorize some of the REP experiences not examined in this dissertation. For example, in Manfredo et al's. (1996) meta-analysis of REP, they discuss the achievement/stimulation domain, its seven scales, and their 18 corresponding items. Using REM, at least six of these scales would likely be classified as part of the self-evaluative manner, including for example: (a) the reinforcing self-image scale (e.g., "to gain a sense of self-confidence," "to develop a sense of self-pride," and "to show yourself you could do it"); (b) the competence testing scale (e.g., "to test your abilities," and "to learn what you are capable of"); and (c) the endurance scale (e.g., "to test your endurance" and "to gain a sense of accomplishment"). Some of the scales in the achievement/stimulation domain could be categorized even further. For example, the social recognition scale (e.g., "to have others think highly of you for doing it," "to show others you can do it," and "to make a good impression on others") and the telling others scale (e.g., "to tell others about the trip" and "to have others know that you have been there") could be part of the self-evaluative manner, social environment mode, category. In contrast, the REP achievement/stimulation domain's excitement scale (e.g., "to feel exhilaration" and "to experience the fast paced nature of things") seems out of place (albeit this domain does, for some reason, lump together achievement and stimulation). With REM, this scale would be part of the affective manner class, a more intuitive fit. In addition, three of the scales now part of another REP domain appear to characterize one

dimension of the REM self-evaluative manner class--i.e., self-efficacy. For example, the independence scale (e.g., "to feel independence"), the autonomy scale (e.g., "to do things your own way"), and the control-power scale (e.g., "to be in control of things that happen") would appear to fit comfortably into REM's self-evaluative manner class.

Not all REP domains, scales, or items are so easily classified. For example, "to talk to others about your equipment" is one of the items that makes up the equipment domain (it is also one of the REP domains composed of only one scale). However, depending on whether "others" or "equipment" is the key factor for the recreationist, this experience could be part of either the REM functional manner, social environment mode, or the REM functional manner, activity mode, respectively. Thus, in order to properly classify some experiences, REM requires knowledge of which mode the outdoor recreationist is primarily focusing upon.

There are, however, some concerns regarding how mode was operationalized in this dissertation. One such concern involves how the mode items were worded. For example, in contrast with the wording used in this study's questionnaires, a person could attend to the place mode without having actually visited a place (e.g., viewing a distant mountain). It might be better, therefore, to ask recreationists how much the physical environment (i.e., not other people) contributed to their experience rather than how much "the places they visited" contributed to their experience. Similarly, a person could attend to the social environment without focusing on the people in his or her group (e.g., a skilled park interpreter). In this case, rather than asking recreationists how much "the companionship of the people in their group" contributed to their experience, they could be asked how much other people contributed to their experience.

Finally, a recreationist could attend to the cognitive mode without thinking, reflecting, or focusing on him or herself (e.g., a complex, but brilliant, dissertation model). Thus,

rather than asking a person about "opportunities to think, reflect, and focus on myself," he or she could be asked about opportunities to think or reflect. In summary, further research on the wording, validity, and reliability of the mode items is therefore recommended.

In conclusion, future research on REM may provide natural resource agency planners and managers with a more comprehensive, yet parsimonious, framework for understanding the types of experiences outdoor recreationists receive. In contrast with REP, which is essentially an inventory of recreation experiences, REM seeks to organize and classify experiences in a conceptually and intuitively understandable fashion. In addition, REM recognizes that recreationists are not passive participants in regard to outdoor events, but are actively engaged in interpreting and attending to the four types of modes which shape their experiences. Further development of REM, therefore, may help natural resource professionals determine why a person took a specific trip, why he or she engaged in a particular activity, and how satisfied he or she was with his or her overall visit by providing both a more comprehensive, yet parsimonious, framework of recreation experiences. Such information is critical if natural resource agency personnel are to successfully prepare and provide for the people who visit their parks, forests, and wilderness areas.

#### Predicting Recreation Experiences

The third problem statement focused on whether there were other variables, besides the Recreation Opportunity Spectrum (ROS) concepts of activity, setting, and expertise, that could help predict the kind of experiences a recreationist receives. Two potential variables--primary mode and mode dependence--were proposed. Before examining how well these two variables predict recreation experiences, however, how well the three ROS concepts predict the same experiences must be briefly examined.

### ROS Activity, ROS Setting, and ROS Expertise.

In order to determine how well the ROS concepts of activity, setting, and expertise predict recreation experiences, two-way ANOVA's were performed on the 10 experiences using combinations of: (a) activity (i.e., the kind of recreation a person is doing), (b) setting (i.e., the type of environment a person is recreating in), and (c) expertise (i.e., a person's perceived skill level in an activity). Examination of these ANOVA's showed that the expertise variable and the interaction between the activity and setting variables were the best predictors of most--but not all--recreation experiences. This finding may be significant because previous research on ROS's predictive ability has focused mostly on activity and setting. Generally, in studies where activity and setting were examined, the statistical analyses that were conducted did not test for interaction effects. For example, when Yuan and McEwen (1989) examined recreation experience differences, they looked at three ROS settings but only one type of activity. Similarly, when Virden and Knopf (1989) studied recreation experience differences, they looked at three ROS settings and four types of activity, but not the interaction between these two variables. Thus, while an in-depth examination of the predictive ability of activity, setting, and expertise was not a specific objective of this dissertation, these findings do provide some direction for future research involving these ROS variables.

### Primary Mode.

As noted earlier, individuals can attend to at least four modes in the out-of-doors, including the activity mode, the place mode, the social environment mode, and the cognitive mode. A recreationist may attend to one of these modes more than the other three, however; and the focus of this attention may influence the recreationist's experiences above and beyond the influence of setting, activity, or expertise. This proposition was tested by examining whether people's primary mode improved upon the



ROS variables (i.e., setting, activity, expertise) ability to predict recreation experiences. Two-way ANOVA's were conducted on the 10 experiences using: (a) setting and primary mode, (b) activity and primary mode, and (c) expertise and primary mode. In general, it was found that primary mode improved slightly on the explanatory ability of the ROS variables in at least two ways: (a) as a main effect, when all four types of mode are used; and (b) in interaction with ROS setting. For example, when all four modes were used, primary mode was a significant main effect for five of the 10 recreation experiences. Additionally, when primary mode was used with ROS setting, three of the 10 recreation experiences had significant interaction effects (cognitive mode was not included in this analysis due to small cell size).

It is important to note that primary mode's explanatory ability was often--but not always--in accord with what was hypothesized. For example, primary mode was not significant for the affective manner experience, the self-evaluative manner experience, or the absorption manner, attention dimension experience. This outcome was, however, expected as it was believed that these three recreation experiences would be rated similarly regardless of which mode was focused on. In contrast, although primary mode was not expected to be significant for two other experiences, statistical analyses showed it was. With the absorption manner, challenge dimension, experience, primary mode's may have been significant due to the large percentage of hunters who focused on the activity mode but who were also inclined to rate one of the item's used in this experience (i.e., "taking risks") very low. With the identity manner experience, primary mode's significance appears to be due to people who focus on the cognitive mode rating this experience significantly higher than those who focus on any other mode (which suggests, as noted earlier, that this experience is measuring introspection rather than identity). Also unexpected was the finding that primary mode was not significant for the functional

manner, activity mode, experience, as it was thought that people who focused on the activity mode would rate this experience higher than people who were focused on another mode. Similarly, it was also thought that people who focused on the social environment mode would rate the functional manner, social environment mode, experience higher than people who focused on another mode. This result did not occur, however, possibly because the items used in the functional manner, social environment mode, experience measure social interaction with new or non-intimate others while the social environment mode item measures social interaction with significant others.

Based on the above, it appears that primary mode may help explain and predict at least some types of recreation experiences. Further research is necessary, however, to determine why these results often did not occur in ways hypothesized in the current study. One way of doing so may be to examine all four modes rather than just primary mode. For example, canonical correlation could be used to determine the relationship between mode and recreation experiences. In addition, canonical correlation might also prove useful in determining the relationship between mode and trip satisfaction, mode and activity satisfaction, and mode and beneficial outcomes. Further research using all four types of mode is, therefore, recommended.

#### Mode Dependence.

Mode dependence was the second concept examined to determine if it could help predict the kinds of experiences recreationists receive. The concept of mode dependence originates in social exchange theory, where Foa and Foa (1980) described a motivational model having a particularism dimension (i.e., the degree to which a specific individual--rather than any individual--could help a person achieve his or her goals). Similar concepts have been put forth by Jacob and Schreyer (1980) and Stokols and Shumaker (1981) for places, and by Bryan (1977) for recreation activities.

Two types of mode dependence--activity and place--were examined in this dissertation. Activity dependence refers to how dependent a person is on a specific activity in order to obtain the recreation experiences he or she desires, while place dependence refers to how dependent a person is on a specific place in order to obtain the recreation experiences he or she desires. Two-way ANOVA's were conducted on the 10 recreation experiences using either activity or place dependence and one of the three ROS variables. With activity dependence, it was found that people generally received the same recreation experience regardless of whether they had high activity dependence, low activity dependence, or were neutral. The new self-evaluative manner experience and the REP-based affective manner experience were possible exceptions, with people who had high activity dependence generally obtaining higher levels of these two experiences than people who had low activity dependence. This interpretation must be viewed with caution, however, as activity dependence was a significant main effect only when used in conjunction with the ROS activity and ROS expertise variables. It must be concluded, therefore, that even if activity dependence is a significant main effect for these two experiences, overall, it improves only marginally on the explanatory ability of the ROS concepts of activity, expertise, and setting.

Unfortunately, because activity dependence was not significant for these experiences when ROS setting was a predictor, this proposition must be viewed with caution. It must be concluded, therefore, that even if activity dependence is significant for the affective and self-evaluative manner experiences, overall its predictive ability is only a marginal improvement on that of the ROS concepts of activity, expertise, and setting.

In contrast, place dependence does appear to improve upon the ROS variables predictive ability for a number of recreation experiences. In general, it was found that recreationists who rated themselves as highly place dependent (i.e., who could not go to

another place) received at least six experiences at significantly higher levels than either recreationists who responded neutrally or recreationists who rated themselves as having low place dependence (i.e., who could go to another place). This finding suggests that place dependence may be an important factor in understanding the quality of experience an outdoor recreationist receives.

It is also important to note that while place dependence and ROS setting generally explained less than 5% of the variance in any recreation experience, the place dependence variable did predict more experiences than did the ROS setting variable (i.e., more ANOVA's were significant at the  $p < .05$  level with place dependence than with setting). This finding suggests that an outdoor recreationist's level of place dependence may be a more important factor in understanding and predicting his or her experiences than the type of setting he or she is recreating in. For natural resource agency professionals, this proposition may mean that in order to properly plan and manage for outdoor recreation, they must not only be aware of their area's biophysical features but also: (a) what characteristics cannot be found elsewhere, and (b) how dependent recreationists are on these characteristics in order to satisfy their goals.

There is, however, at least one key issue concerning dependence which must be acknowledged; what is the true relationship between place and activity dependence and recreation experiences? Although this study presupposes that place dependence is the independent variable, until future research is conducted, the true relationship between place and activity dependence and recreation experiences remains unclear.

### Other Study Limitations

Further research using the dependence variables, as well as the primary mode and ROS variables, is also important because of problems inherent in the study design. For example, in order to have useable cell sizes, some of the original questionnaire categories had to be combined into single--possibly incongruous--variables (e.g., fishing or hunting). In these instances, therefore, the resulting findings must be viewed with caution until replicated. In other cases, however, because a variable category's cell sizes were too small, they were excluded from the analysis rather than combined with other categories (e.g., when primary mode and activity were examined, three types of activity had usable cell sizes. In contrast, when expertise and activity were examined, six types of activity had usable cell sizes). In these instances the results often vary considerably, with the same variable being significant in one ANOVA but not in another. Thus, these findings must also be viewed with caution until replicated.

In order to overcome the above difficulties, therefore, future research would benefit from the use of larger sample sizes--and larger cell sizes--than that found in this study.

Additionally, because so many ANOVA's were conducted, the likelihood of a number of Type I errors (i.e., true null hypotheses being rejected) occurring is highly inflated. Although alternative statistical methods (e.g., MANOVA's) and techniques (e.g., Bonferroni's) may have reduced this possibility, the likelihood of Type II errors (i.e., false null hypotheses not being rejected) occurring would have increased. In deciding which of these two evils was the least objectionable, it was held that Gregoire and Driver's (1987) proposition concerning exploratory research and Type I and Type II errors was applicable to this study. The two authors state that:

[with ] projects that are purely exploratory and that aim to provide information and understanding where little previously had existed. . . . It is difficult to justify increased protection from one type of error at the expense of lessened protection from the other type of error. (Gregoire & Driver, 1987, p. 264)

Thus, while recognizing the inherent limitations in the approach taken by this study, it is hoped that future replication may be able to clarify how well these new concepts truly explain and predict outdoor recreation experiences.

### Conclusion

In conclusion, this dissertation has tried to examine the comprehensiveness of the Recreation Experience Preference scales; to determine if recreation experiences not included in REP exist; to develop a framework--called the Recreation Experience Matrix (REM)--for organizing and classifying recreation experiences; and to ascertain whether variables such as primary mode, activity dependence, and place dependence improve upon the ability of ROS concepts such as activity, setting, and expertise to explain and predict outdoor recreation experiences. In doing so, it is hoped that this dissertation has shown that by better understanding not only the types of experiences people receive, how these experiences are categorized, and what variables influence these experiences, researchers and professionals may also come to better understand the role nature and recreation plays in many people's lives.

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