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Changes in Visitors' Environmental Focus during an Appreciative Recreation Experience

Adam D. McKay
Clemson University

Matthew T. J. Brownlee
University of Utah

Jeffrey C. Hallo
Clemson University

Abstract

Recreation that involves learning about nature, or viewing, observing, studying, identifying, or photographing nature may be termed *appreciative recreation*. The purpose of this study was to investigate the on-site phase of an appreciative recreation experience and, specifically, to identify how time spent in a nature-based environment influences the environmental focus of participants. The researchers collected data from visitors (*adjusted N* = 158) at Congaree National Park using a version of the Experiential Sampling Method. Data analysis consisted of a Confirmatory Factor Analysis and Multi-Level Modeling. The researchers concluded that time spent at the park does have a significant influence on an appreciative recreation experience and that there are three phases of the experience: preparation, immersion, and separation.

KEYWORDS: Wildland recreation, visitor experience, environmental focus, recreation phases, appreciative recreation

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Adam McKay was a graduate student in the Department of Parks, Recreation and Tourism Management at Clemson University.

Matt Brownlee is an Assistant Professor in the Department of Parks, Recreation and Tourism at the University of Utah.

Jeff Hallo is an Assistant Professor in the Department of Parks, Recreation and Tourism Management at Clemson University.

Address correspondence to Jeffrey C. Hallo, Ph.D., Clemson University, 280B Lehotsky Hall, Clemson, SC 29634, telephone: (864) 656-3237, jhallo@clemson.edu

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Recreation that involves learning about nature, or viewing, observing, studying, identifying, or photographing nature (e.g., birds, plants, or wildlife) may be termed *appreciative recreation*. The number of people participating in appreciative recreation and outdoor activities is increasing and researchers project this trend to continue through the year 2050 (Bowker et al., 2006). For example, results from the National Survey on Recreation and the Environment (NSRE) indicate that from 2000-2001, there were 95.2 million participants viewing/photographing wildlife; a 55.8% or 34.1 million increase from the 1994-1995 survey (Cordell, 2004). Viewing and photographing wildlife ranked third in participant numbers, only behind "walking for pleasure" and "family gatherings." Similarly, between 2004 and 2007, NSRE researchers found that 35.4% of all people 16 years and older in the U.S. were birders or birdwatchers (Cordell et al., 2008).

The authors of this manuscript conducted a study of this growing population of appreciative recreationists for three important reasons. First, a significant increase and projected growth in any group of recreationists should warrant some level of investigation on its own. Specifically studying appreciative recreationists (as opposed to all outdoor recreationists in a particular setting) is important because outdoor recreationists are extremely diverse, based on their motivations, amount and frequency of engagement in an activity, and their desired outcomes from participation (Manning, 2011). Therefore, land managers and leisure providers often require a comprehensive understanding of a specific population (e.g., appreciative recreationists) to sufficiently address their particular needs and preferences and to ultimately provide high-quality experiences (Hendee & Dawson, 2002; Manning, 2004). Researchers and managers may need more information than currently exists to fully understand and effectively plan for appreciative recreation experiences. This study addresses this need and helps inform researchers and leisure providers about the dynamic nature of the appreciative recreation experience.

Second, although the notion that on-site outdoor recreation experiences include multiple dynamic phases is generally accepted, it is largely based on investigations of recreation activities such as hiking, paddling, and camping (Borrie & Roggenbuck, 2001; Hull & Michael, 1995; Hull, Michael, Walker, & Roggenbuck, 1996; Hull, Stewart, & Yi, 1992; Lee, Datillo, & Howard, 1994; McIntyre, 1998; McIntyre & Roggenbuck, 1998; Stewart, 1998; Walker, Hull, & Roggenbuck, 1998). However, for the most part, researchers have not empirically investigated the multiple phases of appreciative forms of recreation. The appreciative recreation experience may differ from other recreation experiences because the recreationist's focus may be centered specifically on natural features, as opposed to the physical elements of the activity (e.g., proper oar position during white-water rafting, or maintaining balance while rock climbing). Additionally, the appreciative recreation experience may differ in the speed of the activity. For example, viewing or studying flora and fauna may be kinesthetically slower than traditional outdoor recreation activities, such as river kayaking. As a result, the multiphasic nature of the on-site appreciative recreation experience may differ from results presented in previous studies. One area that may likely be different is the level of and potential change in the environmental focus of appreciative recreationists during on-site experiences.

Third, understanding the multiphasic nature of the appreciative recreation experience may result in substantial implications for land managers and nature-based leisure providers. Stewart (1998) emphasized this point in a *JLR* special issue and posited that investigating the multiphasic nature of leisure experiences can provide significant managerial information beyond studies that ignore leisure process and context. For example, if appreciative recreationists have a higher environmental focus at the end of a recreation experience then professional interpreters may need to deliver programs about the environment just before a visitor leaves, when they are most likely to connect with such information. Alternatively, it is possible that visitors' level of environmental focus is largely based on the amount of time they spend at a site. In this case, managers and interpreters attempting to better connect visitors with resources should work to extend visitors' length of stay.

Despite the potential managerial implications that may result from knowing more about this growing sector of the leisure community, there has been little investigation into the multiphasic nature and the environmental focus of appreciative recreationists. As a result, many questions regarding appreciative recreation remain unanswered or unexplored. For example, how can environmental focus during an appreciative recreation experience be characterized and measured, and does an appreciative recreationist's environmental focus change during the course of a visit? Furthermore, does the length of time spent on-site in a nature-based setting influence an appreciative recreationist's focus on the environment? The purpose of this study was to help address these questions by investigating the potential multiphasic nature of an on-site appreciative recreation experience.

Literature Review

Appreciative Recreation

Appreciative recreation is an elusive term. There are a number of characteristics that correspond with typical appreciative recreationists and the activities in which they participate (e.g., birding, photographing nature, viewing nature, identifying species). This term does not suggest that other outdoor recreation activities (e.g., rock climbing) cannot possess a component of nature appreciation. Moreover, this characterization does not exclude appreciative recreationists who have adventure experiences. For example, a rock climber may engage in nature photography while rock climbing (one activity of appreciative recreationists) and a nature photographer may feel a sense of adventure. However, both of these individuals may be considered appreciative recreationists because of their choice to engage in photographing nature. Therefore, the purpose of this categorization is simply an attempt to describe a relatively large group of recreationists who take part in similar activities.

The subjective nature of recreation activity classifications has allowed for a number of interpretations of appreciative recreation that do not completely agree. Clawson and Knetsch (1966) proposed three categories of outdoor recreation, which included resource-oriented recreation, intermediate recreation, and user-oriented recreation. Similar to appreciative recreation, resource-oriented recreation

depends on the use of natural resources and occurs in natural settings fundamental to the recreation experience. Unfortunately, Clawson and Knetsch's (1966) early classification of resource-oriented recreation may not be specific enough to fully distinguish appreciative recreation, as the researchers conceptualize it in this study.

Bos, Brisson, and Eagles (1980) created a more specified classification of outdoor recreationists, which characterized them by their attitudes and preferred activities. The *aesthetic* and *naturalistic* types included activities such as viewing scenery, bird watching, and photography. Moreover, some of the attitudes that correspond with these types of outdoor recreationists include interest towards nature, outdoors, and wildlife. Cordell (2004) suggests these viewing activities relate closely to those that involve learning. Specifically, when discussing these activities, Cordell (2004) proposes that the "purpose of these visits would be to watch, study, identify, photograph, sample, observe, and learn about natural or cultural history" (p. 121). For the purpose of this investigation, learning about nature, or viewing, observing, studying, identifying, or photographing nature (e.g., birds, plants, or wildlife) are the activities that define appreciative recreation.

Multiple Phases of Outdoor Recreation

Clawson and Knetsch (1966) suggested there were five necessary phases of an outdoor recreation experience: 1) *anticipation*, 2) *travel to the site*, 3) *on-site experience*, 4) *travel from the site*, and 5) *recollection*. Clawson and Knetsch (1966) contend each phase is identifiable, is an individual entity, and results in contributing to or detracting from satisfaction within an entire outdoor recreation experience.

In an early attempt to test Clawson and Knetsch's five-phase model, Hammitt (1980) concluded the fluctuation of students' moods during a nature-based fieldtrip indicated a multiphasic nature of outdoor recreation experiences. A number of investigations that were also interested in the multiple phases of outdoor recreation succeeded this study. For example, Vogt and Stewart (1998) investigated how information can cognitively and affectively influence the five Clawson and Knetsch (1966) phases of a vacation. Most notably, the researchers found length of stay influences an individual's stability or instability of thoughts and feelings over the course of their experience. In addition, Hultsman (1998) found early parts of an individual's experience (e.g., early on-site phases) could have a significant influence on the perception of satisfaction in later phases of the experience.

Inevitably, heightened interest in the five-phase model forced research into more specific details of the phenomenon that it was attempting to explain. The five phases became individual concepts worthy of study, with the on-site phase being investigated most readily, and demanding the most attention by researchers (Tarrant, Manfredo, & Driver, 1994). Researchers began to claim the on-site phase is dynamic, evolving, and warrants its own investigation (Borrie & Roggenbuck, 2001; Hull & Michael, 1995; Hull et al., 1992; Hull et al., 1996; McIntyre, 1998; McIntyre & Roggenbuck, 1998; Walker et al., 1998). Consequently, researchers used this claim to justify projects as well as develop study designs. For example, Hull et al. (1996) validated an investigation of eight experience dimensions by indicating, "the leisure experience changes from phase to phase, and... it likely changes within the on-site phase" (p. 300).

The Multiphasic Nature of an On-Site Experience

Researchers and managers generally accept that the on-site phase is comprised of dynamic and evolving characteristics (Stewart, 1998). For example, an investigation of an outdoor recreation experience at Okefenokee National Wildlife Refuge concluded that the on-site experience was "dynamic, complex, and evolving" (Borrie & Roggenbuck, 2001; p. 225). In an exploratory study of recreation experience patterns, Hull et al. (1992) found that some hikers showed patterns that were "meaningfully distributed over the duration of a recreation experience" (p. 249). In an attempt to measure the restorative qualities in an outdoor recreation experience, Hull and Michael (1995) observed that time spent in an urban park can change an individual's mood. Subsequent research by Hull et al. (1996) looked at four leisure conditions and assessed the change in eight dimensions of an experience. They observed that participants had "dynamic (e.g., change while on-site), multidimensional, and complex (e.g., the dimensions' ebbs and flows do not parallel one another)" on-site experiences (p. 312).

Variables used in investigations of the evolving, dynamic, transitory, and/or multidimensional nature of on-site experiences seem limited to temporal and contextual influences or some combination of the two. Unfortunately, much of this research fails to specifically identify the independent variable, which makes it difficult to determine whether it is time spent at a site or the context (e.g., places visited, areas found, unique characteristics of areas, distance traveled, or distance from an entry point) that is causing change in the dependent variable. For example, Hull and Michael (1995) admit that, despite finding changes within the on-site activity, they could not determine "whether the better moods at the park were a consequence of site characteristics (i.e., nature vs. no nature) or due to some other quality (e.g., travel, planning, expectations, or symbolism)" (p. 11).

McIntyre and Roggenbuck (1998) surveyed participants at "sites most likely to impact study variables of interest" and then suggested it was the environmental context that was largely influencing the development of multiple phases (p. 407). Survey sites included a dressing area, a cave entrance, a waterfall, and a cave of glow-worms. However, the amount of time already spent inside the cave, the amount of time left in the cave, and other temporal factors may have had substantial influence on the dependent variables being tested. These temporal influences become more salient when one considers outdoor recreation activities (especially more active, nature-based activities) have been found to promote the development and acquisition of wilderness ideals and an overall appreciation of nature in brief (M = 1.6 days) recreation experiences (McIntyre, 1998).

The conceptualization of a multiphasic on-site experience has varied from study to study. However, for the most part, there is relative agreement that a multiphasic on-site experience is one that has evolving, dynamic, transitory, and/or multidimensional characteristics (Borrie & Roggenbuck, 2001; Hull & Michael, 1995; Hull et al., 1996; Hull et al., 1992; Lee et al., 1994; McIntyre, 1998; McIntyre & Roggenbuck, 1998; Stewart, 1998; Walker et al., 1998). Dependent variables that have been used to examine these characteristics of the on-site experience include: mood (Hull & Michael, 1995; McIntyre & Roggenbuck, 1998), stress levels (Hull & Michael, 1995), fear and enthusiasm (Klausner, 1967), satisfaction (Hull et al.,

1992), environmental experience (Borrie & Roggenbuck, 2001), wilderness experience (Borrie & Roggenbuck, 2001; McIntyre, 1998), focus of attention (McIntyre & Roggenbuck, 1998), feelings (e.g., anxiety, dullness, excitement, calmness; Hull et al., 1996), and perceived competency and risk (McIntyre & Roggenbuck, 1998).

Although they may not explicitly state duration of an experience as an independent variable, researchers investigating the evolution of experiences have opted to use a wide range of trip lengths. Talbot and Kaplan (1986) conducted a lengthy research program where they concluded that annual extended wilderness trips may assist in the development and acquisition of durable perceptions of the environment. Similarly, Hultsman (1998) examined changes in levels of satisfaction over the course of a multiday leisure experience. Meanwhile, some studies have investigated shorter duration outdoor recreation experiences. For example, Hammitt (1980) found significant changes in mood at the five different phases of a one-day field trip/outdoor recreation experience. While these results may have been valuable at an exploratory level, Hammitt (1980) admits there are some limitations to this study including that the field trip, although a nature-based experience, may not qualify as a conventional outdoor recreation pursuit.

Hull et al. (1992) were interested in recreationists who were taking part in a "strenuous day hike." They concluded specific features of the park may influence recreation experiences (e.g., management). Similarily, McIntyre and Roggenbuck (1998) studied students on a one-day rafting trip. This study supported the dynamic nature of on-site experiences, but there were a number of issues that could distinguish this trip from a traditional daytrip. For example, the presence of a supervisor (in the form of the researcher) and the extremely structured itinerary (because of the one-way nature of the river) may have reduced students' perceptions of freedom and ultimately influenced their on-site experience. Hull and Michael (1995) studied subjects' changes in mood and found moods do indeed change significantly during a brief visit to a nature park (averaging just 85 minutes). It seems likely that an appreciative recreation experience may be multiphasic as well, and one area that may fluctuate during the course of an experience, is a participant's level of environmental focus.

Environmental Focus

Outdoor recreationists, especially those who are learning about nature, or viewing, observing, studying, identifying, or photographing nature, are required to have some level of focus throughout their experience. Borrie and Roggenbuck (2001) developed the Environmental Focus Scale (originally titled the Environmental Experience Scale) from the previous work of Ittelson, Franck, and O'Hanlon (1978), and applied the scale in an investigation of the on-site phase of a recreation experience. In the original proposition, Ittelson et al. (1978) suggest a number of modes or ways to experience the environment. Borrie and Roggenbuck (2001) analyzed the findings from Ittelson et al. (1978) and conceptualized five main modes: 1) focus on self or introspection, 2) focus on others or social acceptance, 3) focus on task or task orientation, 4) focus on nature or environmental awareness, and 5) focus on emotions or emotional intensity.

Using the previous literature, Borrie and Roggenbuck (2001) created a list of items for a measurement scale. Specifically, these researchers developed measures

representing the constructs of Focus on Self and Focus on Others from previous works by, Fenigstein, Scheir, and Buss (1973), and Samdahl and Kleiber (1989). They used a study by Baldwin and Tinsley (1988) to guide the creation of indicators to represent Focus on Task and Focus on Affect. Finally, Borrie and Roggenbuck (2001) created the items representing Focus on Nature themselves. Next, Borrie and Roggenbuck (2001) conducted an Exploratory Factor Analysis (EFA) to analyze the properties of these constructs using the original set of items. The factor analysis yielded four factors: 1) Focus on Self, 2) Focus on Others, 3) Focus on Task, and 4) Focus on Environment. The items used by Borrie and Roggenbuck (2001) and their intended constructs comprised the dependent variables in this study.

Hypotheses

During this current study, the researchers tested two main hypotheses. The first hypothesis is that the Environmental Focus Scale (described above) and its four distinct but related dimensions (e.g., Focus on Self, Focus on Others, Focus on Task, and Focus on Environment), will be statistically confirmed when applied to a different study population in a different setting. Figure 1 is a visual of the hypothesized Environmental Focus Scale (a second order factor). The second hypothesis is that the overall Environmental Focus Scale and each dimension will demonstrate changes over the course of an on-site appreciative recreation experience.

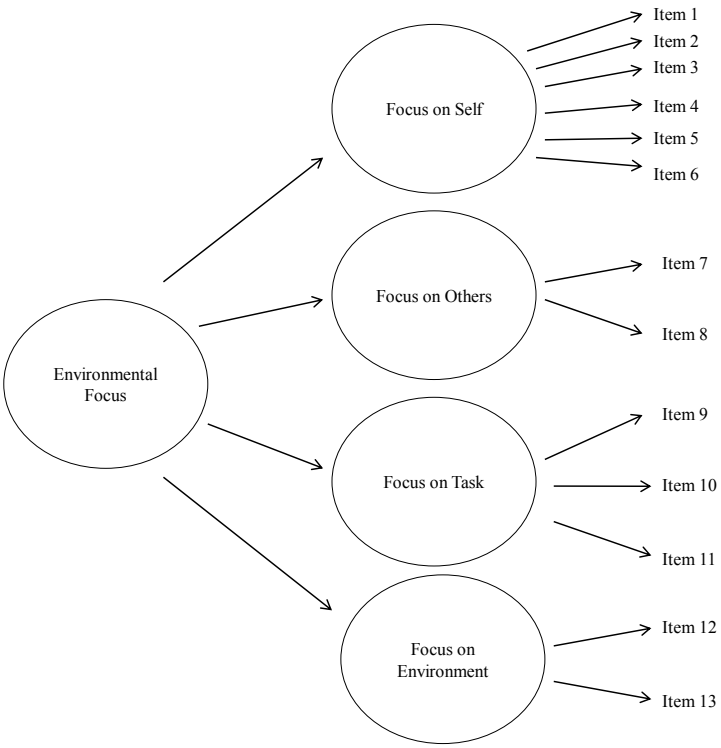


Figure 1. Hypothesized model of Environmental Focus with four dimensions (Focus on Self, Focus on Others, Focus on Task, Focus on Environment)

Methods

Study Site

The researchers selected Congaree National Park (Congaree) as the study site. Until the late 1960s, the old-growth forest in South Carolina where the park is located was subject to a variety of development and logging operations that threatened its existence. Early conservation efforts resulted in the designation of a National Monument in 1976. Later in 2003, Congaree was designated as a National Park and now contains approximately 11,000 acres of old-growth floodplain forest.

The most popular feature of the park is a two-mile boardwalk that ventures through the forest with culturally and/or historically significant areas signed along the way. For example, along the boardwalk, visitors view the damage done by Hurricane Hugo in 1989 and a unique oxbow. As of 2008, Congaree was home to over 20 state champion trees and six national champion trees. In addition, prior its National Park status, Congaree was designated an International Biosphere Reserve in 1983 and a Globally Important Bird Area in 2001. With such diverse and unique flora and fauna, the park provides an appropriate site for an investigation of appreciative recreation. Congaree also provides day-use opportunities to a relatively large population because of its close proximity (20 miles southeast) to Columbia, South Carolina.

Data Collection

During the 2009 season, a trained researcher intercepted visitors arriving to Congaree near the Harry Hampton Visitor Center using a Simple Random Probability sampling method. The visitor center was an ideal location because it is immediately adjacent to the main, day-use parking lot, where almost all visitors began their experience. The researcher invited each arriving group of people to participate in the study, requesting that only one person per group contribute. When more than one person wanted to participate, the researcher selected the person with the most recent birthday. The researcher used an initial screening question to determine if the potential participants intended to learn about nature, or view, observe, study, identify, or photograph nature, during their Congaree experience. This question assisted to at least partially verify that a participant met descriptive criteria of an appreciative recreationist.

The Experiential Sampling Method

Researchers initially developed the Experiential Sampling Method (ESM) in the 1970s in an attempt to study and measure *flow* (a psychological state of mind characterized by complete immersion into an activity) as the phenomenon was occurring (Csikszentmihalyi & Csikszentmihalyi, 1988). The original ESM procedure involved distributing pagers or beepers to participants along with a booklet of self-report forms. When the pagers indicated, the participants completed one of the self-report forms, also known as an Experience Sampling Form (ESF). This study used a variation of the ESM, as described below.

Pending confirmation of the screening question criterion (as described above) and volunteered participation, visitors completed Experience Sampling Form 1

(ESF1). Participants communicated the length of time that they intended to stay in the park, and the researcher set a stopwatch alarm at one third and two thirds of the participant's projected visit duration. Upon completion of the ESF1, the study subjects received a second and third Experience Sampling Form (ESF2 and ESF3) and the stopwatch. These stopwatch alarms prompted visitors to complete the ESF2 and ESF3, respectively. Upon the participant's return to the visitor center, a final Experience Sampling Form (ESF4) was completed. The researcher collected each respondent's completed ESFs at the visitor center as the participant was concluding the Congaree experience.

Data Instrument – The Experience Sampling Form

Experience Sampling Forms (ESFs) in this study obtained information via 9-point Likert type questions as well as open-ended questions. The ESF1 captured information about the visitor's previous experiences at the site (if any), level of experience in appreciative recreation activities, and respondent's beginning level of environmental focus (measured by the Environmental Focus Scale, see Table 1). After completing ESF1, the researcher issued two more ESFs (ESF 2 and ESF 3 described above) that participants completed during the Congaree experience. ESF2 and ESF3 requested information about the participant's surroundings and repeated the measure of the Environmental Focus Scale.

Finally, ESF4 sought some supplementary information about the individual and their recreation experience. Participants completed questions about specific species encountered, number of people encountered during the visit, and level of satisfaction with the recreation experience. In addition, ESF4 collected a final measure of the Environmental Focus Scale.

Data Analysis

Data preparation. The researchers subjected the original dataset ($N = 202$) to standard data cleaning procedures using Z-Score Residuals and Mahalanobis Distance. Data cleaning helps identify statistical outliers and is the first step towards verifying both univariate and multivariate normality of the dataset (Kline, 2005). Univariate and multivariate normality is important because many statistical procedures (including Confirmatory Factor Analysis or Multi-Level Modeling) are extremely sensitive to statistical outliers.

Next, the researchers performed a standard missing data analysis and verified that missing data points were Missing Completely at Random (MCAR), which satisfied the necessary criteria for imputing missing data. The researchers used the Expectation Maximization (EM) algorithm to impute the missing data points. Kline (2005) suggests this method involves imputing missing observations by conducting "a series of regressions where each missing variable is regressed on the remaining variables for a particular case" (p. 55). The necessary data cleaning and the application of the EM algorithm reduced the original 202 cases (consisting of 808 measurement instances) to 158 full cases with no missing values. The researchers then used this cleaned and imputed dataset for all subsequent analysis.

Confirmatory factor analysis. Borrie and Roggenbuck (2001) identified four dimensions of the Environmental Focus Scale using an EFA, and therefore the researchers in this study used a Confirmatory Factor Analysis (CFA) to verify

Table 1

The Items that Comprise the Environmental Focus Scale and its Dimensions

		ESF1		*ESF2*		*ESF3*		*ESF4*	
Item	Statement	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1	* How much are you focusing on your own thoughts?	-	-	-	-	-	-	-	-
2	* I am reflecting on myself a lot.	-	-	-	-	-	-	-	-
3	I am thinking about my place in the world.	5.4	2.2	4.7	2.4	5.0	2.3	5.0	2.4
4	How much are you focusing on your feelings and emotions?	6.0	1.9	5.3	2.2	5.5	2.4	5.9	2.2
5	I am very aware of my feelings.	6.4	1.8	5.8	2.2	5.6	2.4	6.0	2.3
6	The feelings I am experiencing are more intense than usual.	5.6	1.8	5.5	2.1	5.7	2.3	5.6	2.3
7	I feel a special closeness with others in my group.	7.2	1.8	7.1	2.0	7.2	2.2	7.2	2.0
8	Other group members are accepting me for who I am.	7.1	2.0	7.3	2.0	7.3	1.9	7.3	1.9
9	How much are you focusing on the task you are carrying out?	6.3	1.8	6.4	2.2	6.4	2.2	6.3	2.1
10	I am focused on achieving the next goal of my trip.	5.9	2.0	5.7	2.3	5.9	2.4	6.0	2.2
11	I am concentrating on doing my activity right.	6.1	2.0	6.1	2.3	6.4	2.4	6.3	2.2
12	How much are you focusing on the natural environment around you?	7.6	1.3	8.2	1.0	8.1	1.1	6.9	2.0
13	I notice the little things of nature more than before.	7.1	1.5	7.4	1.8	7.4	1.8	6.8	2.1

Note. Adjusted N =158. *ESF* = Experience Sampling Form; *M* = mean; *SD* = standard deviation. Participants responded to "Please circle one number for each of the following statements about how you feel at this moment." Responses were measured on a nine point likert-type scale anchored with "Not at all" (1) and "Very much" (9). * = item not included in the final model.

the existence of these dimensions. Additionally, researchers consider the Environmental Focus Scale a second order factor model, with one factor that represents overall environmental focus, comprised of four distinct but related dimensions (Focus on Self, Focus on Others, Focus on Task, Focus on Environment). Therefore, it is appropriate to evaluate the properties of the entire scale (i.e., the overall Environmental Focus) and each dimension as well (Byrne, 2008; Kline, 2005). The researchers used EQS version 6.1 to conduct a second order CFA on the overall scale and its four dimensions across each of the four measurement occasions. The researchers expected confirmation of the second order model including the four dimensions within a different study population in a different setting (Figure 1 represents the hypothesized projected model).

Specifically, the Comparative Fit Index (CFI), the Non-Normed Fit Index (NNFI), the Standard-Root Mean Square Residual (SRMR) and the Root Mean Square Error of Approximation (RMSEA) were evaluated. According to Byrne (2008) and Kline (2005), an adequate CFA model has a CFI and NNFI ratio of 0.90 or greater, a RMSEA ratio of less than 0.08, and a SRMR score less than 1.0. Finally, the overall scale and each of the four confirmed dimensions (Focus on Self, Focus on Others, Focus on Task, Focus on Environment) were transformed into composite scores for analysis across each measurement occasion. Next, the researchers used Multi-Level Modeling (MLM) in SPSS 17.1 to evaluate potential changes in the composite scores across the measurement occasions.

Repeated measures analysis and Multi-Level Modeling. This study is a repeated measures design because the participants responded to the same measurement instrument (e.g., the Environmental Focus Scale) on four separate occasions. Using this type of research design may result in an inflated Type I error rate due to correlations between measurement occasions (Hox, 2002). For example, a respondent's score on the second measurement occasion may be influenced by a number of different reasons (e.g. knowledge of scale items) which may cause them to answer differently than the first measurement occasion. Further, Barcikowski (1981) reported that substantially altered significance tests may occur with even small degrees of correlated errors.

Therefore, the researchers used Multi-Level Modeling (MLM) because it provides many advantages beyond using an ANOVA or applications in General Linear Models (GLM) to assess change in responses across measurement occasions. First, a standard ANOVA assumes (unlike MLM) that errors are uncorrelated (e.g., spherecity assumed), an assumption that is most likely violated when respondents are measured more than once (Tabachnick & Fidell, 2007). Second, MLM does not require an equal interval between measurement occasions for each case, as is required in a Latent Growth Model (LGM; Kline, 2005). The MLM is particularly important in this study because the time intervals between surveys for each participant varied and was dependent on the amount of time they expected to stay at the park.

Results

Description of the Sample

The researchers asked 239 visitors to participate in the study, and 202 accepted the invitation, yielding a response rate of 84.5%. The majority of respondents (62.7%) were first-time visitors to Congaree, and 82.5% of returning visitors had been to the park fewer than four times. The average group size was 2.9 people, and the average length of visit was two hours and 12 minutes.

Confirmation of the Environmental Focus Scale

The CFA confirmed the original four dimensions explored by Borrie and Roggenbuck (2001), supporting Hypothesis One that the Environmental Focus Scale and its dimensions would be confirmed in both a new population and a new setting. However, prior to full confirmation, the researchers removed the first item "how much are you focusing on your own thoughts?" because it consistently displayed low factor loadings ($\lambda < 0.40$) across each of the four measurement occasions. The researchers also removed the second item "I am reflecting on myself a lot" because it consistently correlated with other items in the scale, demonstrating a lack of measurement independence and convergent validity.

For measurement occasion one, three, and four the CFI (0.944, 0.953, 0.969) and RMSEA (0.080, 0.028, 0.065) displayed acceptable levels of fit for the Environmental Focus Scale. However, despite having an appropriate CFI (0.935), the second measurement occasion marginally violated the acceptable levels of RMSEA (0.082). However, Kline (2005) argues that even though an RMSEA score exceeding 0.08 may violate the standards of "reasonable error of approximation," it is only after the score exceeds 0.10 that the score is of "poor fit" (p.139). Therefore, the CFA provided a statistical validation of a second order factor, which includes four dimensions and displays appropriate fit indices across all four measurement occasions (see Table 2). The CFA (measurement occasion one) that was used for this study can be found in Figure 2.

Changes in Participants' Overall Environmental Focus

The analysis of the overall scale revealed a significant change between the third and fourth scale measurement occasions ($p < 0.01$), partially supporting hypothesis two (the overall Environmental Focus Scale and each dimension will demonstrate changes over the course of an on-site appreciative recreation experience). Figure 3 displays the changes in the overall scale.

The variance of initial scores on the overall Environmental Focus Scale across respondents was significant ($p < 0.001$), suggesting that initial scale scores on the ESF1 were not similar. The rate of change varied significantly across respondents ($p < 0.001$), indicating that respondents' overall level of environmental focus changed differently across persons over the course of their visit. Initial scale scores (low vs. high) also influenced the rate at which respondents changed their overall environmental focus ($p = 0.02$). On average, people with lower focus scores at measurement occasion one (ESF1) demonstrated a faster increase in overall environmental focus than did those with higher focus scores at measurement occasion one. Since visitors' overall change in this second order factor was not significant, further analysis using the amount of time spent in the park as a predictor was not conducted.

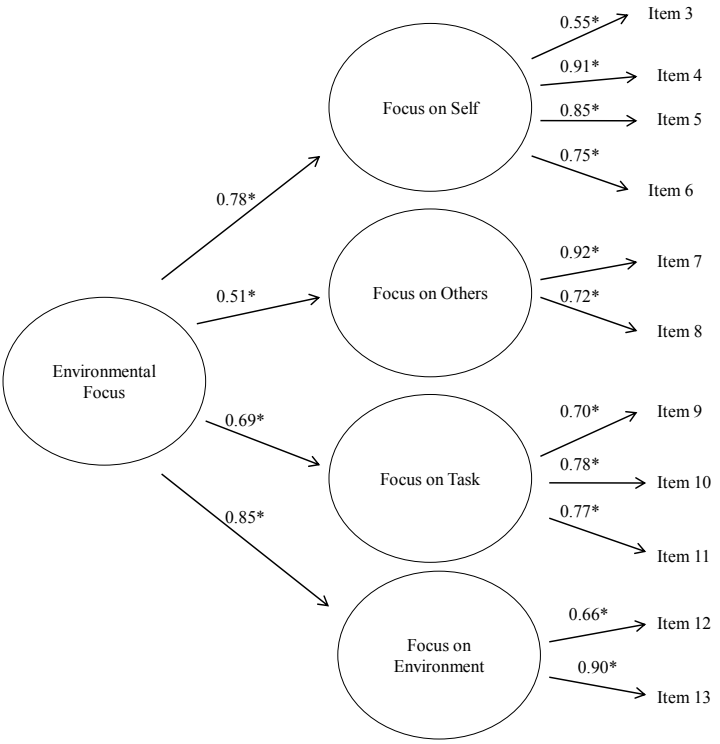


Figure 2. CFA results for measurement occasion one of the Environmental Focus Scale with four dimensions. SBχ^2 = 76.45* (*df* = 38), CFI = 0.944, NNFI = 0.920; RMSEA = 0.080; SRMR = 0.070; RHO = 0.908.

Changes in the Focus on Self-Dimension

A significant change in responses was found between the first and second measurement occasions for the Focus on Self dimension ($p < 0.001$), and is displayed graphically in Figure 3. The variance of initial scores across respondents was significant ($p < 0.001$), indicating that visitors' arrived to Congaree with different levels of self-focus. The rate of change for this dimension did not vary significantly across individuals, suggesting that respondents' changed their Focus on Self in similar patterns during their visit. In addition, whether the initial score was low or high did not influence the rate of change across measurement occasions for Focus on Self. In other words, the value of the initial score did not significantly influence the changes observed in the Focus on Self dimension. Since visitors did not display an overall change in this dimension, the researchers did not conduct subsequent analysis using the amount of time spent in the park as a variable.

Change in the Focus on Others Dimension

The analysis detected no significant changes in responses between measurement occasions for the Focus on Others dimension (see Figure 3). However, the

variance in initial scores was significant across all respondents ($p < 0.001$), indicating that the initial scores for Focus on Others on the ESF1 were not similar. Further, the rate of change also varied significantly for this dimension ($p < 0.001$), suggesting that respondents' level of Focus on Others changed differently across persons over the course of their visit to Congaree. Finally, the respondent's initial score did not influence the rate of change. Visitors' overall change in this dimension was not significant, and therefore the researchers did not perform further analysis using the amount of time spent in the park.

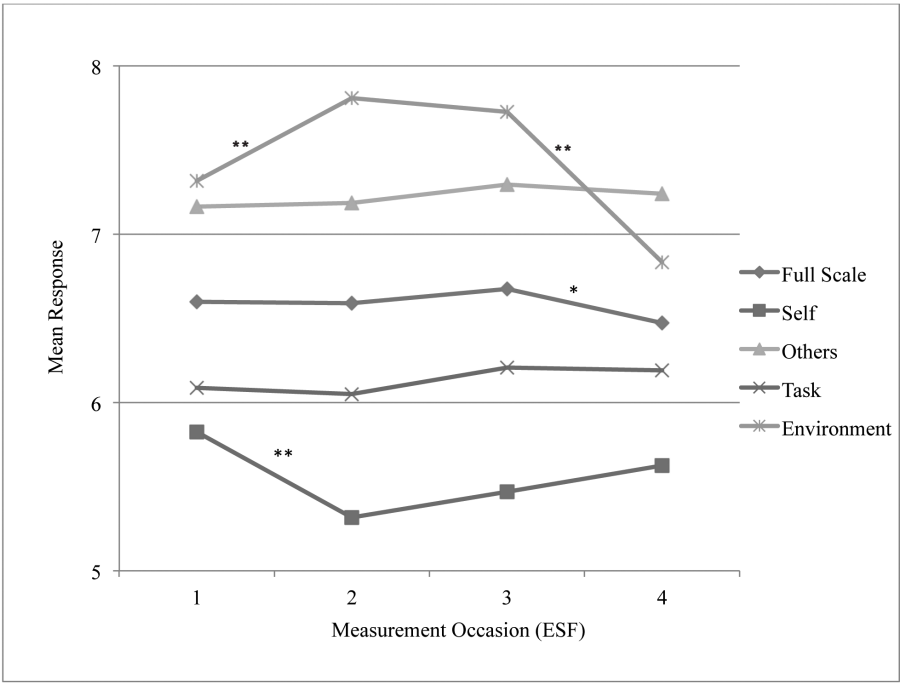


Figure 3. Changes in mean scores for overall scale and individual dimensions (9-point scale but only the range of mean responses is displayed). * p < .05. ** p < .01.

Change in the Focus on Task Dimension

The analysis revealed no statistically significant changes between measurement occasions for the dimension Focus on Task (see Figure 3). However, for this dimension there was a significant amount of variance in the initial scores across all respondents ($p < 0.001$). Conversely, the rate of change did not vary significantly and people generally changed their Focus on Task in the same way. Initial scores (low vs. high) on this dimension did not display a significant influence on an individual's rate of change. Similar to Focus on Self, and Focus on Others, this dimension (Focus on Task) did not reveal an overall significant change, and therefore the researchers did not analyze time as a predictor.

Change in the Focus on Environment Dimension

Comparative to the other dimensions of the Environmental Focus Scale, the dimension Focus on Environment displayed more change overall and between each measurement occasion. Specifically, significant changes between the first and second measurement occasions ($p < 0.001$) as well as the third and fourth measurement occasions exist ($p < 0.001$). However, the investigation demonstrates that these significant changes are in different directions. Specifically, between measurement occasion one and two, Figure 3 displays an immediate and significant increase in Focus on Environment, followed by a late and significant decrease between measurement occasion three and four. The most drastic observation for this dimension occurred between measurement occasions three and four, where the composite score of the dimension dropped from 7.7 to 6.8 respectively between the two occasions.

Unlike the other three factors, the initial scores for Focus on Environment did not vary significantly across respondents indicating that most respondents arrived at Congaree with the same level of environmental focus. However, the rate of change was significant, suggesting that visitors change their focus on the environment in different ways ($p < 0.01$). Initial scores on Focus on Environment (low vs. high) did not influence an individual's rate of change. Since the overall change of the dimension of Focus on Environment was significant ($p < 0.001$), the researchers could assess the amount of time spent at Congaree as an influential variable. In short, as a visitor spends more time at Congaree (time increases across measurement occasions), Focus on Environment decreases ($p < 0.01$).

Discussion and Implications

The purpose of this study was to investigate the on-site phase of an appreciative recreation experience and, specifically, to measure how time spent in a nature-based environment influences the environmental focus of participants. Overall, the results indicate that the on-site appreciative recreation experience is dynamic and changes during the course of a visit. Additionally, the amount of time spent in a nature-based environment does influence the level of an appreciative recreationist's Focus on Environment. Although there was no significant change between ESF1 and ESF2 in the overall scale (i.e., the second order factor), the Environmental Focus Scale is comprised of four distinct dimensions, and therefore each dimension warrants an independent discussion.

Considering the Focus on Environment dimension, it seems as though the current study reveals two different phases. The first phase occurs between measurement occasion one and two, where respondents report an increase in environmental focus. Contrary to the first phase, the second phase indicates a decrease in Focus on Environment, and occurs between measurement occasions three and four. However, when we compare the changes for the Focus on Environment with other dimensions that comprise the Environmental Focus Scale, a different point for discussion arises.

Specifically, reviewing the composite scores between ESF1 and ESF2 for the Focus on Self dimension and the Focus on Environment dimension may provide evidence of yet a third phase in the experience. For example, the Focus on Envi-

ronment dimension shows an immediate and significant increase between ESF1 and ESF2, and during this time, there was a significant decrease in Focus on Self. In short, these two dimensions show a potentially inverse relationship.

Understood in this way, the findings suggest three phases of an appreciative recreation experience. The first phase appears to occur between the ESF1 and ESF2 (or from the beginning of the visit to one third of the visit). The second phase potentially occurs between ESF2 and ESF3 (or from one third of the visit to two thirds of the visit) and the third phase may occur between ESF3 and ESF4 (or from two thirds of the visit to the end of the visit). Using the results from this study and insight from the literature, the researchers propose three distinct phases of the on-site appreciative recreation experience: 1) the need to prepare for on-site activities (*the preparation phase*), 2) the immersion into these activities (*the immersion phase*), and 3) a need to separate from the activities (*the separation phase*). See Figure 4 for a graphical display of these phases.

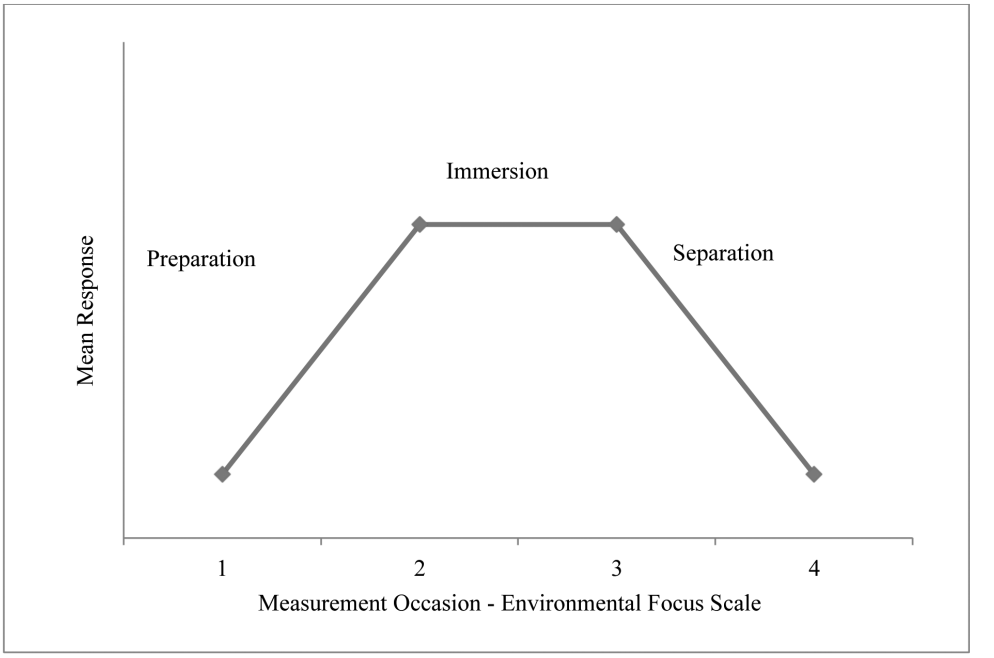


Figure 4. Conceptual phases of an on-site appreciative recreation experience

However, the study design may have partially influenced the identification and the interpretation of the phases presented here (e.g., the curve in Figure 4). For example, respondents only completed four ESFs, which could influence the interpretation of the phases of an appreciative recreation experience. If the respondents completed more than four ESFs, additional insight into the multiphasic nature of the experience may occur. For example, an ESF every 10 minutes may reveal that the preparation phase ends much earlier than at one third of the on-site experience. Furthermore, because there were only four measurement occasions, it is very difficult to determine where one phase ends and another starts. Therefore, it is important to recognize that Figure 4 is a conceptual model of an on-site appreciative recreation experience, which perhaps warrants future investigation.

Changes in On-Site Phases

The first and most complicated on-site phase is the preparation phase. Interestingly, Borrie and Roggenbuck (2001) found an increase in the Focus on Environment dimension from the entry phase to the immersion phase of the wilderness experience. Although they did not test this immediate increase for significance, the entire change in all three measurement occasions was significant ($p = 0.04$). In short, it was statistically evident that there were differences within the Focus on Environment dimension. This finding of Borrie and Roggenbuck (2001) appears similar to the findings in this current investigation of appreciative recreation. In addition, this current study found a significant decrease in Focus on Self during this same time, which differs from the findings by Borrie and Roggenbuck (change in Focus on Self was found nonsignificant). This comparison with previous findings within the on-site experience of outdoor recreationists provides an important validity check for the results reported in this study. However, the difference in sample sizes between studies (23 versus 158), types of experience (physical outdoor recreation versus appreciative recreation), and analytic methods (ANOVA versus MLM and EFA versus CFA) suggest a need for caution in drawing a comparison between these studies.

Nonetheless, the first on-site phase (the preparation phase) could be an indication of visitor expectations and assumptions about Congaree and what it has to offer. For example, the park advertises the Congaree resource as a unique natural environment with a variety of viewing and observing opportunities. This identity may contribute to a general increase in Focus on Environment shortly after visitors' arrival. For example, as visitors (especially first time visitors) arrive to the park, they may be under the impression they will inevitably witness some notable display of wilderness and wildlife. As the visitor experience begins to progress closer to the trailhead, a visitor may begin to focus on the environment around them.

The second on-site phase (the immersion phase) seems relatively stable. Even after a review of the individual dimensions, there is no supporting evidence of change in the immersion phase. Further scale development and a greater sampling frequency may help explore the immersion phase of an on-site appreciative recreation experience.

The third and final phase of an on-site appreciative recreation experience (the separation phase) can be identified by a significant decrease in the overall Environmental Focus Scale. However, a more thorough investigation of each dimension

suggests that the decrease found in the overall scale may be largely attributable to a highly significant decrease in the Focus on Environment dimension. Similar to the first phase, this separation phase may begin for a number of reasons. For example, the shift from concentrating on the natural environment to a heightened awareness of oneself could contribute to the decrease in Focus on Environment near the end of the on-site experience. This may occur because of physical fatigue, a need to plan or organize prior to leaving a site, or a tendency towards personal needs, such as using amenities at the visitor center (e.g., a bathroom or water fountain).

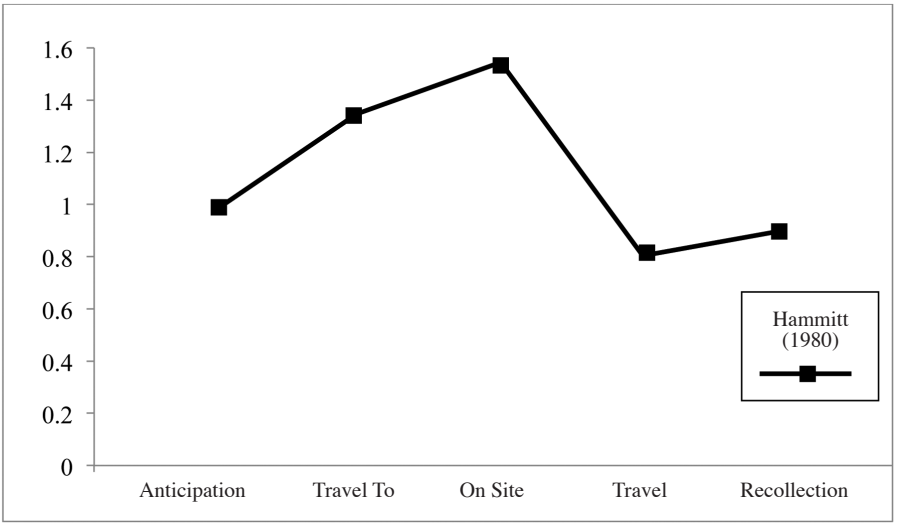
The Preparation Phase – The Inverse Relationship

A significant increase in Focus on Environment and a significant decrease in Focus on Self distinguishes the preparation phase. This inverse relationship not only supports Hypothesis Two by providing evidence of change within a portion of the appreciative recreation experience but it suggests that, upon arrival to Congaree National Park, people focus more on the environment instead of focusing on themselves. Further, resource managers and researchers could use this inverse relationship to identify the level of benefits received by visitors engaged in appreciative recreation, as explained below.

Absolute Differences as an Evaluation Index

Because humans have a threshold capacity for focus (Kaplan, 1995), it seems likely that an increase in focusing on the environment may be at least partially dependent on a decrease in focusing on oneself. In short, it may be difficult to intently focus on the environment and self simultaneously. This potential dependency and inverse relationship between Focus on Environment and Focus on Self is similar to previous research findings (Hammitt, 1980), and may provide additional insight into evaluating benefits derived from an appreciate recreation experience. Specifically, Hammitt (1980) measured negative and positive moods across the five-phase model of outdoor recreation and found that an increase in mean scores on positive moods was associated with a decrease in mean scores on negative moods. Hammitt (1980) used the absolute difference in mean scores between positive and negative moods as a measurable level of satisfaction (i.e., one example of an evaluation index) at each of the five phases (graphed in Figure 5). Although we are not equating mood (Hammitt, 1980) with the dimensions of focus measured by the Environmental Focus Scale, researchers and managers could apply a similar absolute difference analysis to the inverse relationship between Focus on Environment and Focus on Self. This technique may provide at least one index to evaluate the level of intended outcomes (e.g., focus on the environment) from an appreciative recreation experience.

Figure 5 also displays the absolute difference between Focus on Self and Focus on Environment across all four measurement occasions. This is a potentially important graph and index because managers who operate within natural resource areas, such as Congaree, often facilitate experiences that promote opportunities for visitors to focus on the environment. Therefore, if resource managers intend for visitors to focus on the environment, and focus less on themselves, the absolute difference between these two dimensions (as displayed in Figure 5) could provide one type of index to evaluate the appreciative recreation experience. Such



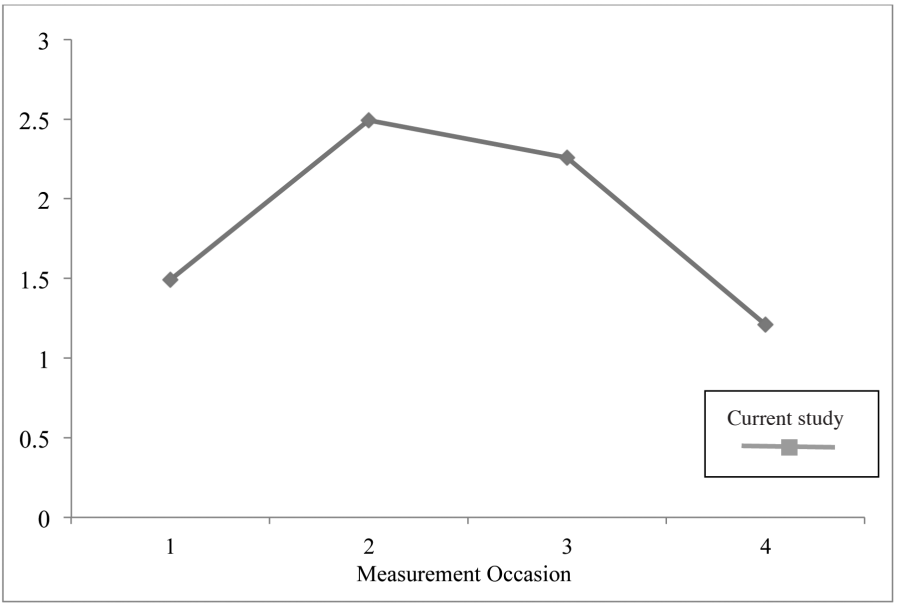


Figure 5. A comparison between the 1) absolute difference of positive and negative mood means of an outdoor recreation experience (adapted from Hammitt, 1980), and 2) the absolute difference in Focus on Self and Focus on Environment means for an appreciative recreation experience.

an evaluative tool could provide insight into potentially beneficial site developments aimed to enhance the visitor experience. For example, if the absolute difference was minimal between Focus on Environment and Focus on Self, a resource manager may use this information to partially justify infrastructure improvements (e.g., rerouting trails to better wildlife viewing locations or better interpretive signing), encouraging appreciative recreationists to focus more on the natural resource features of the environment. Such changes may contribute to increased or repeat visitation of appreciative recreationists, which is often a managerial goal of many natural resource areas.

Although Hammitt (1980) measured the five phases of the outdoor recreation experience and this study only measured the on-site phase, there are some distinct visual similarities between the two graphs (see Figure 5). For example, both graphs begin with an immediate increase and then end with a decrease near the end of the measurements. One explanation for this could be that the on-site graph may be a scaled-down or reduced version of the five-phase graph. This becomes more understandable when one considers the on-site phase itself has necessary components that, by default, mimic the components of the five-phase model; even if they are at a smaller scale. For example, while on-site there is a need to plan, anticipate, travel, and recollect. This study's findings suggest these on-site events may parallel the five-phases of the overall recreation experience. However, such a proposition deserves hypothesis testing and the researchers recommend future investigations of the multiphasic nature of outdoor recreation experiences involve components of Hammitt's (1980) five-phase model as well as in-depth investigations into the on-site phases.

Conclusion

The results from this study support the notion that appreciative recreation experiences—specifically the focus that one has on the environment versus oneself—change over the course of a visit. These changes suggest there are three on-site phases of an appreciative outdoor recreation experience. The first phase represents a period of preparation, marked by an increased focus on the environment and a decreased focus on oneself. The second phase is more static and perhaps represents what researchers often conceptualize as the true on-site experience where an individual immerses in the intended activity. The third phase is a separation phase, marked by a decrease in environmental focus. These on-site phases were not all observed in an overall Environment Focus Scale, but by examining the dimensions that comprise the scale, these phases were evident for the on-site appreciative recreation experience at Congaree National Park.

An enhanced focus on the environment seems like an important component of any appreciative recreation experience. This study demonstrates an increased focus on the environment does occur during the on-site experience of appreciative recreationists at Congaree National Park. Furthermore, the amount of time spent on-site influences the amount of change in one's focus on the environment. The resulting conclusion, in agreement with previous findings (Borrie & Roggenbuck, 2001), is that the on-site appreciative recreation experience is complex, dynamic, and evolving, and is influenced by the amount of time spent on-site.

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