

Experience Patterns: Capturing the Dynamic Nature of a Recreation Experience

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A recreation experience is not static, it varies over the course of an engagement. Yet, most recreation research operationalizes recreation benefits and outcomes as essentially static in nature (i.e., satisfaction). "Experience patterns" capture the dynamic nature of a recreation experience and thus might prove useful as units of analysis in the management and study of recreation resources. The purpose of this exploratory study is to examine properties of experience patterns to determine whether they are worthy of future theoretical and empirical study. Toward this end, the experience patterns of 90 hikers were assessed during a short but strenuous dayhike. Seven qualities of hikers' experiences (four mood measures, two satisfaction measures, and landscape scenic beauty) were assessed at twelve moments during the hike. Results are encouraging and suggest that hikers differ from one another in their on-site experience but cluster into distinct, homogeneous groups. Some hikers' had experience patterns that varied predictably over the course of the hike and thus seem dependent upon site characteristics and subject to site management. Other hikers' experience patterns were constant and seemed independent of site characteristics.

KEYWORDS: *Emotion, beauty, satisfaction*

Introduction

Klausner (1967) examined the dynamic nature of parachutists' fear and enthusiasm over fourteen stages of a parachuting experience. Enthusiasm and fear were low during preparation for the jump. Fear increased continuously up to the moment of jumping while enthusiasm decreased slightly during this same time period. Immediately after jumping from the plane, but before landing, parachutists experienced intense enthusiasm and low fear. Fear increased during landing but subsided quickly. Enthusiasm reached its peak on the ground, after removal of the parachute.

Klausner (1967), Ingham (1987), and Mannell and Iso-Ahola (1987) contend that this type of inquiry enables needed investigation of a leisure experience: its intensity, duration, components, meaning, and the impacts of these factors on long term benefits such as satisfaction, memories, res-

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toration, contemplation, and health. These and other researchers have argued on theoretical and empirical grounds that investigation of the dynamic, experiential quality of a leisure experience provides a valuable and necessary focus for leisure research (see also Knopf, 1987). *Experience patterns* are offered here as an empirical means to study the dynamic nature of a recreation experience.

The purpose of this exploratory effort is to examine properties of experience patterns to determine whether they are worthy of future theoretical and empirical study. If experience patterns have merit, they should be interpretable, consistent, and generalizable. Thus, three properties of experience patterns are examined: 1) consistency and interpretability of the distributions of experiences over the duration of a recreation engagement, 2) the consistency and interpretability of covariance among experience patterns, and 3) the generalizability of experience patterns as denoted by commonality among recreationists in their patterns of experience.

There are numerous qualities (attributes, dimensions, and experiences) that characterize the feelings or responses of recreationists engaged in recreation activities. The scope of this inquiry is limited to only three: mood, satisfaction, and landscape scenic beauty. Scenic beauty and satisfaction enjoy a long association with recreation and natural resource management issues (c.f. Knopf, 1987). Mood, emotion, and other characterizations of affect are theoretically grounded dimensions of human response and are likely to have relevance to leisure research (c.f. Hull, 1990; Knopf, 1987; Ulrich, 1983).

Methods

The Site

White River National Forest bordering the Maroon Bells Wilderness area just 20 kilometers outside of Aspen Colorado was the study site. This site was selected, in part, because its popularity provided a steady stream of potential study participants. Day access to the site was restricted to shuttle bus service. People were dropped off in discrete busloads near the trail head. A trail leading from the bus stop to a salient, desirable destination (Crater Lake) was the focus of a popular day hike. This setting provided an opportunity to examine experience patterns of hikers in two different contexts: up- and downhill.

Twelve views along the trail were marked by a temporary, one meter wooden post topped (in music stand style) with an eight inch square blue placard. A number and an arrow pointing toward the landscape to be evaluated were painted in white on each placard. Hikers were instructed to stand behind each marker, face in the direction of the arrow, and complete a page of items from a questionnaire booklet issued to them at the beginning of their hike.

The trail traverses various landscape types and climbs approximately 300 meters (starting from 3000 meters elevation) in approximately two

kilometers. Photographs of the landscape views at each marker are published elsewhere (Hull & Stewart, 1991). What follows is a description of the landscapes and the trail so readers may better interpret the experience patterns displayed later.

The first marker was within sight of the parking lot where uphill hikers were first contacted by an interviewer. It directed attention across a meadow to a large mountain at the base of a lake. Hikers continued their hike along level ground across the meadow for several hundred meters, through a small creek and past one trail intersection—all the while the same view as landscape 1 was to their left. Marker 2 directed the hikers to face directly into a small stand of Aspens, with their back to the lake and mountain view of landscape 1. After another several hundred meters of gradual ascent, gradual thickening of forest vegetation, and lessening of visual penetration, hikers stopped at marker 3, which was a view back toward the parking lot where the hike started. This view contained an observer superior view of the lake, meadow, and mountain seen earlier from marker 1. For downhill hikers this was the first clear view of their final destination, of the people waiting for a bus to take them home, and it provided the first open vista in nearly a kilometer. Markers 4 through 8 were located within an approximately one kilometer section of the trail characterized by its enclosed, Aspen forest and ascent of varying steepness up the “right” side of a narrow mountain gorge. Terrain and vegetation prevented views of any distance to the right or left. Markers directed attention up and down the trail and fatigue might be a factor.

Marker 9 was positioned 20 meters from marker 8 and at the outer edge of the forest canopy. The foreground in this view falls away rapidly since the marker was positioned near the edge of a steep boulder slope. For the hiker moving uphill, the contrast between landscape 8 and 9 is enormous. One moves from an enclosed forest with limited view to an exposed, sun and wind swept ridge with limitless view. The hiker moving downhill has been on this ridge for several hundred meters, having nearly continuous exposure to landscape 9. Marker 10, several hundred meters further faces directly into the trail embankment, with a close-up view of dense scrub vegetation. Behind the hiker is the view of landscape 9. Marker 11 directed the hikers to gaze across a field to an impressive mountain ridge towering above them but several kilometers distant. Marker 12 was located along a bend in the trail and offered uphill hikers their first glimpse of their destination, Crater Lake. Downhill hikers coming from the lake had seen the same view for several hundred meters.

Subject Recruitment

Hikers were interviewed on clear days during a two week period in August 1988. Potential participants were approached at the trail head (i.e., either at the bottom or the top of the hill) and asked whether they would be willing to participate in a research project. Persons were screened to

insure their intent was to hike the full length of the trail associated with the study. The magnitude of the task was explained and potential participants were told they would be "rewarded" with a candy bar at the beginning and end of their hikes and \$25 if they completed a mailed questionnaire which was part of another study (Hull & Stewart, 1991). If participants agreed to participate they were given a questionnaire and detailed instructions on its use (approximately a five minute task). At each step of the recruitment process participants were given the chance to decline to participate. Approximately half the people did so. We approached people as they were funnelling themselves onto the trail from the bus at the bottom or from Crater Lake at the top of hill. The selection process was one of convenience; participants were selected on a first come basis. Thus our sample may not be representative of the larger population of hikers. A total of 90 hikers were interviewed, evenly divided between up- and down-hill hikers.

Questionnaire and Analysis

One page of questions was to be answered at each marker. It consisted of 20 items requiring a rating from 1 (low) to 7 (high). Pretests of the instrument indicate it took approximately one minute per marker. Three items referred to the scenic beauty of the landscape being viewed, 15 questions asked about hikers' current moods and feeling states, and two assessed measures of satisfaction.

Questions about hikers' moods were adapted from work by Russell and others (Mehrabian & Russell, 1974; Russell & Pratt, 1980; Russell & Snodgrass, 1987). The items used here were worded to help hikers assess how they were feeling at the moment. Factor analyses of Hikers' evaluations of the 15 mood items were conducted to confirm for this site and population the appropriateness of the dimensions suggested by Russell and others. Five interpretable factors emerged which appear to correspond with theory: excitement (31% of variance among the 15 items, Cronbach Alpha = 0.86), bored (16%, Alpha = 0.81), relaxed (10%, Alpha = 0.82), dominance (10%, Alpha = 0.63), and rushed (5%, Alpha = .63). The excitement and peaceful dimensions of mood are suggested by Russell and others to be orthogonal and bipolar, ranging from bored to excited and from relaxed to hectic. Our factor analysis results, however, suggest it is best to use four separate dimensions: bored, excited, rushed, relaxed. Indices were created for each response dimension by averaging the items loading highly on each factor.

Two questions about hikers' satisfactions were asked. These were adopted from the work of Csikszentmihalyi and colleagues (Csikszentmihalyi & Graef, 1980; Graef, Csikszentmihalyi & Gianinno, 1983; Neulinger, 1981). One question asked: "How satisfied are you with your experience right now?" The other asked: "Would you rather be some place else right now (home, car, camp, movies, restaurant, etc.)?" It was hoped the latter

question would indicate when hiking ceased captivating attention and the hiker started to think of other uses of his/her leisure time. Some researchers suggest responses to this question represent how intrinsically motivated persons are to stay in their current experience (Csikszentmihalyi & Graef 1980; Graef et al., 1983). The former question was designed to assess feelings of satisfaction the hiker was feeling at the moment. Even though they are empirically related ($r = .409, p < 0.001$), conceptually they seem to represent slightly different aspects of the hiking experience and hence were treated separately in the following analyses.

Three questions concerning landscape scenic beauty were asked: "How does the scenic beauty of this view compare to others you have seen along this trail?" "How does the scenic beauty of this view compare to the most beautiful view you can remember?" And, "Would you like to see more views like this one?" Responses to these questions are highly correlated with one another (Cronbach Alpha = 0.94).

The Fastclus cluster analysis procedure (SAS, 1988) was used for each feeling dimension to identify groups of hikers who were similar to one another in their patterns of experience. The number of clusters for each dimension were selected by maximizing the pseudo F , which is calculated by dividing the mean sum of squares between clusters by the mean sum of squares within clusters. Larger pseudo F s denote more distinct separation among clusters. Hikers were excluded from a cluster analysis if they had missing data at any marker in the dimension being clustered. Consequently, the total number of persons to be clustered is less than the total sampled (90) and varies from 81 to 82, depending on the dimension.

Two sets of cluster analyses were conducted, one where hikers were not separated by direction of travel and another where hikers were separated prior to clustering. The first analyses revealed that many up- and downhill hikers clustered together. However, because of the explorative and descriptive nature of this study it was decided to examine the up- and downhill hikers separately. In particular, partitioning the up- and downhill hikers facilitates interpreting the effect of direction of travel—one of the contextual factors controlled in this study.

A MANOVA was performed to examine the effect of direction of travel (up- versus downhill) and location (12 markers) on the different dimensions of hikers' experiences. Ordinary Least Squares regression analysis was used to explore relationships among the experience dimensions.

Results and Discussion

The MANOVA results are not displayed but indicate that marker location, direction of travel and/or their interaction explained significant proportions of the variance in many experience dimensions (generally $p < .001$, but not reported if $p > .05$). Feelings of dominance and of being rushed did not vary much from point to point along the trail. All other feelings/evaluations varied significantly from point to point. Whether one

was hiking up- or downhill had a significant effect on evaluations of satisfaction (uphill hikers more satisfied), desires to be elsewhere (downhill hikers more distracted), and feelings of rushed and bored (downhill hikers feeling more of both). Significant interactions between marker location and direction of travel affected hikers' ratings of excitement, relaxation, and scenic beauty. The following discussion describes the experience patterns identified by cluster analyses and some of the significant differences found in the MANOVA. Many of these patterns are displayed in Figure 1.

Descriptions of Experience Patterns

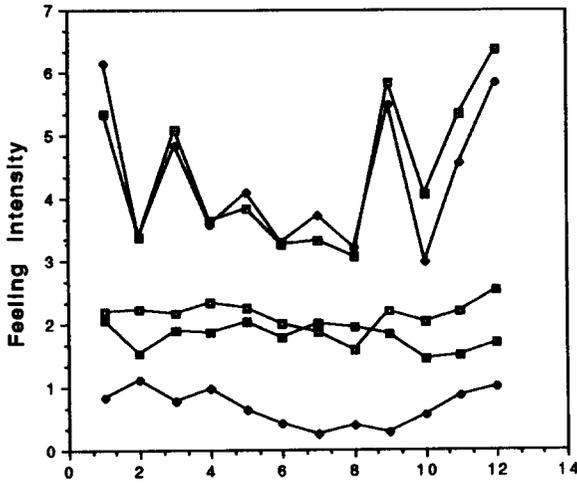
Scenic Beauty: Hikers' scenic beauty evaluations of the landscapes at each marker provide some indication of hikers' perceptions of the quality of the environment (Figure 1A). Differences among hikers ratings of scenic beauty are discussed in detail elsewhere (Hull & Stewart, 1991). There was general agreement among hikers about the high scenic quality of the grand vistas at markers 1, 3, 9, 11, and 12 and about the less beautiful views within the enclosed forest (markers 4-8).

Relaxation: For the most part, hikers started off feeling modestly relaxed and continued feeling this way throughout their hiking experience (Figure 1A). Uphill hikers felt least relaxed while traversing uphill through the enclosed forest section. Perhaps this is because hikers were faced with a long and strenuous climb. In contrast, the downhill hikers found this section to be as relaxing as other sections of the hike.

Dominance and Rushed: Feelings of dominance were nearly constant across all markers, for all hikers, with a mean rating of 4, the middle of the scale. Similar experience patterns were observed for feelings of being rushed. Hikers started off not feeling rushed (mean of 1.5) and maintained that feeling throughout the hike. These patterns are not displayed.

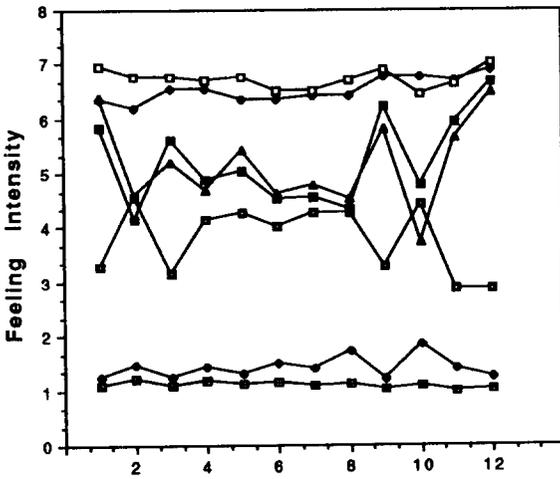
Satisfaction: There appear to be several distinct patterns in hikers' feelings of how satisfied they felt at various moments during their hikes (Figure 1B). Sixteen (40%) of the downhill hikers and 17 (42%) of the uphill hikers maintained a high level of satisfaction throughout the hike. These hikers entered the setting feeling very satisfied and that way throughout the hike. The downhill hikers, who had hiked up the hill earlier in the day and spent time at Crater Lake, were feeling completely satisfied (7 out of 7) at the beginning of their return journey. Their satisfaction varied while hiking down the mountain, dropping slightly during their initial descent but generally remained high. They ended their hike feeling extremely satisfied. These two patterns suggest many hikers' feelings of satisfaction are virtually independent of the recreation setting and of characteristics of the experience. That is, for the hikers in these clusters, feelings of satisfaction varied little with the scenic beauty of the landscape being viewed, the fatigue of climbing a hill, or with the accomplishment of reaching ones' destination.

In contrast, some uphill hikers' ($n = 23$; 56%) feelings of satisfaction seemed dependent upon characteristics of the setting. They started and



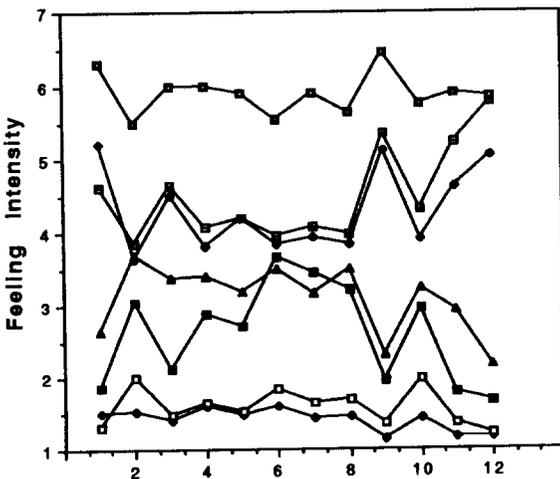
A

- beautv. up (45)
- beautv. down (45)
- relax. up (27)
- relax. up (11)
- relax. down (41)



B

- elsewhere. up (36)
- elsewhere. down (32)
- elsewhere. down (7)
- satisfied. up (17)
- satisfied. up (23)
- satisfied. down (16)
- satisfied. down (19)



C

- excited. up (37)
- excited. down (35)
- excited. down (5)
- bored. up (32)
- bored. up (6)
- bored. down (29)
- bored. down (12)

Landscape View

ended highly satisfied (somewhat less satisfied than the other group) and varied in satisfaction during the hike. A group of downhill hikers had a similar experience pattern ($n = 19$; 46%).

Rather Be Elsewhere: In response to the question: "Would you rather be some place else?" most everyone responded with a resounding "No!" (low ratings indicate they did not want to be elsewhere; Figure 1B). This question was intended to measure the extent to which hikers were captivated by their leisure experience and whether their attention wandered to other topics such as home, food, relationships, work, or sleep.

Most uphill hikers started off not wanting to be anywhere else and maintained that feeling. It seems these hikers were completely captivated by their on-site experience. Most of the downhill hikers were similar in this regard but seemed slightly more distracted than the uphill hikers. Several of the downhill hikers ($n = 7$; 17%) were distracted. During the 1 kilometer section of trail enclosed by forest (markers 4-8) these hikers were entertaining thoughts of being elsewhere. Nonetheless, the majestic vistas along the trail (markers 1, 3, 9, 11, 12) captured even their attention.

Boredom: Hikers clustered into four groups according to how bored they felt during their hikes (Figure 1C). No cluster had an average rating above four for any point along the hike (seven indicates extreme boredom). The bulk of the uphill hikers ($n = 32$; 80%) were not bored at any stage during their hike and, if anything, became less bored as they approached their destination. The bulk of the downhill hikers ($n = 29$; 71%) had a similar pattern only they seemed slightly more influenced by characteristics of the hike. They were least bored at the beginning and ending points of the hike and most bored when viewing the dense vegetation encountered during the middle stages of the trail (i.e., views of enclosed forest with little distance, complexity, and uniform scale).

Another group of downhill hikers ($n = 12$; 29%) had a similar yet more varied pattern of bored feelings during the hike. They were least bored at the beginning and ending points and at marker 9 (on the edge of a cliff). These hikers were most bored during the enclosed, middle section of the trail. The bored feelings at marker three are perplexing since this was an observer superior position of the same landscape viewed at marker 1 (i.e., mountains and water). It was also the first real view of their destination—the end of the trail and the parking lot.

Figure 1. Experience Patterns. Each line represents the average feeling for a group of hikers who were clustered together because of similarities in their experience patterns. The numbers in parentheses indicate how many hikers are represented by each pattern. Clusters with less than 5 hikers are not displayed. Larger numbers on the ordinate suggest stronger feelings of the dimensions being assessed. Figure 1A displays hikers' ratings of scenic beauty and feelings of relaxation. 3.5 was subtracted from each measure of relaxation to facilitate clarity of the display. Figure 1B displays hikers' feelings of satisfaction and desire to be elsewhere, other than on the trail. Figure 1C displays hikers' feelings of excitement and boredom.

Excitement: One major cluster exists for both the up- and downhill hikers, indicating that considerable similarity exists among hikers and that direction of travel did not impact hikers' feelings of excitement (Figure 1C). Feelings of excitement varied over the hike, suggesting excitement is sensitive to the changing characteristics of the on-site experience. Reaching a destination (the lake for uphill hikers, the parking lot for downhill hikers) was the most exciting part of the hike for both the uphill and downhill hikers. Other moments of excitement occurred when hikers were viewing the grand vistas at markers 3, 9, and 11. The least exciting moments were during the middle, enclosed forest section of trail. The uphill hikers were more excited than the downhill hikers at most every point along the trail.

Relationships Among Experience Patterns

Regression analyses were used to examine relationships among the experience dimensions. For the purpose of these analyses, hikers' feelings of satisfaction and desires to be elsewhere were taken to be meaningful dependent (response) variables. These ratings require conscious evaluations of the overall quality of one's experiences. Mood and landscape scenic beauty are taken to be meaningful independent (predictor) variables of satisfaction. They require evaluation of specific aspects of the recreation experience and the recreation setting.

Hikers who had nearly constant feelings of satisfaction were not included in the regression analyses since there was no variation to explain (see Figure 1B). Nearly half the hikers ($n = 42$; 47%) had feelings of satisfaction that varied during the hike. Regression analyses were conducted using the hikers' evaluations at each marker as the unit of analysis. Thus, instead of having 12 datum elements (one for each marker) there are 12 times the number of hikers in the analysis.

The regression model¹ which best explains the variation in hikers' satisfactions has scenic beauty and boredom as predictors ($R^2 = .58$; $p < .0001$; $df = 6; 498$; Table 1). The up- and downhill hikers were compared as per Weisberg (1980, p. 167) to examine whether the slopes and intercepts were the same for both groups. Results suggest that up- and downhill hikers are different. The full model, with different intercepts and slope coefficients for each predictor explains significantly more variance than the model with one intercept and common slope coefficients ($p < .0005$) and the model with different intercepts, different slope coefficients for beauty, but a common slope coefficient for bored ($p < .001$). The amount of variance explained with this model is not significantly different from the model without a slope coefficient for the downhill hikers' bored feelings. Apparently boredom is not related to satisfaction during the downhill, return journey but is important during the uphill hike to the initial destination. The beta estimates suggest that high scenic beauty increases hikers' feelings of satisfaction and that downhill hikers seem a bit more sensitive to scenic beauty than uphill hikers. Perhaps the uphill hikers are more

TABLE 1
Regression Analysis Predicting Satisfaction

Source	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P > F</i>
Model	5	446.7	139.6	.0001
Error	498	318.5	r-square = 0.58	
Total	503	765.2		

Variable	Beta	Std. Error	<i>P > T</i>	VIF
I	2.85	.235	.0001	0.0
UI	1.11	.315	.0001	19.3
Dbored	-.03	.057	.6472	4.1
Ubored	-.31	.054	.0001	3.3
Dbeauty	.56	.036	.0001	5.5
Ubeauty	.44	.032	.0001	4.7

D denotes downhill hikers; U, uphill hikers; I, intercept; Beta, standardized estimate of beta weight; VIF, variance inflation factor.

focused on internal factors such as fatigue and thus less sensitive to external factors such as landscape scenic beauty. The different coefficients for up- and downhill hikers suggests that fatigue, novelty and other factors associated with direction of travel may influence of how mood and scenic beauty relate to a hiker's satisfaction.

Conclusions

Recreation research has traditionally emphasized survey methodology (Riddick, DeSchraver & Weissinger, 1984). Perhaps because of this, recreation benefits and outcomes have been operationalized as essentially static in nature. In contrast, the philosophy, methods, and findings of our study suggest that a recreation experience is dynamic: it fluctuates over the course of the engagement. Moods change. Scenic beauty varies. The degree of absorption in one's activity fluctuates. A recreation experience is not static and perhaps neither are recreation outcomes or psychological benefits. Experience patterns capture this fluctuation and thus might prove useful as units of analysis in the management and study of recreation.

The purpose of this exploratory study was to examine properties of experience patterns to determine if they are worthy of future theoretical and empirical study. The results are encouraging. Experience patterns are meaningfully distributed over the duration of a recreation experience, suggesting that in some cases they may be influenced by management of the recreation site. In addition, the different experience patterns covaried among themselves in meaningful ways (i.e., satisfaction is predicted by boredom, etc). This suggests that there is some internal logic and hence validity to their nature. Finally, the Cluster Analyses identified many per-

sons who were similar to one another in their patterns of experience. This suggests that analyses of experience patterns need not be idiosyncratic and results may be generalized to groups of recreationists. This finding also leads to another issue.

Shafer (1969) argued that statistical averaging of recreation outcome measures masks true heterogeneity of the recreating public. Design/policy decisions based on averages may end up satisfying the needs of the non-existent average recreationist and thus may satisfy no recreationist (see also Manning, 1986). The results of our study support and extend this argument. First, the argument is extended to apply to experience patterns rather than static measures of outcomes. Second support is found for heterogeneity in the recreating public. The clusters of experience patterns we observed indicate that all hikers are not the same in how they experience a day hike but that meaningful and distinct subsets exist. Perhaps research and management efforts should focus on the averages from clusters of recreationists grouped together because of similarities in experience patterns.

Experience patterns allow a different conceptualization of many issues found in the recreation literature. For example, experience patterns could be used to redefine the recreation opportunities associated with the recreation opportunity spectrum (ROS). Perhaps ROS could be interpreted as an effort to provide a range of *experience pattern* opportunities. That is, recreationists might not set out to consume static recreation outcomes such as solitude or satisfaction but rather set out to consume an extended sequence of relaxing feelings dotted with peaks of excitement. Given this interpretation, research is needed: 1) to identify and assess the demand for different experience pattern opportunities; 2) to investigate relationships between site characteristics and experience patterns so that management might produce these outcomes; 3) to determine appropriate means of summarizing experience patterns for analysis and comparison (i.e., mean, minimum level, maximum level, ratio of minimum to maximum, etc.); and 4) to develop a recreation resource classification system based upon these relationships.

Another example of the utility of experience patterns is that they provide a means to conceptualize and empirically study psychological outcomes of recreation. More than a decade ago, Driver and Brown (1978) suggested that recreation engagements provided a bundle of psychological benefits. These benefits have been operationalized by many in terms of outcomes of solitude, social affiliation, nature study, etc. One might use experience patterns to study the nature of recreation engagements (i.e., the patterns of experience) that produce these various outcomes. The regression analysis reported here illustrates how changes in experience patterns of landscape beauty and mood influence hikers' satisfactions and how this influence is dependent upon even the hikers' direction of travel along the trail.

The experience patterns observed in this study also provide an op-

portunity to conjecture about the effects of reaching a destination within the context of a recreation experience. The subjective importance of terminus points or destinations (markers 1 and 12) was apparent across experience patterns observed here: peaks in satisfactions, lulls in boredom, peaks in excitement, and peaks in relaxation. Within the recreation literature, "goal-oriented behavior" typically refers to recreationists driven by a need to fulfill psychological goals. Our data indicate that the activity-goal (i.e., reaching ones' destination) may explain a considerable portion of persons' experience patterns.

Finally, the patterns of experience we observed contrast somewhat with predictions of the Mehrabian and Russell and subsequent adaptations of the pleasure, arousal, dominance dimensional model of emotional experience (see Mehrabian & Russell, 1974; Russell & Pratt, 1980; Russell & Snodgrass, 1987). According to their theory, the dimensions of pleasure and arousal (or their 45 degree rotation: excitement and relaxation) are orthogonal and bipolar. However, the patterns of experience documented by hikers we sampled suggest persons can feel excited (slightly aroused) and relaxed (slightly unaroused) at the same time. In addition, the factor analyses of items ratings suggest the dimensions may not be bipolar, but require separate indices for each end. Also, the proportion of variance accounted for by the dominance dimension is large compared to what has been found in the past (Russell & Pratt, 1980). Obviously there is considerable need for research to identify meaningful and salient dimensions of leisure experiences and to find ways to operationalize them in ways that enable the study of experience patterns in natural settings.

Footnotes

1. The logic behind the regression analyses is that a hiker's rating of satisfaction will be dependent, in part, upon the mood state of the hiker and the hiker's appraisal of the environment's scenic beauty. Cautions about this logic are in order: (1) covariation among the dependent and independent variables may be the result of a response set; (2) the measures of scenic beauty, satisfaction and mood are likely to be interrelated and partially explained by factors outside the model; and (3) explaining the variation in one subjective assessment (satisfaction) with other subjective assessments (scenic beauty and mood) is likely to be less meaningful than explaining any of these subjective assessments with objective parameters of the recreation setting (e.g., steepness of trail, depth of view, number of other hikers). Multicollinearity may be influencing the beta estimates. Several of the variance inflation factors are nearly twenty, suggesting the beta estimates may be unstable. However, one statistic indicative of severe multicollinearity is the ratio of maximum and minimum eigen values associated with the $X'X$ matrix. The ratio for this data set is 85, indicating multicollinearity is not a major cause of concern and thus the beta estimates should be interpretable.

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