

The Relationship Between Activity Specialization And Preferences For Setting And Route Attributes Of Selected Rock Climbers

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Abstract Many natural areas are now in the process of developing climbing management plans in order to control management factors associated with the growth of rock climbing. These factors may include limiting areas of use and limiting the type of climber utilizing the resource. The purpose of this study was to further develop and operationalize the concept of recreation specialization as it relates to rock climbing. This study also examined preferences for the physical characteristics of rock climbing routes and the general recreational setting. Management implications of this study include the development of a heuristic management tool to categorize and rate climbers into a continuum of specialization from general to specific users that in turn would display different environmental preferences for the environment in which the sport of rock climbing takes place.

Introduction

The sport of rock climbing, a form of adventure recreation, has grown considerably in the past several decades (McAvoy & Dustin, 1985). This incredible expansion and resulting upsurge of participation raises many questions for land managers and park officials. What role should they play in regulating this recreational activity? To what degree should forms of the sport be regulated? Which participants should receive special management intervention? Many natural areas are now in the process of developing climbing management plans in order to control management factors associated with the growth of the sport, such as limiting areas to use, and limiting the type of climber utilizing the resource. Managers would benefit from the development of a heuristic tool capable of matching management strategies with the variability of recreational orientations and needs.

To help management understand variability within recreational activities, Bryan (1977) introduced the idea of specialization which provided a conceptual framework with which to explore recreation behavior. He sought to explore the diversity of recreationists within a given activity. Recreation specialization "...refers to a continuum of behavior from the general to the particular" (p. 175). This

continuum is reflected by the equipment, skills, and activity setting preferences of the recreationist. At one end of the specialization continuum is someone who has very general interests in an activity and participates in several forms of the activity. At the other end of the continuum is a person who has a narrow field of interest and limits interest to a specialized branch of the sport. Bryan sought to explain variability among recreationists in terms of their behavior and attitudes regarding different forms of the activity.

Bryan's (1977) specialization typology has subsequently been used by researchers to help explain attitudes and behaviors towards management, setting and resource preferences, attitudes towards resource conservation, and motivations for participation. Specialization has also been utilized, with varying success, to help understand behavioral patterns in several activities including canoeing, backpacking, rock climbing, as well as non- outdoor recreational related activities such as contract bridge.

Hollenhorst (1987) attempted to apply recreation specialization theory to rock climbers and the sport of rock climbing. In Hollenhorst's study, expertise was used as a surrogate measure of specialization and was compared to the independent variables of experience use history (EUH); the ecological, social, and climbing difficulty character of the environment; age; gender; equipment used; and social context. Hollenhorst's study was delimited to those rock climbers who engaged in top-rope rock climbing. Other rock climbers that were excluded from this study were solo climbers, lead climbers, boulderers, and aid climbers. A limitation of this study was that it potentially excluded a wider variety of climbers on the specialization continuum.

Hollenhorst (1987) also found that two climbing sites that contrasted in ecological character (developed vs. natural) did not differ in terms of the level of specialization exhibited by users. As Hollenhorst stated, the finding would seem to contradict the specialization theory developed by Bryan (1977) who said that an increase in specialization would increase the dependency on the natural character of the environment. Hollenhorst asserted that "...rock climbers are generally insensitive to and unconcerned with the ecological character of the rock climbing site... it is more likely that these attribute preferences relate to the quality of the rock and the climbing route" (p.129). Hollenhorst's assertion, however, would seem to confirm Bryan's theory. Bryan suggests that the values attached to a level of specialization are "inextricably linked to the properties of the resource on which the sport is practiced" (p.186). The present study focused on exploring the properties of the resource and its relation to specialization.

It was the intent of this study to help gather information on the attitudes of rock climbers so that informed decisions could be made in terms of managing our natural areas with rock climbing resources. The sport of rock climbing has several different forms which may be characterized by participants of differing skill and experience levels (Hollenhorst, 1987). In the present study, rock climbers

were examined in the context of recreation specialization to help better understand the heterogeneous behavior associated with participation in the sport.

Purpose of Study

The purpose of this study was to develop and operationalize the concept of specialization as it relates to rock climbing. This study developed and tested a multi-attribute index for measuring and categorizing activity specialization of rock climbers. As an extension to previous rock climbing studies, this study also examined the preferences of rock climbers for the ecological character of the environment by measuring preferences for the physical characteristics of climbing routes and general recreational settings. This study examined the following questions:

- What specific setting and route attributes do rock climbers prefer?
- Overall, do climbers prefer the attributes related to the rock climbing route or the general recreational setting?

Use of the specialization index as a heuristic management tool would help managers identify who is participating in rock climbing and help understand users' attitudes and preferences towards specific environmental attributes. Findings would also suggest to land managers how to increase user satisfaction across the entire specialization spectrum and in turn help to avoid "recreation triage" (Ewert, 1986; Hollenhorst, 1987), a condition in which managers inadvertently cater to one specific user group.

Data Collection Procedures

Seneca Rocks Recreation Area, located in Pendleton County, West Virginia in a remote area of the Appalachian Mountains, was selected as the study site. The recreation area lies on US Forest Service land and offers a variety of recreational opportunities including over 400 rock climbing routes. The study site was selected because it draws a representative sample of rock climbing enthusiasts according to a study conducted by Botkin (1985).

The subjects were delimited to people participating in rock climbing and explicitly excluded people engaging in other related activities such as rappelling and hiking. Climbers were asked to fill out the survey as they exited the rock climbing area. The participants were also asked whether they had completed the survey on a previous occasion to help control for duplication. A total of 263 surveys were collected over the administration period between June 23 and August 12, 1996. Ten individuals refused to complete the survey, creating a response rate of 97 percent.

Instrumentation

A multi-attribute specialization index was developed to help measure the heterogeneous behavior associated with participation in the sport of rock climbing. Seven indicators were utilized to measure three behavioral aspects of specialization including skill level, prior experience, and commitment. These indicators were standardized through a Z-score transformation and additively combined to create a

specialization index that ranged in score from -10.7 to 15.96. A Cronbach's Alpha was utilized in order to test the internal consistency of the 7 items. One of the items was eliminated from the scale when reliability analysis revealed that it did not contribute to the overall specialization index. The remaining six items of the specialization scale obtained a reliability coefficient of .81. The Alpha coefficient for the testing of the relative homogeneity of the specialization index exhibited a strong degree of internal consistency among the indicators employed to construct the index and thus the specialization index was judged to be sufficiently reliable.

To measure climbers preference for environmental attributes related to the general recreational setting (the rock climbing area) and the rock climbing route, participants were asked to rate the importance of statements relating to the physical attributes of both the rock climbing route and the general activity area. This was done on a seven-point rating scale with responses ranging from "not important" (1) to "very important" (7). Subsequently, each set of questions relating to either the general setting or rock climbing route were combined to create a general setting score and a route attribute score, respectively.

Analysis

Pearson Correlation coefficients were used to analyze the relationship between the specialization index and preferences for both general setting attributes and rock climbing route attributes. The specialization index was further divided into high specialists and low specialists consistent with other specialization studies (Wellman, Roggenbuck, & Smith, 1982). High specialists were defined as the upper quartile (upper 25%) and low specialists as the lowest quartile (lowest 25%). Subsequently, Paired T-Tests were utilized to compare preferences for route and setting attributes between high and low specialists.

Table 1: Pearson Correlation Coefficients Between the Specialization Index and the Importance of Physical Setting Attributes (n = 257)

Attributes	Mean	Pearson r	Two-Tailed Probability
High Mountain	4.05	.001	.987
No Evidence Of Man Made Features	4.39	-.076	.226
Natural Lakes and Streams	4.93	-.075	.233
Availability of Potable Drinking Water	3.72	-.231	.000
Seeing Wildlife	4.21	.079	.204
Rugged Terrain	4.23	.042	.500
Scenery of Area	5.54	-.015	.805
Condition of Access Trails	3.16	-.164	.008
Cleanliness of Area	5.54	.001	.981
Short Length of Approach	4.55	-.226	.000

Table 2: Pearson Correlation Coefficients Between The Specialization Index And Physical Route Attributes (n = 257)

Attributes	Mean	Pearson r	Two-Tailed Probability
Scenery Viewed From Climb	5.23	.141	.023
Natural Condition Of Climbing Route	5.69	.079	.208
Not Seeing Manmade Features On The Climb	4.5	-.050	.424
Cleanliness Of The Climb	5.54	.076	.225
High Degree Of Naturalness On The Climb	5.42	.006	.923
Presence Of Bolts	5.02	-.042	.505
Length Of Climb	4.71	.023	.708
Presence Of Permanent Top Rope Anchors	4.36	-.226	.000
No Loose Rock	2.83	-.015	.811
Difficulty Level Of The Climb	4.95	-.039	.532
History Of Climb	3.37	.107	.087
Quality Of Route	5.81	.295	.000
Type Of Climb	4.61	-.078	.212
Amount Of Exposure	4.53	.051	.415
Natural Features Of Climb	4.5	.092	.139

Table 3: Paired T-Tests for High Specialists and Low Specialists on Route Attribute Score and Setting Attribute Score.

Variable	N	Mean	St. Dev	St. Error	T Value	2 Tail Prob.
<i>High Specialists</i>						
Route Attributes	56	4.89	.67	.09	3.17	.002
Setting Attributes		4.58	.92	.12		
<i>Low Specialists</i>						
Route Attributes	55	4.69	.68	.09	3.51	.001
Setting Attributes		4.34	.63	.08		

The results of the Pearson Correlations between the specialization index and general setting attributes would seem to confirm that, as specialization increases, the preference for specific physical setting attributes becomes more extreme. There were three specific setting attributes that were significant at the .05 level. "Availability of potable drinking water", "condition of access trail", and "short length of approach" all showed a significant negative correlation. As specialization increases these variables would seem to be less important to rock climbers' preferences for a rock climbing area. (Table 1)

Secondly, the results of the Pearson Correlations would seem to confirm that, as specialization increases, the

preference for specific physical route attributes becomes more extreme. There were three specific route attributes that showed a significant correlation at the .05 level. "Scenery viewed from the climb", and "quality of the route" showed a significant positive correlation while "presence of permanent top-rope anchors" showed a significant negative correlation. It would seem that as specialization increases, "Scenery viewed from the climb" and "quality of the route" become more important to climbers' preference of a climbing route. It would also seem that as specialization increases the "presence of permanent top-rope anchors" becomes less important to a climber's choice of a rock climbing route. (Table 2)

The results of the Paired T-tests would seem to confirm that high specialists show a stronger preference for physical route attributes than for physical setting attributes. High specialists ($p = .002$) overall showed a stronger preference for the route attributes than the setting attributes. It was found that low specialists ($p = .001$) also demonstrated a significantly higher preference for route attributes than setting attributes, although not as strong as high specialists. (Table 3)

Discussion and Implications

The findings would suggest that rock climbers are more concerned with the attributes of the rock climbing route than the general recreational setting. Therefore, managers could channel rock climbers into areas that are not in pristine condition, closer to the trail head, and in areas that are generally unappealing to other recreational users. To cater to low specialists, these sites could be equipped with permanent top-rope anchors since it was found that this attribute became more important as specialization decreased. Since high specialists are less concerned with the length of approach than low specialists it would make sense to channel high specialists into a more pristine and backcountry setting. Channeling rock climbers into appropriate areas could be accomplished through distribution of informational brochures or the establishment of appropriate trail signage.

Land managers and park officials are currently developing climbing management plans to be able to manage the recent influx of rock climbers into their areas. Many land managers and agencies are struggling with whether or not fixed and permanent anchors (i.e. bolts, pitons, and rappel anchors) should be allowed in their management areas. Specialization does not seem to have any relationship to "presence of bolts", "degree of naturalness", "not seeing manmade features on the climb", and "natural condition of climbing route". However, as mentioned earlier, this may be due to current acceptable practices in the sport. Climbers, regardless of what route they are on, may actually expect to find bolts, anchors, and other manmade features. This acceptance of current practice may render these attributes moot in terms of route selection preferences.

In the future, it would benefit land managers to conduct research on the issue of fixed protection (i.e. bolts, rappel

anchors, belay/rappel stations). Is this an acceptable practice in rock climbing and how would the elimination/addition of these devices be perceived by climbers? Findings would help provide managers with a basis to make informed resource oriented management decisions that would help protect the environment as well as increase user satisfaction along the entire continuum of climbing activities.

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