

THE ROLE OF RISK PERCEPTION IN A ONE-DAY WILDERNESS WHITEWATER RAFTING TRIP

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Abstract

The purpose of this study was to gain a deeper understanding of motivations to participate in a wilderness whitewater rafting trip. Particularly this study examined the importance of perceived risk as a motivator for participation and the change in risk perceptions between different sections of river and from pre to post trip assessments. The study was conducted with a sample of individuals participating in a rafting trip through Section III (n=98) and Section IV (n=104) of the Chattooga River, a Wild and Scenic River on the Georgia-South Carolina border. Descriptive statistics revealed that “interacting with family and friends” and “enjoyment of nature/pleasure” were the most important motivations for participation in a rafting trip. T-test analyses showed that perceptions of the amount of risk involved in the rafting trip decreased significantly from pre to post measurements in both river sections ($p < .05$). Furthermore, perceptions of the amount of risk involved in the rafting trip was significantly higher for Section IV participants than for Section III participants ($p < .05$). Lastly Section IV participants were significantly more motivated by “allure of danger/risk/challenge” than their Section III counterparts ($p < .05$). The two groups did not differ with respect to the motivational factors of “interacting with family and friends” and “wilderness experience” ($p > .05$). Theoretical and managerial implications of these results are discussed.

1.0 Introduction

Risk-based outdoor recreational activities continue to experience rapid growth in popularity, variety and

variations of activities participated in, and destinations of travel. While current research indicates this trend will continue to expand in the foreseeable future, research focused on why patrons desire to participate in these types of activities and how they perceive the risk associated with such experiences is inadequate. This study took place at the Chattooga Outpost of the Nantahala Outdoor Center (NOC) utilizing clientele who had participated in a rafting trip on either Section III or IV of the Chattooga River, a Wild and Scenic River located on the Georgia-South Carolina border. Section III is relatively mild-mannered and contains primarily Class I, II and III rapids and numerous large, deep pools. Section IV, considered to be one of the most difficult and dangerous rivers commercially rafted in the United States, is steep, often violent, with numerous natural hazards inherent to the river.

2.0 Objectives

This study was undertaken to gain a deeper understanding of motivations for participation in a wilderness whitewater rafting trip, particularly the role that risk perception plays in the experience. That is, do patrons participate because of the risk or in spite of it? A further understanding of risk as a motivator or deterrent for participation may prove valuable to managers within the whitewater rafting industry as well as land managers and agencies as they strategize the policies and procedures needed to meet the ever growing number and diversity of users. This study was also designed to discover if clientele on the two sections of river had differing levels of risk perception and if their perception of risk changed as a result of rafting the river. In addition, this research project determined how clientele first came to know of rafting on the Chattooga River, information that can be utilized by outpost management in designed more effective marketing campaigns. This information may assist managers in further understanding motivations for participation in whitewater rafting and aid in designing marketing messages that will be more appealing to specific types of customers.

3.0 Literature Review

Recent studies have shown that participation rates in a variety of outdoor recreation activities increased 10 percent between 1998 and 1999 (Bricker and Kerstetter 2002). With over 30 percent of American soil controlled by federal land and resource management agencies, few issues are more significant for federal managers and guides and outfitters today than the dramatic increase in participation rates of outdoor recreation activities, including adventure recreation, and the growing phenomenon of risk as a sought-after component of these activities (Bricker and Kerstetter 2002; Ewert, Galloway, Estes 2001). This concept has been extremely visible in the growing popularity of adventure recreation, an offshoot of outdoor recreation, as a leisure pastime. Adventure recreation activities include backpacking, mountain biking, whitewater river rafting, wilderness camping, mountain climbing, whitewater canoeing, SCUBA, spelunking, and others (Ewert 1990).

The Chattooga River, considered by many to be one of the most difficult and dangerous rivers commercially rafted in the U.S., was originally rafted in 1971 by three companies, NOC, Southeastern Expeditions, and Wild Water Ltd. After inclusion into the Wild and Scenic Rivers Act in 1974 these three companies were grandfathered commercial permits by the USFS to take clientele down Sections III and IV of the river. From 1971 to 1984 records regarding total number of participants taken down the Chattooga River were not kept by NOC. Payson Kennedy, founder of NOC, supplied river numbers from 1985 to 2003 regarding the amount of people NOC has taken down the river. Numbers have fluctuated between a low of 8,158 clients in 1986 to a high of 17,267 clients in 1996. The average number of participants/calendar year that float the Chattooga River with NOC from 1985 through 2003 is 13,026.

Adventure recreation was defined by Mobley (1985) as an activity “often tied to outdoor pursuits that involve an obvious possibility of physical injury” (p. 13). The risk associated to these outdoor pursuits is most noticeably the possibility of physical or psychological injury. This could include minor injuries, major injuries,

environmental injuries, emotional injuries, and death (Tholkes 1998). From these possibilities the individual must confront anxiety about what is unknown to them (Miles 1978). The trend of pursuing risk as a component of adventure recreation continues to develop and evolve. In 2003, more than 300 adventure races were held in the U.S., a number which is expected to double in 2004 (Sieger 2003). Overall, adventure recreation pursuits symbolize one of the most rapidly growing recreational activity segments in the world (Ewert et al. 2001).

“Risk,” as defined by Webster (1973), “is the possibility of loss or injury; peril” (p. 1000). Risk can be further defined as being either actual (objective) or perceived (subjective). Ascertaining actual risk includes an evaluation of the hazards inherent with the activity through a critical assessment (Pedersen 1997). Measuring or assessing actual risk, as described by Guthrie (1997), could include an evaluation by experts, review of statistics and accident reports, classes, books, journals, personal observation and reflection on the experience, and critical thinking. Davis-Berman and Berman (2002) assess actual risk entailing the actuarial approach; looking at past data regarding such variables as numbers of participants, figures concerning injury/illness/death, etc. in a variety of pursuits. This objective assessment of risk looks at the likelihood of an event and the consequences of the said event.

Perceived risk is often viewed as the risk associated with the activity as perceived by the participant (Guthrie 1997). Cheron and Ritchie (1982) described perceived risk as a “multidimensional psychological phenomenon which influences individual perceptions and decision process” (pg. 140). It also “...involves a subjective perception of the potential for injury or death inherent in an activity” (Davis-Berman & Berman 2002). Robinson (1992) defined it as “...how individuals perceive situational risk relative to their perceived confidence to deal with that risk” (p. 53) Research has shown that when evaluating perceived risk the participant must weigh two distinct factors: the chance of failing to accomplish the goal (outcome) and the consequence of failing (harmless to fatal) (Robinson 1992).

The topic of perceived or subjective risk warrants further investigation because, as continually demonstrated in research, people generally have misperceptions regarding a variety of everyday occurrences. One of the most recognized examples of an event with a high perception of risk is a person being attacked by a shark while swimming in the ocean. However, fewer than 1 in 6 million people will be attacked by a shark which will result in hospitalization and less than 1 in 578 million will be killed in a shark attack (Ropeik & Holmes 2003). Simply stated, a person is 19,593 times more likely to die from contracting skin cancer than from a shark attack. Brannan et al. (2002) also discovered that the greater the amount of experience, the lesser the perception of risk. Cheron and Ritchie (1982) summarized that perception of risk is largely founded on prior experience and that perceived risk declines as individuals become more familiar with an activity. Whitewater rafting is perceived by many people unfamiliar with the activity to harbor a high level of risk. In a study originally researched by Cheron and Ritchie (1982) and expanded upon by Brannon et al. (1992), the general public's perception of various aspects of risk for 24 well-known recreation activities was determined. The study had participants rate numerically from 0 (no risk) to 8 (high risk) according to the amount of risk (physical and psychological) they believed each stated activity to contain. In regards to the public's perception of "risky" activities, whitewater rafting ranked third overall behind skydiving and rock climbing as an activity with a high level of risk.

Individuals who are motivated to participate in adventure recreation activities because of the risk have been studied, most notably, by Guthrie (1997), Helms (1983), Robinson (1992), and Tholkes (1998). According to Robinson (1992), participants in common adventure recreation activities are attracted to the activity for two reasons: (1) a need to be mentally aroused through an activity which has, at least on the outside, a perception of being dangerous; and (2) participants with a strong regard for self direction. This need to be aroused has been researched by Zuckerman (1979) who defined it as, "sensation seeking," or "as the need for varied, novel and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experiences" (p. 10).

Why do people leave the relative safety of their lives to experience adventure recreation activities such as whitewater rafting, mountain climbing, or wilderness backpacking? Guthrie (1997) conducted research regarding motivational factors for participation in both high and low risk recreation activities. Regardless of the nature of the activity (high or low risk), individuals participate for the enjoyment of nature, physical fitness, pleasure, tension reduction, escape/rest, excitement, and beauty. Additional reasons for participation include the allure of the risk, adrenaline rush/tension release, testing abilities, the allure of challenge and uncertainty, self actualization (Yaffey 1990), and for a search for competence (Ewert and Hollenhorst 1990). Through participation in an activity, participants frequently describe a euphoric feeling of total control, where only they are in complete control of their destiny (Cahill 1986). Outdoor and Adventure Recreation oriented activities are also participated in for social reasons. This shared participation may potentially foster the edifice of the concept of team and teamwork and promote the growth of personal bonds.

Extensive research has been completed into the biological theories of why people choose to participate in activities which harbor the very real possibility of physical or psychological harm. These theories of participation have been adopted into Priest's Dimensions of an Adventure Experience (DAE) and are: Sensation Seeking (Zuckerman 1979), to experience a "Flow" like state (Csikszentmihalyi & Csikszentmihalyi 1991), and arousal through the release of endorphins (Ellis 1973; Jones and Ellis 1997). Priest's DAE was designed and developed to further explain adventure recreation activities and pursuits (Priest and Carpenter 1993). The model depicts the relationship connecting the risk (actual) of an activity and the competence level of the participant in the activity on an X-Y axis. The X axis, which represents risk, describes it in relation to the environmental orientation (developed versus natural), social orientation (programs and courses versus peers or solo), actual risk (low versus high), and the factors of eustress, distress, and fear. The Y axis explains competence in relation to attitudes and abilities, skill and experience level (low versus high), frequency of participation (low versus high), and locus of control (external versus internal).

4.0 Methods

The data were collected utilizing a mixed-method design incorporating both quantitative and qualitative data collection techniques. Interviews and surveys were administered to clientele who had participated in a rafting experience with NOC on either section III and IV of the Chattooga River along the Georgia/South Carolina border. Collection was commenced on May 17th and concluded on June 25th 2004 ensuring information was collected from both the “shoulder season” and the “peak season.” The author accessed patrons for completion of both the survey instrument and face to face interviews after arrival post-trip at the outpost. The survey instrument was administered every fourth day per section for 6 weeks on a rotating schedule of days between the two sections. Of Section III clientele, 105 agreed to complete the instrument and seven refused to participate providing a participation rate of 93.8 percent. Of Section IV clientele, 110 agreed to complete the survey instrument and six refused to participate for a participation rate of 94.3 percent. In addition, 15 interviews were conducted; five with Section III participants and ten with Section IV participants. The participation rate was 100 percent for interviews as all who were asked to participate agreed to answer interview questions. Interviewee participants were also selected utilizing a random sampling technique and were interviewed following a standardized open ended format. The survey instrument and face to face interviews were not administered at the same time because there was not enough time for study participants to complete both. The information obtained during the qualitative portion of the data collection phase was analyzed as an ongoing process throughout the duration of the study and select comments were included as a supplement to the quantitative information.

5.0 Results

5.1 Description of Sample Population

A total of 202 customers of NOC completed the survey instrument. Additionally 15 other individuals participated in brief interviews regarding their experience on the river. Section III respondents were evenly distributed between genders Section IV respondents were not as evenly distributed as 66 percent of respondents

were male and 34 percent were female. Of Section III respondents, 78 percent were between 35-54 years of age with the most frequent distribution being individuals 45-54 years of age. Of all Section IV respondents, 58 percent were between the ages of 25-44. These figures indicate a general trend towards younger rafters choosing Section IV while slightly older rafters gravitating towards Section III. The majority of respondents for both sections were White (97% on Section III and 95% on Section IV). College graduates, who compromised 37 percent of Section III guests and 32 percent of Section IV guests, were the most frequently represented demographic group for both sections of river. As a general trend, the most frequently reported household income category for both Section III and IV is \$100,000 to \$200,000.

Survey respondents were asked to indicate if they had prior experience whitewater rafting. The majority of survey respondents (69% of Section III guests and 71% of Section IV guests) reported as to having previously participated in a whitewater rafting experiences. Of survey respondents who had participated in prior whitewater rafting experiences, 46 percent indicated they rafted one to two times prior. Thirty-two percent of Section III and IV guests had rafted 3-5 times prior and 13 percent of Section III and IV guests had rafted 6-10 times prior. A substantial percentage of survey respondents had previously rafted the Chattooga River (29% of Section III clientele and 28% of Section IV clientele).

Rafters were asked to list how they first came to know of whitewater rafting on the Chattooga River. Word of mouth accounted for 37 percent of Section III respondents and 62 percent of Section IV respondents. Section III experienced over two times the amount of repeat customers (12.2%) compared to Section IV (5.7%). Comments gleaned from interviews regarding how clientele came to know of Chattooga River rafting are consistent with the aforementioned numbers. One Section III interviewee remarked, “A neighbor filled us in about it a couple of years ago. He was here with a church group or something and they had a great time, told me that if I was ever in this area to check it out and here we are.” Section IV interviewee remarks are also analogous regarding how people came to know of

Table 1.—Frequency Distribution of participant’s primary motivation for rafting the Chattooga River

Primary Reason for Participation	Section III		Section IV	
	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>
Physical fitness	0	0%	0	0%
Try something new	18	18%	5	5%
Nostalgia/chance to reminisce	0	0%	0	0%
Enjoyment of nature/wilderness	18	18%	16	16%
Chance to interact with family and friends	25	26%	36	34%
Allure of danger/risk taking/adrenaline	7	7%	11	11%
Fun/enjoyable way to spend the day	30	31%	36	34%
Total Respondents	98	100%	104	100%

whitewater rafting with NOC on the Chattooga River. “I found out about you guys in a brochure” was a comment voiced by several interviewees.’ “I had never heard of this place until 2 days ago, we came across a brochure at the welcome center in Helen, Georgia and decided to go for it.” Another interviewee was quoted as saying, “I heard about you through my uncle and the internet. I did a search on Google and you all (referring to NOC) popped up.”

5.2 Primary Motivations

Survey respondents were asked to indicate their primary reason for engaging in a whitewater rafting experience. Of combined (Section III and IV) responses, “Fun, enjoyable way to spend the day” received the highest distribution with 33 percent of all responses. Thirty percent of respondents indicated “the chance to interact with family and friends” as their primary reason for participating. “Allure of danger/risk taking/adrenaline” accounted for nine percent of total respondents’ primary motivation for participation. As evident in Table 1, this trend of participating because of the risk is skewed towards Section IV respondents as 11 percent indicated that their primary motive for participation was the allure of danger/risk taking/adrenaline compared to 7 percent from Section III.

Regarding Section III respondent’s primary motivation for rafting, 31 percent indicated that their primary

motivation for participation was that it was “a fun enjoyable way to spend the day.” This also came to light in the comments of interviewees. “I guess we came in spite of it (when asked what role risk played in their decision to go rafting). Actually it wasn’t even a major consideration. We wanted to get out and do something together, as a group, in the out-of-doors, and this seemed like it fit the bill perfectly. A little bit of anxiety isn’t all bad either.” Of Section IV survey respondents, 34 percent indicated their primary motivation for participation was the chance to interact with family and friends. “We were looking for fun and fellowship” one Section IV interviewee respondent remarked. “These guys I have had in fellowship for 4 to 5 years and we wanted to do something all together before they head off to college next fall.”

As previously mentioned, 11 percent of Section IV survey respondents indicated that their primary reason for participating in a wilderness whitewater rafting trip was for the allure of danger/risk taking/adrenaline. This figure was also given support by interviewee comments: “we were looking for a setting in which students were forced to take risks they otherwise normally wouldn’t take. So as an educator we had deliberate, risk based goals. I mean we deliberately choose Section IV to help foster group development and teambuilding. We came here and ran Section IV for a very specific reason, because of the increased risk.”

5.3 Risk Perceptions

Survey respondents were asked to indicate their pre and post-trip feelings regarding the danger/risk associated with the river via a five-point Likert-type scale (5 = strongly agree, 1 = strongly disagree, and 3 = neutral). In every instance respondents reported that they felt the river was less dangerous post-trip than they originally envisioned it to be before the trip. Results from a paired samples T-Test revealed that respondents' perceptions of risk significantly decreased from pre to post-trip on Section III ($p = .000$). Likewise, results from a paired samples T-Test revealed that respondents' perception of the risk on Section IV significantly decreased from pre to post-trip ($p = .000$).

In addition, it was hypothesized that Section IV respondents would have higher pre-trip perceptions of risk than Section III respondents. Results from a one-tailed T-Test supported this hypothesis ($p = .000$). Likewise, it was hypothesized that Section IV respondents would have higher post-trip perceptions of risk than Section III respondents. Again, one-tailed T-Test analysis supported this hypothesis ($p = .000$).

Finally, it was hypothesized that survey respondents, depending on what section of river they had rafted, would have different reasons for participating in a wilderness whitewater rafting experience. Section IV participants were significantly more motivated by "allure of danger/risk/challenge" than their Section III counterparts ($p < .05$). However, the two groups did not differ with respect to the motivational factors of "interacting with family and friends" and "wilderness experience" ($p > .05$).

6.0 Conclusions & Implications for Application

6.1 Conclusions

This research has shown that the allure of risk plays a small factor in participants' decision to go whitewater rafting on the Chattooga River. Descriptive statistics

Figure 1 - Section III
Frequency Distribution of Participants Primary Motivation for Rafting the Chattooga River

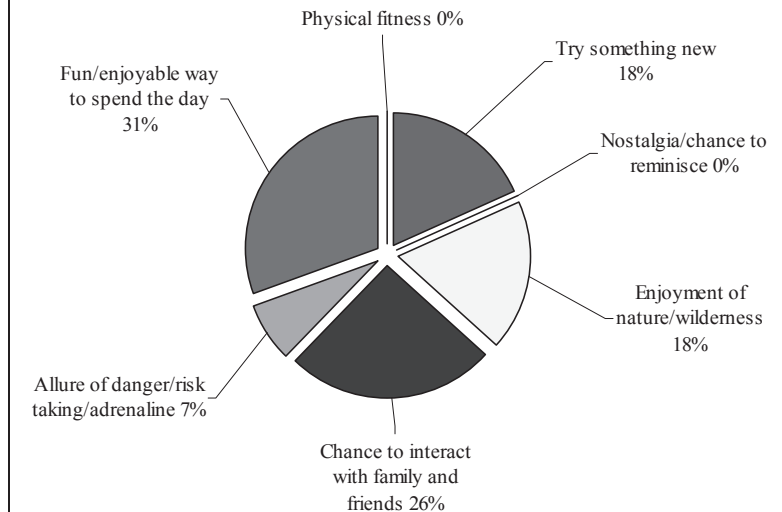
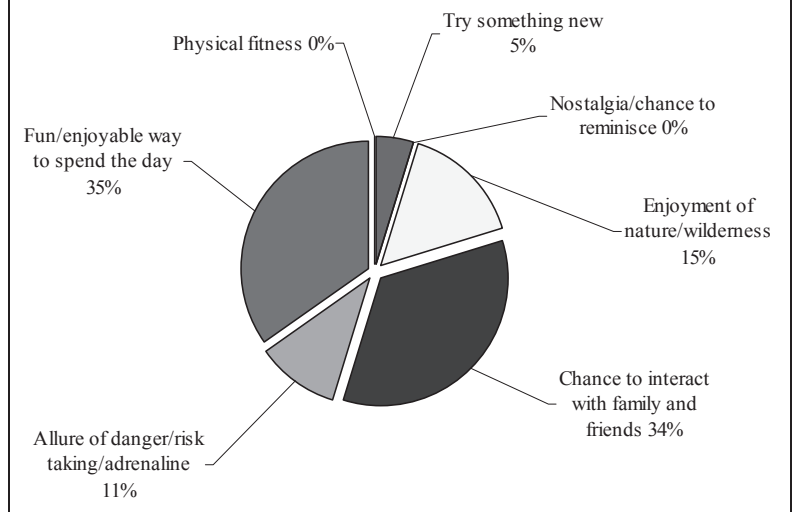


Figure 2 - Section IV
Frequency Distribution of Participants Primary Motivation for Rafting the Chattooga River



revealed that "interacting with family and friends" and "enjoyment of nature/pleasure" were the most important motivations for participation in a rafting trip regardless of the section of the Chattooga River rafted (III or IV). T-test analyses indicated that perceptions of the amount of risk involved in the rafting trip decreased significantly from pre to post measurements in both river sections. While it was beyond the scope of this study the authors speculate that it could be attributed to a number of different factors, including but not limited to experience of the guide, water level and temperature,

Table 2.—Frequency distribution of participants’ feelings/emotions about the risk/danger associated with rafting the Chattooga River prior pre-trip

Pre-trip Feelings/ Emotions	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Extremely dangerous/ high risk (Section III) ^a	3	3.0%	9	9.2%	42	42.9%	40	40.8%	4	4.1%
Extremely dangerous/ high risk (Section IV) ^a	7	7.7%	36	34.6%	34	32.7%	21	20.2%	6	5.8%

^a N=98 of Section III respondents and N=104 of Section IV respondents

Table 3.—Frequency distribution of participants’ feelings/emotions about the risk/danger associated with rafting the Chattooga River post-trip

Post-trip Feelings/ Emotions	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Extremely dangerous/ High risk (Section III) ^a	2	2%	7	7%	35	36%	45	46%	9	9%
Extremely dangerous/ High risk (Section IV) ^a	3	3%	21	20%	33	32%	41	39%	6	6%

^a N=98 of Section III respondents and N=104 of Section IV respondents

weather conditions, differences in rafts, etc. It would be important to further probe into these potentially critical factors. It was also determined that perceptions of the amount of risk involved in the rafting trip were significantly higher for Section IV participants than for Section III participants. Lastly Section IV participants were significantly more motivated by “allure of danger/risk/challenge” than their Section III counterparts. The two groups did not differ with respect to the motivational factors of “interacting with family and friends” and “wilderness experience.”

6.2 Implications for Application

Of particular interest for whitewater rafting managers is the overwhelming response that social reasons are their

primary motivation for participation. This is in spite of a marketing focus on Section IV that promotes it is “high adventure.” Also of interest to the commercial whitewater industry is the data of how clientele first came to know of Chattooga River Rafting. “Word of mouth” represented how 37 percent of Section III respondents and 62 percent of Section IV respondents came to know of Chattooga River rafting with the NOC. These figures may be tied to the high level of customer satisfaction that NOC strives to provide its clientele, possibly resulting in customers recommending the trip to their family, friends, and neighbors. Other notable ways that clientele came to know of Chattooga River Rafting include the internet and brochures.

The following marketing recommendations are based on the results of this study and were provided to NOC Management.

- Consider target marketing return guests. Figures indicate nearly one in three customers have previously rafted the Chattooga River. Also, word of mouth advertising from past customers was very important.
- Continue efforts to have river guides return to work successive seasons. Veteran guides are more skilled and knowledgeable about the river and its many features and history which may make clientele more inclined to recommend a rafting trip to family/friends.
- Discontinue advertisement utilizing billboards. Of 202 questionnaire respondents, zero indicated they had come to know of Chattooga River Rafting with NOC by means of billboards.
- Consider shifting marketing focus of Section IV to include “chance to interact with family and friends” and “fun/enjoyable way to spend the day.” While the lure of risk is an undeniable component of a Section IV rafting trip it is by no means the only or most significant motive that clientele choose to participate.

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