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PREDICTORS OF MOTIVATION TO PARTICIPATE  
IN WHITEWATER KAYAKING

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A Thesis  
Presented to  
the Graduate School of  
Clemson University

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science  
Parks, Recreation, & Tourism Management

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by  
Jon Doff Evans  
December 2012

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Accepted by:  
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## ABSTRACT

Whitewater kayaking has grown in popularity over the past two decades (NSRE, 1994; NSRE, 2000). Because of this growth a better understanding of participants motivations could assist vendors, programmers, and decision making bodies for the future of the sport. The intent of this study is to explore the differences between the demographic variables age, sex, and skill level on the motivations to participate in whitewater kayaking. A secondary purpose was to assess the differences between the basic psychological needs (i.e., autonomy, competence, and relatedness) and motivation to participate in the sport of whitewater kayaking.

Whitewater enthusiasts were recruited from across the United States via online forums to participate in a survey to identify basic needs and motivations. The basic psychological needs theory (Deci & Ryan, 1985) and the leisure motivation scale (Beard & Ragheb, 1983) was used to measure the motivations of whitewater kayakers. A self-identifying questionnaire focusing on age, gender, region, and whitewater class provided socio-demographics while a Likert-type scale was used for the quantitative statistics. Literature pertaining to outdoor recreation suggests leisure motivations and basic psychological needs play a role in the reasons for participation (Galloway, 2011; Mota & Esculcas, 2002; Netz & Raviv, 2010; O'Connell, 2010).

The findings of this study largely support the literature suggesting a difference among leisure motivations, basic psychological needs, age, and skill. While limitations do exist pertaining to self-reporting, the implications of this study include programming, trainings, marketing, and safety education for whitewater kayakers.

## DEDICATION

This thesis is dedicated to my wonderful wife Kate. Without her enduring love and support this academic achievement would not have been possible. I am, and always will be “loving me some buddy!”

## ACKNOWLEDGMENTS

I would like to thank my committee for their guidance throughout this project. Each committee member played a key role in this research, from concept to completion, and without his or her leadership this would not have been possible. Thank you.

“What nobler employment, or more valuable to the state, than that of the man who instructs the rising generation.” - *Marcus Tullius Cicero*

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## CHAPTER ONE

### INTRODUCTION

Whitewater kayaking is one of the fastest growing outdoor sports in the United States. From 1994 to 2000, kayaking grew from 2.6 million participants to 6.8 million participants (NSRE, 1994; NSRE, 2000). With an increase of 4.2 million kayakers in four years certain problems have developed which affect the experience. Overcrowding, conflict among boaters and private landowners, and more strict government regulations are some of the primary concerns that can affect whitewater kayakers motivations to paddle at certain times or rivers. However, many benefits exist to participating in whitewater kayaking such as an independent feeling of choice, development of skills and competence, and social dynamics, which play a key role in this increase in popularity (NSRE, 1994).

Very few studies pertaining to whitewater kayaking have been conducted and those that have focus primarily on the social aspect (Turner & Zwick, 2002; Whiting, 2011) or the extreme nature of the sport (Brymer, 2010). Tourism studies have been conducted regarding nature-based tourism (Mehmetoglu, 2007) to establish how kayakers as tourists impact the rivers they paddle. Site based tourism, or site preference, has also been studied within the whitewater community (Galloway, 2010; Lee, Graefe, & Li, 2007; Morgan, Moore, & Mansell, 2000) which offers insight into why kayakers prefer specific rivers. Motivations have been included in many studies of kayaking (Galloway, 2010; Lee et al, 2007; Ruiz-Juan et al, 2010) but only in supporting the role of the larger instrument or concept for example. This indicates a need for studies to place an emphasis

on motivations of kayakers to validate or challenge any assumptions people may have regarding whitewater kayakers.

### Background

Whitewater kayaks are hard shell, plastic boats that are highly maneuverable and designed to navigate tight waterways where rocks and other waterborne obstacles are present. Kayaks come in three varieties (1) river running boats designed to navigate a river quickly, (2) creek boats which are designed for extremely tight passages that include small waterfalls, and (3) play boats which are designed for aerobatics and surfing created by waves. Certain pieces of equipment are essential for whitewater kayaking such as a safety helmet, personal flotation device, paddle, spray skirt, and special safety equipment.

The International Scale of River Difficulty categorizes whitewater rivers by classes. American Whitewater provided the following definition of this classification system:

“Class I rapids are easily navigated, class II rapids are straightforward with no need to scout, class III rapids have moderate irregular waves, class IV rapids have Intense, powerful but predictable rapids requiring precise boat handling in turbulent water, class V rapids are Extremely long, obstructed, or very violent rapids which expose a paddler to added risk, and class VI rapids have almost never been attempted and often exemplify the extremes of difficulty, unpredictability and danger.” (AW, 1999-2012)

One limitation to the classification system is the subjectivity of difficulty when rating a rapid (Schuett, 1993, p.70). The scale is subjective and based on personal style and preference. Kayakers’ understanding of these ratings is often based on their own experiential knowledge. For example, one rapid in a specific region may be rated as class III while in another region the same rapid may be rated at class III+ based on the

experience or expertise of the kayaker. Subtle features of a rapid may be the deciding factor regarding a kayaker's motivation for attempting the rapid. Part of the intent of this study is to learn what motivates kayaker's to decide to attempt certain classes of rapids and if the kayaker's age or gender is related to that motivation.

It is also important to understand that kayaking is an inherently dangerous sport and requires a specific skill set to participate safely (Fiore, 2003). Serious injury and death are both potential outcomes of participation in the sport. In addition to understanding the safety risks, one should also understand that outdoor recreation is a traditionally male pursuit and kayaking is no exception (Bialeschki & Henderson, 1993; McDermott, 2004). These gender differences exist because of socially prescribed and accepted roles and directly impact female participation (McDermott, 2004). Of the nuances understood to be true about whitewater kayaking, the motivations of kayakers have remained largely unexplored.

Whitewater kayakers have enjoyed river travel for many years and the motivations of paddlers have been assumed for just as long. Kayakers supposedly enjoy this sport as a way to express personal achievement, skill based activity, and social bonding through leisure (Dingle & Kiewa, 2006; Fluker & Turner, 2000; Lee, Graefe, & Li, 2007; Morgan, Moore, & Mansell, 2000). These key components of a sport, which continues to grow, provide the foundation for commitment to kayaking as a personal leisure pursuit. Self-Determination Theory (SDT), introduced by Deci and Ryan (1985) will provide the framework for this study. SDT focuses on the self and how motivations affect behaviors. Three tenets must be met in order for self-determination to be met and

those tenets are autonomy, competence, and relatedness to others. Falling along a continuum of amotivation or the lack of motivation, extrinsic motivation which is regulated by external controls, and intrinsic motivation which comes from the internal self provides the two-way scale where autonomy, competence, and relatedness impact behaviors.

Motivations of kayaker's will be a key aspect within this study for determining the why of participation. Many studies suggest the motivation for participation can be as varied as the activities themselves. The important question remains why do people engage in those activities? Some studies suggest fitness, social grouping, and skill mastery while others have more simplistic results such as enjoying nature, new surroundings or to get away from their everyday life (Galloway, 2010; Gerson, 2002; O'Connell, 2010). Better understanding kayakers motivations related to autonomy, competence, and relatedness can help identify what programs should be offered in the future, trainings that can benefit individual paddlers as well as groups, and the role social worlds play within kayaking. Therefore, if a relationship between BPN and motivation is established then it is important to not only understand this relationship but work within this framework to provide better standards and programs for kayakers.

Literature suggests that adults possess different perceptions related to competence and autonomy based on their age and sex (Ryff, 1991). These perceptions change as people age and their motivations toward psychological needs shift (Ryff, 1991). These findings suggest that age and sex also should be studied to ascertain how they relate to kayakers' motivations. It is the intent of this study to explore whether a kayaker's age

and/or sex have a relationship with autonomy, competence, or relatedness and how a kayaker's age/sex may determine what level of motivation the individual has for the sport. For example, do men or women rate higher in one of the tenets of SDT and how does that relate to their participation? Or, does age impact a kayaker's decision to paddle a higher or lower class of rapids due to preference or enjoyment? It is important to understand these shifts and changes in perceptions related to age and sex within kayaking to best understand why people participate and to what extent their participation is affected by these demographic variables.

#### Purpose Statement

As more people find the sport of kayaking, understanding their motivations for participation will be needed for advancement of the sport. To fully understand the whitewater experience a scientific approach to examining the relationship of leisure motivations and basic psychological needs will be required. Therefore, the purpose of this study is to explore the relationship between the demographic variables age, sex, and skill level on motivations to participate in whitewater kayaking. A secondary purpose is to assess the relationship between the basic psychological needs (i.e., autonomy, competence, and relatedness) and motivation to participate in whitewater kayaking.

With a growing popularity in whitewater kayaking, the importance of a study in motivations will: a) assist public knowledge of why people participate in whitewater kayaking; b) demonstrate the complex nature of skill based activity, social aspects, and desire for freedom of choice related to whitewater kayaking; and c) provide a participant

profile for whitewater kayakers motivations to decision making bodies when policies are being written which affect where activities can or cannot occur.

### Research Questions

#### 1. Differences by Age

1a. Are there differences in whitewater kayakers' leisure motivations based on their age?

1b. Are there differences in whitewater kayakers' basic psychological needs satisfaction based on their age?

#### Hypothesis 1:

a. Younger kayakers will have significantly higher levels of leisure motivation than older kayakers.

b. Younger kayakers will have significantly higher levels of basic psychological needs satisfaction than older kayakers.

#### 2. Differences by Sex.

2a. Are there differences in whitewater kayakers' leisure motivations based on their sex?

2b. Are there differences in whitewater kayakers' basic psychological needs satisfaction based on their sex?

#### Hypothesis 2:

a. Male kayakers will have significantly higher levels of leisure motivation than female kayakers.

b. Male kayakers will have significantly higher levels of basic psychological needs satisfaction than female kayakers.

### 3. Differences by Skill Level.

3a. Are the differences in whitewater kayakers' leisure motivations based on their skill level?

3b. Are there differences in whitewater kayakers' basic psychological needs satisfaction based on their skill level?

### Hypothesis 3:

a. High-skill kayakers will have significantly higher levels of leisure motivation than low-skill kayakers.

b. High-skill kayakers will have significantly higher levels of basic psychological needs satisfaction than low-skill kayakers.

### 4. Relationship Between Basic Psychological Needs and Leisure Motivation

4a. Is there a relationship between the three basic psychological needs (autonomy, competence, and relatedness) and leisure motivation?

4b. Which of the three basic psychological needs is the most significant predictor of leisure motivations?

Hypothesis 4: There will be a significant positive relationship between leisure motivation and basic psychological needs satisfaction among whitewater kayakers.

### Definition of Terms

*Self-Determination Theory*: A motivational meta-theory comprised of five mini theories based on motivation and needs (Ryan & Deci, 2000).



*Basic Psychological Needs Theory:* One of five mini theories of Self-Determination Theory what focuses on satisfaction of three basic needs: autonomy, competence, and Relatedness.

*Autonomy:* Experiencing a sense of choice and feelings of initiation of one's own decisions.

*Competence:* Success at challenging situations and achieving desirable outcomes.

*Relatedness:* A sense of reliance upon others, mutual respect, and caring.

*Leisure Motivation Scale:* An instrument to assess and examine the psychological and sociological reasons behind participation (Beard & Ragheb, 1983).

*Intellectual:* "the extent to which individuals are motivated to engage in leisure activities which involve substantial mental activities such as learning, exploring, discovering, creating, or imagining" (Beard & Ragheb, 1983, p. 225).

*Social:* "the extent to which individuals engage in leisure activities for social reasons" (Beard & Ragheb, 1983, p. 225).

*Competence-Mastery:* "the extent to which individuals engage in leisure activities in order to achieve, master, challenge, and compete" (Beard & Ragheb, 1983, p. 225).

*Stimulus Avoidance:* "the drive to escape and get away from overstimulating life situations" (Beard & Ragheb, 1983, p. 225).

*Stimulus Seeking:* The response and individual has when aroused from an environmental interaction.

*Whitewater Kayaker:* A person who navigates rivers or waterways in a hard shell plastic boat.

### Delimitations

This study is delimited to the whitewater kayakers of the online community Boatertalk, Northeast Paddlers Message Board, Paddling.net, Professor Paddle, MountainBuzz, and Playak. Participants were also recruited from the membership of the Foothills Paddling Club and the Missouri Whitewater Association. These delimitations provide access to whitewater kayakers across all regions of the United States.

The study is further delimited to the recruitment of kayaker's without regard for age, sex, or skill sets in the area of whitewater classification.

## CHAPTER TWO

### REVIEW OF LITERATURE

#### Motivation

Motivation is a key aspect in people's everyday life. It is motivation that drives us to act a certain way, seek out certain activities or pursuits, and the driving forces behind behavior. According to Deci and Ryan (1985) the three types of motivators are intrinsic, extrinsic, and amotivation. Intrinsic motivation comes from the self and causes individuals to "seek out novelty and challenges" (Ryan and Deci, 2000, p. 70). For extreme sports enthusiasts these novelties and challenges exist through bungee jumping, rock climbing, mountaineering, and whitewater kayaking to name a few. The novelty surfaces through the experience of participating in activities that have often had fewer participants than more traditional sports. Challenges in the extreme sports world require participants to not only demonstrate specific skills to avoid loss or injury but to master new skills when intrinsic desires cause the participant to increase their level of challenge.

In contrast to intrinsic motivation is extrinsic motivation. Ryan and Deci describe extrinsic motivation as "the performance of an activity in order to attain some separable outcome" (2000, p. 71). When external motivators, also called regulators, are identified, individuals react to forces outside the self. Ryan and Deci (2000) have identified the four types of extrinsic motivators that regulate behaviors as external regulation, introjected regulation, identified regulation, and integrated regulation. Externally regulated actions are performed to gain rewards from outside sources. In the case of whitewater kayakers for example, rewards are gained through paddling classes of rapids that are

commensurate with their skills. Introjected regulation “involves taking in a regulation but not fully accepting it as one’s own” (Deci & Ryan, 2000, p. 72). For whitewater kayakers, introjected regulation will persuade the paddler into accepting certain aspects of the sport but never fully integrating them into his or her lifestyle. For example, the paddler may choose to participate in a higher-class river than what is normally preferred due to social pressures affecting pride, guilt, or ego. The third extrinsic motivator, identified regulation, is the acceptance of a goal as personally important (Deci & Ryan, 2000). The final regulator is integration, which occurs when the individual incorporates the regulators into his or her own ideology and identity. Whitewater kayakers can be fully integrated when all the gear has been purchased, skills acquired, lifestyle adopted, and social circles are formed to meet the desire to kayak.

Amotivation is the final type of motivation where needs and regulators are met with negativity. When this occurs, the motivation for continuing an activity is thwarted (Ryan & Deci, 2000, p. 72). This could also be described as the lack of motivation or behaving with no desire. Figure 2 below exhibits the continuum of motivations as prescribed by Deci and Ryan (2000).

Figure 1: *The Self-Determination Continuum Showing Types of Motivation With Their Regulatory Styles, Loci of Causality, and Corresponding Process (Deci & Ryan, 2000, p. 72)*

Behavior	Nonself-Determined				Self-Determined			
Type of Motivation	AMOTIVATED	EXTRINSIC MOTIVATION				INTRINSIC MOTIVATION		
Type of Regulation	Non-Regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation		
Locus of Causality	Impersonal	External	Somewhat External	Somewhat Internal	Internal	Internal		

Motivations have been studied in various arenas to explain behaviors while also contributing as a piece of much larger research. This section will identify several key uses of motivation, which contribute to studies within recreation and leisure.

#### Recreation and Leisure Motivation

Studies utilizing motivation as key indicators of site preference, tourist motivation and place attachment (Galloway, 2010; Kim & Chalip, 2004; Kyle, Bricker, Graefe, & Wickham, 2004; Lee, Graefe, & Li, 2007; Yoon & Uysal, 2005) illustrate how push and pull factors affect individuals decisions and interactions within leisure. According to Goodale and Godbey (1988), push factors are forces that push us towards an activity as an alternative to other activities. Pull factors draw people toward an activity. Push factors identify the reasons a person will travel to a destination while pull factors involve events, amenities, and attractions. Results of these studies have shown that repeated visits over time develop meaning and attachment to specific sites (Kyle et al., 2004). Results in these studies also show that participants with high levels of experience and motivation rarely seek new destinations while novices or new travelers may often seek out new destinations or attractions.

The relationship between motivations and participation will oftentimes accurately predict outcomes. When people have high levels of intrinsic motivation, coupled with desirable outcomes, participation in recreation and leisure will increase. Conversely, when external regulators are applied, the person's participation will decrease and they, in turn, become amotivated or lack the desire to continue. Recent studies have shown when people are amotivated they do not walk as far or as fast, participate in strenuous exercise

behaviors, or seek new stimuli. However, when intrinsic motivation is high, participants will not only endure longer periods of activity but will return for future participation (Alexandris, Tsorbatzoudis, & Grouios, 2002; Edmunds, Ntoumanis, & Duda, 2006; Pelletier, Fortier, Vallerand, Tuson, Briere, & Blais, 1995; Wininger, 2007).

Motivations affect outdoor recreation participants in many ways. As the research has already demonstrated, people with high levels of intrinsic motivation continue participation, return for future events, and participate for longer periods of time (Edmunds, Ntoumanis, & Duda, 2006). With the establishment of these factors, and their converse of extrinsically motivated participants, a review of literature relevant to outdoor recreational pursuits is needed. Recent studies pertaining to outdoor recreation, particularly water-based pursuits show motivations vary across experiences (Fluker & Turner, 2000). First time kayakers and whitewater rafters identified the opportunity to view wildlife, sharing stories with others, having new experiences, and exploration as the primary motivators for participation (Whiting, Pawelko, Green, & Larson, 2011). Multiple experience participants identified solitude, relaxation, and the social aspect of these activities as motivations. Participants who continue to experience whitewater kayaking or rafting identify the challenging environment and keeping physically fit as their motivators (Fluker & Turner, 2000; Ruiz-Juan, Gomez-Lopez, Pappous, Carceles, & Allende, 2010; Whiting, Pawelko, Green, & Larson, 2011). While most studies focus on the river experience from the rafting or group perspective, it is necessary to investigate the why of whitewater kayaking. This question of why focuses on motivation, which has also been limited in the scientific world and often only used as a piece of the study. This

study may help fill the gap in the literature. The next section will review Self-Determination Theory, one of the most widely used motivational theories in social science.

Self-Determination Theory focuses on the self and examines why people are motivated to behave in certain ways. Little has been written on the subject of Self-Determination Theory and the applicability to whitewater kayaking. Those studies that have used it mainly focus on sports, exercise and attachments. Self-Determination Theory follows a continuum ranging from a lack of motivation, external controls which cause motivation, and how the internal self propels action. It is this lack of scientific data relating to whitewater kayaking that has prompted the need for a study which highlights the motivations and asks the question of why.

#### Self-Determination Theory

Self-Determination Theory (SDT), introduced by Deci and Ryan in 1985, is concerned with a person's internal motivations to participate in a healthy activity. Ryan and Deci (2000) wrote, "it's the investigation of people's inherent growth tendencies and innate psychological needs that are the basis for their self-motivation and personality integration, as well as for the conditions that foster those positive processes" (Ryan & Deci, 2000, p. 68). SDT is a motivational meta-theory comprised of five mini theories based on motivation and needs. As previously stated, SDT has a broad focus of intrinsic and extrinsic motivations. A deeper look into SDT postulates that people are driven to relate, gain or improve skills, and integrate activities into highly personal experiences (Deci & Ryan, 2000). The basic tenets of SDT, which feeds the aforementioned process

and structures, are autonomy, competence, and relatedness. Basic Psychological Needs Theory, a sub-theory of SDT, will be used as a theoretical framework for this study.

### Basic Psychological Needs Theory

Basic Psychological Needs Theory (BPNT) is one of five mini theories under the umbrella of SDT. Deci (1975) proposed that intrinsic motivation requires basic needs to be met in order to gain competence and self-determination. These basic needs are identified as autonomy, competence, and relatedness. Sheldon and Niemiec (2006) conducted a series of studies further investigating these basic needs.

Three studies conducted by Sheldon and Niemiec (2006) hypothesized that balance plays an important role in well-being. SDT states that psychological health requires the satisfaction of all three needs and within the next four studies the examination of that statement was measured. In the first study, Sheldon and Niemiec (2006) hypothesized that balance and satisfaction of autonomy, competence, and relatedness positively correlated with well-being. The sample for study one comprised 315 students, of which 64% were women, from the University of Missouri. To measure well-being and needs satisfaction, Sheldon and Niemiec utilized multiple scales based on Likert scale ranges. In study one Sheldon and Niemiec (2006) found that “initial support for the hypothesis that balanced need satisfaction is beneficial for well-being and is independent of the level of need satisfaction” (Primary Analyses, para. 3).

The second study conducted by Sheldon and Niemiec, which was a short longitudinal study over the course of a college semester with 145 students, used the hypothesis from the first study and a second hypothesis that balance will facilitate



positive change over time. In addition to well-being and need satisfaction a third domain was added titled neuroticism to the study. Three results were reported from study two: 1) the relation of balance in study two was identical to study one, 2) neuroticism indicated a difference in balance, and 3) when overall balance is changed in the needs of autonomy, competence, and relatedness a person's need satisfaction may be a "happiness-increasing strategy" (Sheldon and Niemiec, 2006, p. 336).

The third study conducted by Sheldon and Niemiec (2006) were within-subject variations over shorter periods. Participants were asked to keep a diary and record the ratings of needs satisfaction and well-being "during the last 24 hours at eight different times during a college semester" (Sheldon and Niemiec, 2006, p. 336). Building upon the previous hypotheses, Sheldon and Niemiec predicted a satisfaction of needs on the day-to-day level. For the third study 91 students from the University of Rochester were recruited to participate using the same measures as the previous studies. The results of study three were similar to the second study stating that the balance of needs varies in both long and short studies. These studies demonstrate the role BPN plays in balance and happiness.

It is also important to review literature pertaining to psychological needs satisfaction in exercise to better understand how the application of said needs affect individuals. Using SDT as the conceptual framework for measuring psychological needs, Vlachopoulos and Michailidou (2006) operationalized an instrument consisting of thirteen items relating to autonomy, 10 items relating to competence, and eight items specific to relatedness to measure needs in exercise. With a sample size of 508

participants, Vlachopoulos and Michailidou hypothesized that autonomy and competence were more central to exercise motivations whereas relatedness would not be as important. Predictive validity supported variance in “concentration, enjoyment/interest, attitude, intention, and frequency of exercise behavior but not internal and external locus of control” (Vlachopoulos and Michailidou, 2006, p. 198). The overall findings of this study suggest when needs are fulfilled, intrinsic motivation will increase, which affects participants in a positive manner and can lead to long-term involvement.

Autonomy, often misinterpreted as control or independence, is the integration of the self into behaviors and pursuits (Ryan, 1993). According to Ryan, “human autonomy is reflected in the experience of integrity, volition, and vitality that accompanies self-regulated action” (1993). Autonomy affects goal-oriented behavior when choices are available and feelings have been acknowledged. By identifying the value of an activity and integrating that value into one’s self, internalization will become fuller and autonomy increases the self-determination to participate (Deci & Ryan, 2000).

Competence is processed by how people engage with their environments and the feedback they receive. In order to receive this feedback people must gain a sense of responsibility in their performance (Ryan & Deci, 2000). The sense of responsibility is a result of interacting with stimuli in which effective action has been attained. Effective action also requires a continual expansion of capacities in order to gain or increase competence (Deci & Ryan, 1985). In essence, once a skill has been completed and positive feedback has been applied, the individual must seek out new challenges for continued growth.

Relatedness is the need for connection to others, the environment, or the activity. While relatedness is more distanced from motivations than competence and autonomy it still remains a central tenet to SDT. The connection to one's group provides a sense of security and internalization of needs and values pertaining to the group itself. Cohesion of the social organization allows intrinsic motivation to flourish (Ryan & Deci, 2000).

Each tenet plays a vital role in needs satisfaction for self-determination to be fully achieved. If autonomy, competence, or relatedness meets with negative interaction or feedback, intrinsic motivation decreases. This decrease in motivation can result in amotivation, which can inhibit a person's desire to reluctantly participate or stop all together (Deci & Ryan, 2000). The following sections will illustrate how SDT has been used in research areas such as sport and recreation.

#### Self-Determination and Recreation

Self-Determination Theory has been widely used within the field of leisure offering insight into what motivates individuals to participate and continue to fulfill needs. However, little has been done within the framework of adventure recreation and the relation to SDT. Two studies correlating the athlete experience and SDT found similar results in regards to autonomy, competence, relatedness, and the effects of thwarting needs. Two studies focusing on the role of autonomy supported coaching (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumanis, 2011; Heo, Lee, Lundberg, McCormick, & Chun, 2008) found that athletes experienced higher levels of needs satisfactions. Recognizing skill improvement and the opportunity to gauge progress, time to socialize, and exercise personal choice increased competence,

relatedness and autonomy. Meeting these needs satisfactions resulted in higher levels of intrinsic motivation. However, when coaches, trainers, or facilitators exhibited control the athletes suffered negative effects from the thwarting of needs. Thwarting resulted in negative outcomes such as eating disorders, burnout, depression, ill being, and frustration. In summary, when needs are met, athletes exhibit more vitality with positive affects, while needs that are not met cause athletes to react negatively.

Studies most closely related to the intended topic of this research have been reviewed, and results relating to SDT follow. One study was conducted in 2004 on Lake Superior measuring motivations to sea kayak. With a sample size of 176 people and the Recreation Experience Preference Scale (Driver, 1983) as the instrument, the results of the study showed similarities between highest motivations and SDT. In a study of sea kayakers O'Connell found that participants indicated that nature, education, social and achievement stimulations were preferred during their activities. A second article relevant to the intended topic was conducted at the 2004 Contours Active Women's Festival using SDT as the theoretical framework. Twenty participants were interviewed and the results showed direct correlations to autonomy, competence, and relatedness through the acquirement of skills, an environment conducive to learning, feedback without demeaning criticism, an increase in individual choices, and future participation with others. Further, when interacting with others the participants were more apt to take a central role (Lloyd & Little, 2010).

## Motivation and Age

Age can certainly affect leisure activity over the life span. Netz and Raviv (2010) posit that health benefits from physical activity are the primary motivators in older adults. Netz and Raviv (2010) go on to say that younger people have higher expectations of better health from physical activity than their older counterparts. But where does the expectation of physical activity begin and at what age do people determine their physical activity based on motivations? In a study among adolescents Mota and Esculcas (2002) found that physical activity changes, as children get older. Formal, structured activities become less prevalent whereas preferences for unstructured, less active activities are preferred.

The correlation between age and autonomy differs between older and younger adults. A study of younger, middle-aged, and older adults conducted by Ryff (1991) found that differences exist in the area of autonomy. Using a self-scoring instrument measuring ideal, future, present, and past axis, the highest autonomy scores were recorded for middle-aged adults over their younger counterparts. Additionally, younger adults anticipated an expected increase in autonomy later in life. The study went on to show that older adults score much lower a need for autonomy than either the younger or middle-aged group.

Competence and age have been studied through many lenses including medicine (Spano, Mercuri, Rando, Panto, Gagliano, Henderson, & Guzetta, 1999; Fox, Rubin, Calkins, Marshall, Coplan, Porges, Long & Stewart, 1995; Shapiro, Moffett, Lieberman & Dummer, 2005), family (Olson, Bates & Bayles, 1984; Teti & Gelfand, 1991;

Schneider, Atkinson & Tardif, 2001), children (Waters & Sroufe, 1983; Rudisill, Mahar & Meaney, 1993; Izard, Fine, Schultz, Mostow, Ackerman & Youngstrom, 2001), older adults (Hansson, 1986; Willis, 1996; Pushkar, Arbuckle, Conway Chaikelson & Maag, 1997), and sports (Papaioannou, 1997; Davison, Downs & Birch, 2006). However, little has been written pertaining to competence, motivation and whitewater kayaking. These studies show links between competence and age but do not fit directly within the scope of this study.

A gap certainly exists in the area of age and relatedness. While studies have been conducted relevant to relatedness, the primary use of the word and its definition is more applicable to educational issues (Deci, Vallerand, Pelletier & Ryan, 1991; Allen, Hauser, Eickholt, Bell & O'Connor, 1994; Furrer & Skinner, 2003; Urdan & Schoenfelder, 2006). Again, this suggests a need for a study focused on the specific basic need of relatedness and its relationship to age at this time.

Regarding age, motivation, and outdoor recreation a study conducted by Sessoms (1963) found that motivations were limited based on certain life span criteria. Sessoms posited that as people get older their pursuits change based on age and three factors: 1) as people become older they become more passive in their recreation; 2) as people age their activities become fewer; and 3) familial stage affects leisure pursuits. Sessoms goes on to write that income levels and occupation also affect leisure pursuits (1963, p. 113).

The most relevant and recent study related to kayaking and motivation was conducted by O'Connell (2010), stating that motivations vary by age. O'Connell wrote that achievement was the most significant difference between age groups and that

escaping personal and social pressures also ranked very high among the 173 participants. While the applicability of this research, focused on sea kayaking, is limited in relation to the current study focused on whitewater kayaking, learning opportunities are available. Similarities were found in areas of nature, learning, and being with similar people. O'Connell (2010) went on to report that the major difference in motivation between the younger and older participants were achievement and stimulus.

### Motivation and Sex

The changing landscape of society regarding sex has opened opportunities in many realms. One of these realms is whitewater kayaking and outdoor recreation. Motivation and understanding the relationship to sex is part of the intent of this study. In this section, sex differences will be examined regarding motivations to participation. According to Gerson (2002) women “hope to share a family and work in a committed, mutually supportive, egalitarian way. Yet most are skeptical they can find a partner or a work situation that will allow them to achieve this ideal.” (Gerson, 2002, p. 22). If sex issues affect the personal nature of existence then what motivates men and women to pursue outdoor recreation?

Regarding the motivation of autonomy and its relationship to sex Hare-Mustin and Marech (1986) wrote, “Autonomy involves the sense that one has separate and legitimate needs which one is justified in pursuing” (1986, p. 205). The authors went on to suggest that the control of resources, such as autonomy and relatedness, are dependent upon self-determination. Constraints of these resources provide fundamental differences between men and women. For example, the authors suggested that men’s autonomy is an

illusion that also impairs their capacity for relatedness. Women, however, demonstrate a connection between autonomy and relatedness. Achieving autonomy could be impossible because of this correlation since relatedness involves the nurturing nature of women (Hare-Mustin & Mareck, 1986).

A study of sport competence and sex also demonstrated differences between the men and women. Harrison, Lee, and Belcher (1999) found that specific sports were relevant to boys or girls depending on the self-schemata of participation in physical activities. Harrison, et al. wrote, “A self-schema in a particular domain can serve as a catalyst to develop skills and abilities viewed as self-defining” (1999, p. 291). The results from the study of sports related competence utilized a “me”, “possibly me”, or “not me” scale where feminine or masculine identities were preferred. The study went on to suggest that socially acceptable roles were identified in the appropriateness of sports. This suggestion led to the assertion that preferences by sex attached their self-schemata to which sports and physical activity boys and girls should be competent in participation (Harrison, et al., 1999).

Relatedness and sex has been studied many times but little has been written regarding outdoor recreation or whitewater kayaking. This lack of empirical data furthers the need for a study that focuses on the motivation of relatedness as it relates to kayaking and sex. To further understand motivation and sex a review of studies relating to the history of the topics is appropriate.

Regarding physical activity, motivation and sex studies show distinct differences. Active and sedentary leisure are differentiated between men and women. Men



significantly prefer a more active and physically challenging lifestyle whereas women are more involved with low physical or sedentary pursuits (Mota & Esculcas, 2002; Son, Kerstetter, & Mowen, 2008). A study utilizing the Exercise Motivation Scale, Li (2008) found that females reported higher levels of intrinsic motivation and self-determination over their male counterparts. Females were also less externally regulated while experiencing less amotivation (Li, 2008). Sports as physical activity also illustrate examples of motivational differences between the sexes. According to Hanrahan and Biddle (2010) men score higher on winning and competition where women are more task oriented in athletics.

Technical skill development can also affect motivations regarding sex. Technical skills involve competences within an activity, which insure safety and achievement. While these skills serve as a baseline for the minimum sets for participation, motivations can be affected when sex differences are consciously or unconsciously exhibited through behaviors. Warren and Loeffler (2006) found that sex role socialization, sense of competence, technical conditioning and training, sexism, spatial ability, and risk affect this skill development. While the authors state that certain physical attributes between men and women affect skill development, these topics are aimed at men more than women. This supports the notion, as previously discussed in SDT, that when intrinsic or extrinsic motivations are thwarted, amotivation can occur.

While few studies have been conducted pertaining to motivations and kayaking, two show differences between men and women. Among sea kayakers, O'Connell (2010) found that most participants were motivated by learning, nature, being with similar

people, and achievement / stimulation. Specifically, differences were recorded as women being motivated by creativity and enjoying nature, whereas men were motivated by using new equipment, taking risks, and leading others.

Regarding whitewater kayaking, Galloway (2011) found significant differences between men and women in recreation specialization, motivation for participation, and site preference. Galloway found that, in contrast to men, women much prefer being around similar people and that women prefer a site conducive to social skill. Further, women and men differed in challenge and safety. The study also indicated that women rated facilities, such as restrooms, campsites, and parking lots higher in importance than their male counterparts. The study concluded that achievement and enjoyment of nature was equal among men and women with the same homogeneity for wilderness values.

#### Motivation and Skill

Next it is important to understand the relationship between skill and motivation. In a study of United States Air Force service members Kanfer and Ackerman (1989) found that two processes known as distal and proximal motivation determined motivation. Distal motivation processes are “the choice to engage any, some, or all of one’s resources for the attainment of a goal” (1989, p. 661). Proximal motivation processes “determine the distribution of effort across on-task and off-task activities during task engagement” (1989, p. 662). The authors also posited that these processes were affected by three phases called general intelligence, perceptual speed, and psychomotor abilities. Skill motivation is reliant upon these three phases. General intelligence refers to a learner’s ability to confront and understand tasks. In this phase, the

more novel a task for a learner, the higher their level of attention was. However when understanding is high, attention demands are lower. The second phase, perceptual speed, requires rapid, accurate and efficient procedures for accomplishing motor programs. In the final phase, psychomotor programs measure accuracy of reaction times to simple behaviors (Kanfer & Ackerman, 1989). Kanfer and Ackerman (1989) concluded that a failure to engage in these self-regulatory activities resulted in a lack of motivational affect on performance and skill acquisition. However, during the intermediate stage of skill development if a motivational intervention occurred, task performance was enhanced. But how is motivation and skill related to goal attainment and performance?

A study by Steele-Johnson, Beauregard, Hoover, and Schmidt (2000) measured goal orientations with task demands and their combined effect on motivation in a workplace. The study found that appropriate task contexts saw more benefits from goal orientations and motivations relating to high task demands than low task demands. Learners who were given simple tasks with low goal orientations had lower motivations than when the same group was given more complex tasks with higher goal orientations. When self-efficacy was added to the hypothesis, participants reported higher goal performance and motivation scores relating to an inconsistent task than when completing a consistent task. Motivation and skill are vital to successful kayaking; therefore, the next section will be reviewed pertaining to sea and whitewater kayaking.

A study conducted at a regional sea-kayaking symposium by O'Connell (2010) found that difference in motivation did exist depending on level of experience. Groups ranging from less than one-year experience to more than ten years were studied and one

domain from the survey instrument demonstrated the difference. Sea kayakers with more than five years experience identified nostalgia as a prime motivator for participation. The opportunity for positive feedback and the improvement of paddling skills were rated the highest among participants across age and sex groupings.

### Leisure Motivation Scale

Long-term involvement is a key interest when programming for leisure services and recreation; therefore, researchers may consider the work of Beard and Ragheb (1983) to assess leisure motivation. Beard and Ragheb (1983) wrote the following:

“Leisure motivation is an important concept in the study of leisure behavior. If different individuals responded in the same way to stimuli, there would be no need for bringing in the concept of motivation. However, individuals are driven to engage in leisure activities for different reasons, and the study of these different reasons, their origins, and etiology is central to the understanding of leisure behavior and to the conduct of effective leisure and recreation programs” (p. 227).

The Leisure Motivation Scale (LMS) was developed in 1983 as an instrument to assess and examine the psychological and sociological reasons behind participation. Built upon the previous works of multiple theorists across many disciplines, LMS attempts to explain and predict the nature of leisure behaviors. (Beard & Ragheb, 1983)

LMS evolved from an initial 150 items to assess both major and minor areas of motivation. These items were analyzed by investigators and students for relevance and clarity in relation to leisure motivation. Once analysis was complete, four subscales were suggested for the areas of “intellectual, social, competence-mastery, and stimulus avoidance” (Beard & Ragheb, 1983, p. 222). Each component represents a substantial interest from participants to engage in leisure activities. The intellectual component places a high value on “learning, exploration, discovery, creating or imagining” (Beard &

Ragheb, 1983, p. 225). The second component identified two social constructs relating to friendship and esteem. The third component of competence-mastery is physical aspects of competition and challenge. The fourth component of stimulus avoidance assesses the need to avoid overstimulation or to get away from certain situations. (Beard & Ragheb, 1983) Pre-testing was conducted, with 1,205 individuals, which resulted in a 48-item scale representing the four subscales. The criteria for retention of an item were: 1) high correlation to the subscale factors and 2) a high point correlation of the biserial subscale score. The result of the study introduced a 48-item scale, which can be reduced to 8 items, to measure the motivation of participation in a sport or leisure activity.

Reviewing the literature associated with LMS several studies have produced results applicable to the topic of interest within this thesis. One study conducted by Dillard and Bates (2011) found that “leisure/recreational activities are not single core value specific” (Dillard & Bates, 2011, p. 262). Using a two-step process of quantitative and qualitative research, the authors employed LMS along with several other measurements to assess why people recreate and if a unified theory of recreation is achievable. The study utilized both a vertical dimension of participatory activity and a horizontal dimension of attained benefits. Factor analysis revealed four core motivations with two sub-value motivations, which identified escape, social enhancement, mastery, and winning. The sub values which emerged as a self-actualizer in mastery and winning revolved around capacities. A perceptual map of the dimensions identified the self as more important than the outer direction from others, and benefits attained were more important than driven results. The result of this study demonstrated that relatedness was

more important than autonomy and competence. However, mastery of skills and the items relationship to competence were important as a sub-value (Dillard and Bates, 2011).

Dillard and Bates concluded that while motivations aligned with previous literature a unified theory of leisure was achievable.

Another study based on motivations and needs revolved around program planning. In a study comparing demographics with leisure needs, Ragheb (1988) collected data from 1,151 subjects, which ranged in age, education, employment, and income. Using an early version of LMS, Ragheb, categorized six dependent variables into intensity of motivation, intellectual, social, competence/mastery, stimulus seeking, and stimulus avoidance for statistical analysis. The results showed significant differences across all demographics when compared to the dependent variable. However, one dependent variable, stimulus avoidance, did not vary significantly across demographics. As such, Ragheb (1988) concluded that stimulus avoidance was not an indicator of leisure motivation or the avoidance of leisure pursuits. Rather, stimulus seeking was indicated as more important for this dependent category (Ragheb, 1988).

As the literature suggests, motivations affect a person's participation and determine if those are intrinsic or extrinsic. While no one variable places the individual into intrinsic or extrinsic categories, it is implied that people will react to their environment positively or negatively depending upon feedback received. To assess motivations the literature also suggests that needs must be met to be truly motivated. When autonomy, competence, and relatedness are met the individual is positively affected by the activity and when one of those tenets are thwarted a lack of motivation

may occur. Well-being is key to achieving self-determination. According to the Basic Psychological Needs Theory, it may be challenging for researchers to assess well-being as a generalizable scheme.

## CHAPTER THREE

### METHODOLOGY

#### Participants

The participants for this research project included whitewater kayakers from across all regions of the United States. Participants were recruited from various groups including the Foothills Paddling Club located in Greenville, South Carolina and the Missouri Whitewater Association. Participants were also recruited from the online group sites Boatertalk, MountainBuzz, Northeast Paddlers Message Board, Paddling.net, and Professor Paddle. The online site SurveyMonkey was utilized to distribute the research instrument providing participants with a self-reporting questionnaire. Limitations surrounding the use of SurveyMonkey include the reliability of respondents accurately reporting their ability for rapids classifications, honestly answering scale questions relating to BPN and LMS, and completing the survey entirely.

Selection of participants was based on individuals who identified themselves as whitewater kayakers. The kayakers were also asked to self-identify their skill set based on the whitewater classes within the International Scale of Whitewater Difficulty. While the targeted sample size for this study aimed to reach a minimum of 300 kayakers, a sturdy cross sectional reference was needed to accurately gauge the validity of the results. Recruitment continued until more than 300 had been reached across the whitewater classes of I, II, III, IV and V.



Efforts were made to recruit men and women to get a sample from both sexes. No one under the age of 18 was actively recruited and no responses indicating an age under 18 were used in the data.

### Data Collection Procedures

For this study the data collected consisted of socio-demographics, basic psychological needs, and leisure motivations. With exception of the socio-demographics this study utilized a quantitative, seven point Likert-type scale to collect data. The socio-demographics included the kayakers age, sex, location or region, and class of whitewater most preferred, most enjoyed, and ability for when participating in the sport of whitewater kayaking.

Age and sex of kayakers was utilized to establish cross sectional information for generalization of the results. The classification of whitewater is based on the International Scale of River Difficulty and ranges from class I, II, II+, III, III+, IV, IV+, and V. For ease of reading the survey only class I, II, III, IV, and V rapids were listed for selection. The socio-demographics section of this study will be discussed in more detail in the next section.

Data was collected by Internet survey. Internet surveys were conducted by recruiting individuals to visit the online survey site Survey Monkey. Approval from the Institutional Review Board (CUIRB) of the affiliated university was obtained prior to measuring the aforementioned topics. For paddling clubs, an email was sent via the club president containing the link to the survey, inviting club members to participate. No rewards or incentives were provided for participation. The online kayaking communities

Boatertalk, Missouri Whitewater Association, MountainBuzz, Northeast Paddlers Message Board, Paddling.net, Playak, and Professor Paddle were also used to recruit participants for this study. Information was posted on each message board including an explanation of the study and a link to the survey inviting participants to join the study.

### Data Collection

The survey instrument included three sections: Basic Psychological Needs from Deci (1975), the Leisure Motivation Scale from Beard and Ragheb (1983), and a demographics section. The demographics section included questions pertaining to the kayaker's age, sex, and location or region. In addition, participants were asked to identify the class of whitewater most preferred, most enjoyed, and ability for when participating in the sport of whitewater kayaking.

#### **Basic psychological needs theory.**

Basic psychological needs were measured using the Basic Psychological Needs Theory (BPNT). BPNT posits a relationship between health and well-being. The full 21-question scale for BPNT was administered encompassing the tenets of autonomy, competence, and relatedness. BPNT was chosen by the researcher because of the relationship between the tenets of SDT and the intrinsic or extrinsic motivational factors, which can affect participation. BPNT has been statistically analyzed and shown to be valid and reliable in various forms across multiple social science disciplines (Deci & Ryan, 2000; Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001; La Guardia, Ryan, Couchman, & Deci, 2000; Ilardi, Leone, Kasser, & Ryan, 1993; Kasser, Davey, & Ryan, 1992).

The table below illustrates reliabilities for BPN across various disciplines. Those studies include exercise, sport participation, work settings, and well-being (Vlachopoulos & Michailidou, 2006; Adie et al., 2008; Wilson et al., 2006; Deci et al., 2001; and La Guardia et al., 2000).

Table 1: *Basic Psychological Needs Reliabilities Studies.*

Domains	Study 1 n = 504	Study 2 n = 539	Study 3 n = 426	Study 4 n = 139	Study 5 n = 136
	$\alpha$	$\alpha$	$\alpha$	$\alpha$	$\alpha$
Autonomy	.84	.79	.91	.79	.92
Competence	.81	.72	.91	.73	.92
Relatedness	.92	.86	.90	.84	.92

Note: Study 1: Vlachopoulos, S. P., & Michailidou, S. (2006). Development and initial validation of a measure of autonomy, competence, and relatedness in exercise: the basic psychological need in exercise scale. *Physical Education and Exercise Science*, 10(3), 179-201.

Study 2: Adie, J. W., Duda, J. L., & Ntoumanis, N. (2008). Autonomy support, basic need satisfaction and the optimal functioning of adult male and female sport participants: a test of basic needs theory. *Motiv Emot*, 32, 189-199.

Study 3: Wilson, P. M., Rogers, W. T., Rodgers, W. M., & Wild, C. (2006). The psychological need satisfaction in exercise scale. *Journal of Sport & Exercise Psychology*, 28, 231-251.

Study 4: Deci, E. L., Ryan, R. M., Gagné, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former Eastern Bloc country. *Personality and Social Psychology Bulletin*, in press.

Study 5: La Guardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Within-person variation in security of attachment: A self-determination theory perspective on attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology*, 79, 367-384.

### **Leisure motivation scale.**

The leisure motivation scale (LMS) from Beard and Ragheb (1983) is a 48 question, quantitative, 7-point Likert scale used to measure the dimensions of leisure motivation and long-term involvement. A short form of the LMS can also be utilized with confidence in reliabilities. Therefore, only 32 questions were utilized to measure the leisure motivation of kayakers. LMS has been adapted and utilized within the field of

leisure and shown to be valid and reliable across multiple applications of recreation services (Lin, Chen, Wang, & Cheng, 2007; Lounsbury & Franz, 1990; Ragheb, 1988; Ryan & Glendon, 1998).

The leisure motivation scale measures six domains. Four core domains of intellectual, social, competence/mastery, and stimulus avoidance and two additional domains of intensity of motivation and stimulus seeking. The four core domains are scored through 12 items on subscale while intensity of motivation is based on outside research and not part of the original scale. The score for stimulus seeking is calculated by adding the sum total of intellectual, social, and competence/mastery scores. The original work of Beard and Ragheb suggest both a long and short form of the LMS with 12 items in the original subscales scored under the four core domains. The authors do make suggestions as to which items should be omitted for the short form. The table below illustrates the Cronbach’s Alpha reliabilities for both the full and short scales of LMS.

Table 2: *Internal Consistency Reliabilities for the final version of the Leisure Motivation Scale.*

<u>Subscales</u>	<b>Full Scale</b>		<b>Short Scale</b>	
	<b>Number of Items</b>	<b>Alpha Reliability</b>	<b>Number of Items</b>	<b>Alpha Reliability</b>
Intellectual	12	.90	8	.90
Social	12	.92	8	.91
Competence/Mastery	12	.91	8	.90
Stimulus Avoidance	12	.90	8	.89

Note: N=1205. Adapted from Beard, J. G., & Ragheb, M. G. (1983). Measuring Leisure Motivation. *Journal of Leisure Research*, 15(3), 226.

Furthermore, additional studies have shown reliabilities when using the short form of the leisure motivation scale as illustrated in the table below. The studies used pertain to leisure satisfaction in relationships, fitness center participation, tourism, visitor

usage, and spirituality (Chen et al., 2011; Lin et al., 2007; Ryan & Glendon, 1998; Pan & Ryan, 2007; and Heintzman & Mannell, 2003).

Table 3: *Additional Leisure Motivation Scale Reliability Studies.*

Domains	Study 1 n = 348 Items = 6	Study 2 n = 424 Items = 14	Study 3 n = 1,127 Items = 14	Study 4 n = 205 Items = 18	Study 5 n = 248 Items = 35
	$\alpha$	$\alpha$	$\alpha$	$\alpha$	$\alpha$
Intellectual	.60	.837	.69	.68	.83
Social	.78	.824	.81	.85	.85
Competence / Mastery		.842	.64	.82	.89
Stimulus Avoidance	.56	.826			.89
Overall	.77			.88	.89

Note: Study 1: Chen, Y. C., Li, R. H., & Chen, S. H. (2011). Relationships among adolescents' leisure motivation, leisure involvement, and leisure satisfaction: a structural equation model. *Social Indicators Research*. DOI 10.1007/s11205-011-9979-2

Study 2: Lin, J., Chen, L., Wang, E., & Cheng, J. (2007). The relationship between extroversion and leisure motivation: evidence from fitness center participation. *Social Behavior and Personality*, 35(10), 1317-1322.

Study 3: Ryan, C., & Glendon, I. (1998). Application of leisure motivation scale to tourism. *Annals of Tourism Research*, 25(1), 169-184.

Study 4: Pan, S., & Ryan, C. (2007). Mountain areas and visitor usage–motivations and determinants of satisfaction: the case of Pirongia Forest Park, New Zealand. *Journal of Sustainable Tourism*, 15(3), 288-308.

Study 5: Heintzman, P., & Mannell, R. C. (2003): Spiritual functions of leisure and spiritual well-being: coping with time pressure. *Leisure Sciences: An Interdisciplinary Journal*, 25(2-3), 207-230.

### **Pilot testing.**

Pilot testing occurred prior to operationalization of the exact survey to establish renewed validity and reliability. Modifications to the existing scales were made to accommodate the unique sample of participants. To assure continued reliability and validity, pilot testing had to be conducted. The participants for the pilot test, upon CUIRB approval, included the Clemson Whitewater Club and various members of the whitewater community. These participants recruited for the formal study received no rewards or incentives for participation.

**Purpose.**

The purpose of the pilot test was to check wording consistency, if participants could clearly understand the questions, and to determine what changes should be made for the instrument to be used for the Master's Thesis.

**Methods.**

The pilot test was divided into four sections: demographics, basic psychological needs questions (Deci & Ryan, 2000), leisure motivation scale questions (Beard & Ragheb, 1983), and open ended questions relevant to the survey layout and design. This pilot test was a self-administered questionnaire utilizing the Internet site Survey Monkey.

The demographics section included questions pertaining to age, gender, region of the United States, and class of whitewater most confidently paddled. The basic psychological needs is a set of 21 questions aimed at measuring needs relating to autonomy, competence, and relatedness. The leisure motivation scale (LMS) was developed from the work of Beard and Ragheb in 1983. LMS is a 48-question survey designed to measure the motivations of participation. While a short form of 24 questions can be used, the long form of LMS was utilized in this pilot test. The fourth section of the pilot test provided open-ended questions regarding applicability of the survey to whitewater kayaking, ease of reading, confusion regarding hard to understand design, and other comments.

**Participants.**

Participants were recruited from Clemson University including members of the Clemson Whitewater Club and associates of the co-investigator who routinely whitewater

kayak. Upon IRB approval from Clemson University, participants were recruited to participate in this short pilot test for investigative purposes previously mentioned.

### **Results.**

Results for the pilot test were positive with valuable feedback in the open-ended segment. Seventeen people participated in the pilot test with very few questions going unanswered. The demographics section showed the most common age group was males between 18 and 29 years of age in the southeastern United States and most confidently paddled class III+ rapids.

Though statistics were not computed for the BPN or LMS sections most responses, when averaged, showed similar means across all participants with minimal outliers. The open-ended section provided the most valuable results. Layout and design was not mentioned with any regularity but enough to make note. Demographics were mentioned from the perspective of rapids most confidently paddled. Some participants noted their confidence with higher classes but chose a lower class of rapid because of complete confidence.

The wording of certain questions was brought to the attention of the co-investigator due to some confusion and anchor points in the Likert-type scale were questioned. While all feedback was valuable, certain changes were made in the amended survey. These changes will be addressed in the next section.

### **Amendments.**

The following changes were made to the amended survey instrument:

#### *Demographics*

1. Class of rapids was changed from listing all classes, III+ for example, to just class I, II, III, IV, and V.
2. The wording of the class of rapids question was changed to reflect not only confidence but most often paddled, ability for, and enjoy most.

#### *Basic Psychological Needs*

1. “Needs Satisfaction In Kayaking” header was removed.
2. Instructions for the scale were modified from “leisure” to “whitewater kayaking in the southeast”.

#### *Leisure Motivation Scale*

1. “Measuring Motivation” header was removed.
2. The basic question guiding the scale was from “One of my reasons for engaging in Leisure Activities is:” to “One of my reasons for engaging in whitewater kayaking is:”
3. All items were changed to relate to whitewater kayaking.

#### Data Analysis

Age was measured in four data sets: 18 to 29 years old, 30 to 39 years old, 40 to 49 years old, and 50 or older. Sex was measured by male and female. Seven regions were included in the survey for participants to select for their preferred paddling. Those regions included the Lower Pacific: California and Hawaii; Mid-Atlantic: Delaware, D.C., Maryland, New Jersey, Pennsylvania, West Virginia, and Virginia; Midwest: Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Texas,



and Wisconsin; Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont; Northwest: Alaska, Oregon, and Washington; Southeast: Alabama, Florida, Georgia, North Carolina, South Carolina, and Tennessee; and the West: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming (americanwhitewater.org, 2012).

Demographic questions relating to rapids classifications, class I through class V, which rapids are most preferred, which rapids are most enjoyed, and which rapids the kayaker feels they have the ability for were included. A differentiation between preference, enjoyment, and ability was made to assess the kayaker's skill. Therefore, it is important to measure these three aspects of rapids. SPSS Statistical Software version 19.0 was used for all data analysis.

To test the hypotheses of the first research question (are there differences in whitewater kayakers' leisure motivations and basic psychological needs based on their age) two one-way ANOVAs were run in SPSS. The first ANOVA included age as the independent variable and the five tenets of LMS as the dependent variables. The second ANOVA included age as the independent variable and the three tenets of BPN as the dependent variables. LSD post hoc analyses were also run to determine differences between age groups on the dependent variables.

To test the hypotheses of the second research question (are there differences in whitewater kayakers' leisure motivations and basic psychological needs based on their sex), two independent t-tests were run in SPSS. The first t-test included sex as the independent variable and the five tenets of LMS as the dependent variables. The second

t-test included sex as the independent variable and the three tenets of BPN as the dependent variables. LSD post hoc analyses were also run to determine differences between males and females on the dependent variables.

To test the hypotheses of the third research question (are the differences in whitewater kayakers' leisure motivations and basic psychological needs based on their skill level), two one-way ANOVAs were run in SPSS. The first ANOVA included skill as the independent variable and the five tenets of LMS as the dependent variables. The second ANOVA included skill as the independent variable and the three tenets of BPN as the dependent variables. LSD post hoc analyses were also run to determine differences between skill groups on the dependent variables.

To test the hypothesis of the fourth research question (are kayaker's basic psychological needs related to leisure motivations) a linear regression was run to determine the relationship between BPN and LMS. Autonomy, competence, and relatedness were included as the independent variables and the LMS was the dependent variable.

Upon completion of the data analysis the reliabilities for BPN were: 21 items had an Cronbach's alpha of .821 overall. Cronbach's alpha for autonomy, using all 7 items was .578; therefore items were omitted for a better representation of the results. After omitting 1 item under autonomy the Cronbach's alpha was .666 and after omitting 2 items the Cronbach's alpha for autonomy was .762. For competence 6 items were used with a Cronbach's alpha of .623. For relatedness 8 items were used with a Cronbach's alpha of .824.

The LMS scales had an overall Cronbach's alpha of .933 using 32 items. The intellectual domain used 8 items and had a Cronbach's alpha of .933. The social domain used 8 items and had a Cronbach's alpha of .924. The competence / mastery domain used 8 items and had a Cronbach's alpha of .923. The stimulus avoidance domain also used 8 items and had a Cronbach's alpha of .847. Stimulus seeking was calculated by using the mean of intellectual, social, and competence / mastery, which resulted in 24 items being used with a Cronbach's alpha of .939.

## CHAPTER IV

### RESULTS

The purpose of this study is to explore the relationship between the demographic variables age, sex, and skill level on motivations to participate in whitewater kayaking. A secondary purpose is to assess the relationship between the basic psychological needs (i.e., autonomy, competence, and relatedness) and motivation to participate in whitewater kayaking. The following is a synopsis of demographics of the participants and hypothesis testing.

#### Description of Participants

The participants recruited for this study were mostly male (87%) with 13% being female, as shown in Table 4.

Table 4. *Sex Demographics.*

	Frequency	Percent
Male	280	87.0%
Female	42	13.0%

Age covered four ranges for participants starting with 18-29 year olds, 30-39 year olds, 40-49 year olds, and 50 years and over. Most participants in this study were age 18-29 (30.8%) while 40-49 year olds participated the least with 19.3%. Table 5 below illustrates the age demographics for this study.

Table 5. *Age Demographics.*

	Frequency	Percent
18-29 year olds	99	30.8%
30-39 year olds	90	28.0%
40-49 year olds	62	19.3%
50+	70	21.8%
Total	321	100.0%

To gain a fuller understanding of the characteristics of the study participants, they were asked to provide the region with which they identify in the demographics section of the questionnaire. North America was divided into seven regions listed as Lower Pacific, Mid-Atlantic, Midwest, Northeast, Northwest, Southeast, and West. The Southeast region had the most participants with 45.6% while the Lower Pacific region had the least amount of participants with 1.9%. Table 6 below illustrates the regional frequency for participation in this study. While the frequencies may lead to a belief that the sample is skewed, all kayakers in the United States follow the International Scale of River Difficulty in determining the class of rapids they paddle. As such, generalizability for this study is applicable to whitewater kayakers across the United States because rapids are classed in a standard format and recognized as such by all kayakers.

Table 6. *Regional Demographics.*

	Frequency	Percent
Lower Pacific	6	1.9%
Mid-Atlantic	43	13.5%
Midwest	27	8.5%
Northeast	39	12.3%
Northwest	23	7.2%
Southeast	145	45.6%
West	35	11.0%
Total	318	100.0%

Whitewater rapids were divided into three groupings for participants to identify which type they preferred, most enjoyed, and had the ability for. The class preferred question identified the classification that each paddler felt they had a personal preference to paddle. In contrast, the class most enjoyed question identified which classification participants most enjoyed kayaking. The class ability for question identified the highest

class of rapids for which kayakers believe they have the skills to navigate. The statistical analysis in Table 7 provides the analysis for classification of rapid most preferred by the respondents. The most preferred class of rapids were class IV with 43.6% of the respondents choosing this class while class I had 0.0% responses.

Table 7: *Class of Rapids Most Preferred.*

	Frequency	Percent
Class I	0	0.0%
Class II	21	6.6%
Class III	113	35.4%
Class IV	139	43.6%
Class V	46	14.4%
Total	319	100.0%

Table 8 illustrates which classes of rapids are most enjoyed by the respondents with class IV (41.7%) and again class I had 0.0% percent of the responses.

Table 8: *Class of Rapids Most Enjoyed.*

	Frequency	Percent
Class I	0	0.0%
Class II	22	6.9%
Class III	121	37.7%
Class IV	134	41.7%
Class V	44	13.7%
Total	321	

The abilities of respondents were self-identified in this study and show an increase in paddler's abilities over preference and enjoyment. Table 9 shows the abilities of respondents with class IV being the most frequently chosen, with 40.5% while class II is the least chosen with 4.7%.

Table 9: *Class of Rapids Respondents Have the Ability For.*

	Frequency	Percent
Class I	0	0.0%
Class II	15	4.7%
Class III	67	20.9%
Class IV	130	40.5%
Class V	109	34.0%
Total	321	

The table below illustrates the frequencies of rapids demographics by age. Three questions were asked: what class of rapids do you most prefer, what class of rapids do you most enjoy, and what class of rapids do you have the ability for. As participants got older there is a significant drop in each age category.

Table 10: *Rapids Frequencies by Age.*

	Class	18-29	30-39	40-49	50+	Mean	SD
Preferred						3.65	.802
	1	0%	0%	0%	0%		
	2	6.1%	4.5%	6.5%	8.6%		
	3	20.2%	27%	41.9%	61.4%		
	4	41.4%	58.4%	45.2%	25.7%		
	5	31.3%	10.1%	4.8%	2.9%		
	Missing	1%	0%	1.6%	1.4%		
Enjoyed						3.62	.803
	1	0%	0%	0%	0%		
	2	5.1%	4.5%	6.5%	11.4%		
	3	23.2%	32.6%	51.6%	52.9%		
	4	41.4%	59.6%	32.3%	28.6%		
	5	30.3%	3.4%	9.7%	5.7%		
	Missing	0%	0%	0%	1.4%		
Ability For						4.03	.858
	1	0%	0%	0%	0%		
	2	5.1%	3.4%	3.2%	7.1%		
	3	12.1%	16.9%	29%	30%		
	4	32.3%	42.7%	46.8%	44.3%		
	5	50.5%	36%	21%	18.6%		
	Missing	0%	1.1%	0%	0%		

## Research Questions and Hypotheses

### **Differences in LMS by Age.**

Research Question 1a: Are there differences in whitewater kayakers' leisure motivations based on their age?

Hypothesis: Younger kayakers will have significantly higher levels of leisure motivation than older kayakers.

Table 11: *ANOVA Results Age and LMS.*

LMS	M (18-29)	M (30-39)	M (40-49)	M (50+)	F	sig.
Total	5.07	5.03	4.85	4.58	4.61	.004
Intellectual	5.24	5.08	5.02	4.67	2.43	.065
Social	4.38	4.23	3.97	3.70	3.93	.009
Competence/ Mastery	6.08	6.15	6.08	5.74	3.00	.031
Stimulus Avoidance	4.59	4.56	4.44	4.18	1.69	.169
Stimulus Seeking	5.23	5.15	5.02	4.71	4.47	.004

To test the research question 1a, a one-way ANOVA was run with age as the independent variable (IV) and the five tenets of the leisure motivation scale (intellectual, social, competence/mastery, stimulus avoidance, and stimulus seeking) as the dependent variables (DV). For the intellectual subdomain, the omnibus test of the effect of age was not statistically significant,  $F(3, 318) = 2.434$ ,  $p = .065$ . However, because the relationship was marginally significant, the post hoc tests were run to fully explore the relationship between age and the intellectual subdomain of LMS. Post hoc analyses using LSD indicated that the 18 to 29 year olds were significantly higher in intellectual motivation than 50+,  $p = .008$ . The mean for 18 to 29 year olds was 5.24 while the mean for 50+ was 4.67. No other means were significantly different.



For the social subdomain, the omnibus test of the effect of age was statistically significant,  $F(3, 317) = 3.928, p = .009$ . Post hoc analyses using LSD indicated that the 18 to 29 year olds and 30 to 39 year olds were significantly higher in social motivations than 50+,  $p = .001$  and  $p = .014$  respectively. The mean for 18 to 29 year olds was 4.38 while the mean for 30 to 39 year olds was 4.23 and the mean for 50+ was 3.70. No other means were significantly different.

For the competence/mastery subdomain, the omnibus test of the effect of age was statistically significant,  $F(3, 318) = 3.004, p = .031$ . Post hoc analyses using LSD indicated that the 18 to 29 year olds, 30 to 39 year olds, and 40 to 49 year olds were significantly higher in competence/mastery motivation than 50+,  $p = .018, p = .005,$  and  $p = .035$  respectively. The mean for 18 to 29 year olds was 6.08, the mean for 30 to 39 year olds was 6.15, the mean for 40 to 49 year olds was 6.08 while the mean for 50+ was 5.74. No other means were significantly different.

For the stimulus avoidance subdomain, the omnibus test of the effect of age was not statistically significant,  $F(3, 318) = 1.689, p = .169$ . No post hoc analyses were run.

For the stimulus seeking subdomain, the omnibus test of the effect of age was statistically significant,  $F(3, 318) = 4.467, p = .004$ . Post hoc analyses using LSD indicated that the 18 to 29 year olds and 30 to 39 year olds were significantly higher in stimulus seeking motivation than 50+,  $p = .001, p = .004$  respectively. The mean for 18 to 29 year olds was 5.23, while the mean for 30 to 39 year olds was 5.15, and the mean for 50+ was 4.71. No other means were significantly different.

Therefore, differences in whitewater kayaker's leisure motivations are based on their age and hypothesis 1a is accepted.

**Differences in BPN by Age.**

Research Question 1b: Are there differences in whitewater kayakers' basic psychological needs satisfaction based on their age?

Hypothesis: Younger kayakers will have significantly higher levels of basic psychological needs satisfaction than older kayakers.

Table 12: *ANOVA Results Age and BPN.*

BPN	M (18-29)	M (30-39)	M (40-49)	M (50+)	F	sig.
Total	5.48	5.33	5.38	5.22	2.07	.105
Autonomy	4.66	4.39	4.52	4.71	2.056	.106
Competence	5.86	5.63	5.57	5.65	2.41	.067
Relatedness	5.96	5.93	5.98	5.69	1.84	.140

To test the research question 1b, a one-way ANOVA was run with age as the IV and the three basic psychological needs (autonomy, competence, and relatedness) as the DVs. For autonomy, the omnibus test of the effect of age was not statistically significant,  $F(3, 319) = 2.056, p = .106$ . No post hoc analyses were run.

For competence, the omnibus test of the effect of age was not statistically significant,  $F(3, 319) = 2.408, p = .067$ . However, because the relationship was marginally significant, the post hoc tests were run to fully explore the relationship between age and the competence subdomain of BPN. Post hoc analyses using LSD indicated that the 18 to 29 year olds were significantly higher than 30 to 39 year olds and 40 to 49 year olds in competence motivation,  $p = .038, p = .020$  respectively. The mean

for 18 to 29 year olds was 5.86 while the mean for 30 to 39 year olds was 5.63 and the mean for 40 to 49 year olds was  $p = 5.57$ . No other means were significantly different.

For relatedness, the omnibus test of the effect of age was not statistically significant,  $F(3, 319) = 1.837$ ,  $p = .140$ . No post hoc analyses were run.

Table 13: *Means of Age for Global Measure of BPN and LMS.*

Age	BPN		LMS	
	Mean	Std. Dev.	Mean	Std. Dev.
18-29	5.48	.611	5.06	.814
30-39	5.33	.638	5.03	.848
40-49	5.38	.623	4.84	1.01
50+	5.21	.778	4.57	1.00

Therefore, a kayaker's age is not related to basic psychological needs and hypothesis 1b is rejected.

#### **Differences in LMS by Sex.**

Research Question 2a: Are there differences in whitewater kayakers' leisure motivations based on their sex?

Hypothesis 2a: Male kayakers will have significantly higher levels of leisure motivation than female kayakers.

An independent t-test was conducted to determine if any significant differences existed between the motivations of males and females.

Table 14: *Comparison of Motivation Between Sexes.*

	t	sig	df
Intellectual	2.259	.025	318
Social	-1.261	.208	317
Competence / Mastery	1.678	.095	318
Stimulus Avoidance	2.201	.028	318
Stimulus Seeking	1.015	.311	318

The results indicate significance was found between males and females regarding the intellectual and stimulus avoidance leisure motivations. Males were significantly higher than females in intellectual motivations,  $M=5.09$  and  $M= 4.58$  respectively. Males were also significantly higher than females in stimulus avoidance,  $M=4.52$  and  $M=4.06$  respectively. Therefore, hypothesis 2a is accepted.

**Differences in BPN by Sex.**

Research Question 2b: Are there differences in whitewater kayakers’ basic psychological needs satisfaction based on their sex?

Hypothesis 2b: Male kayakers will have significantly higher levels of basic psychological needs satisfaction than female kayakers.

An independent t-test was conducted to determine if any significant differences existed between the basic psychological needs of males and females.

Table 15: *Comparison of Basic Psychological Needs Between Sexes.*

	t	sig	df
Autonomy	.077	.939	319
Competence	2.111	.036	319
Relatedness	-.617	.537	319

The results indicate significance was found between males and females regarding the basic psychological need of competence. Males were significantly higher than females in competence motivations,  $M=5.73$  and  $M= 5.46$  respectively. Therefore, hypothesis 2b is accepted.

### Differences in LMS by Skill.

Research Question 3a: Are the differences in whitewater kayakers' leisure motivations based on their skill level?

Hypothesis 3a: High-skill kayakers will have significantly higher levels of leisure motivation than low-skill kayakers.

Table 16: *ANOVA Results Skill and LMS.*

LMS	M (II)	M (III)	M (IV)	M (V)	F	sig.
Total	4.25	4.67	4.91	5.16	6.85	<.001
Intellectual	4.30	4.85	4.96	5.31	3.35	.019
Social	3.28	3.85	4.16	4.32	3.74	.012
Competence/ Mastery	5.63	5.95	5.96	6.22	2.90	.035
Stimulus Avoidance	3.78	4.24	4.49	4.67	3.11	.027
Stimulus Seeking	4.40	4.88	5.03	5.28	5.12	.002

To test the research question 3a, a one-way ANOVA was run with skill as the independent variable and the five tenets of the leisure motivation scale (intellectual, social, competence/mastery, stimulus avoidance, and stimulus seeking) as the dependent variables. For the intellectual subdomain, the omnibus test of the effect of age was statistically significant,  $F(3, 318) = 3.346$ ,  $p = .019$ . Post hoc analyses using LSD indicated that the class II kayakers and class III kayakers were significantly lower in intellectual motivations than class V kayakers,  $p = .008$  and  $p = .033$  respectively. The mean for class II kayakers was 4.30 while the mean for class III kayakers was 4.85 and the mean for class V kayakers was 5.31. No other means were significantly different.

For the social subdomain, the omnibus test of the effect of skill was statistically significant,  $F(3, 317) = 3.735$ ,  $p = .012$ . Post hoc analyses using LSD indicated that the class II kayakers were significantly lower in social motivations than class IV and class V

kayakers,  $p = .017$  and  $p = .005$  respectively. The mean for class II kayakers was 3.23 while the mean for class IV kayakers was 4.16 and the mean for class V kayakers was 4.32. Post hoc analyses using LSD indicated that the class III kayakers were significantly lower in social motivations than class V kayakers,  $p = .023$ . The mean for class III kayakers was 3.85 while the mean for class V kayakers was 4.32. No other means were significantly different.

For the competence/mastery subdomain, the omnibus test of the effect of skill was statistically significant,  $F(3, 318) = 2.899$ ,  $p = .035$ . Post hoc analyses using LSD indicated that the class II kayakers were significantly lower in competence/mastery motivations than class V kayakers,  $p = .020$ . The mean for class II kayakers was 5.63 while the mean for class V kayakers was 6.22. Post hoc analyses using LSD indicated that the class IV kayakers were significantly lower in competence/mastery motivations than class V kayakers,  $p = .033$ . The mean for class IV kayakers was 5.96 while the mean for class V kayakers was 6.22. No other means were significantly different.

For the stimulus avoidance subdomain, the omnibus test of the effect of skill was statistically significant,  $F(3, 318) = 3.109$ ,  $p = .027$ . Post hoc analyses using LSD indicated that the class II kayakers were significantly lower in stimulus avoidance motivations than class IV and class V kayakers,  $p = .040$  and  $p = .011$  respectively. The mean for class II kayakers was 3.78 while the mean for class IV kayakers was 4.49 and the mean for class V kayakers was 4.67. Post hoc analyses using LSD indicated that the class III kayakers were significantly lower in stimulus avoidance motivations than class

V kayakers,  $p = .031$ . The mean for class III kayakers was 4.24 while the mean for class V kayakers was 4.67. No other means were significantly different.

For the stimulus seeking subdomain, the omnibus test of the effect of skill was statistically significant,  $F(3, 318) = 5.118$ ,  $p = .002$ . Post hoc analyses using LSD indicated that the class II kayakers were significantly lower in stimulus seeking motivations than class IV and class V kayakers,  $p = .017$  and  $p = .001$  respectively. The mean for class II kayakers was 4.40 while the mean for class IV kayakers was 5.03 and the mean for class V kayakers was 5.28. Post hoc analyses using LSD indicated that the class III kayakers were significantly lower in stimulus seeking motivations than class V kayakers,  $p = .007$ . The mean for class III kayakers was 4.88 while the mean for class V kayakers was 5.28. Post hoc analyses using LSD indicated that the class IV kayakers were significantly lower in stimulus seeking motivations than class V kayakers,  $p = .044$ . The mean for class IV kayakers was 5.03 while the mean for class V kayakers was 5.28. No other means were significantly different.

Therefore, a kayaker's skill is related to leisure motivations and hypothesis 3a is accepted.

#### **Differences in LMS by Skill.**

Research Question 3b: Are there differences in whitewater kayakers' basic psychological needs satisfaction based on their skill level?

Hypothesis: High-skill kayakers will have significantly higher levels of basic psychological needs satisfaction than low-skill kayakers

Table 17: ANOVA Results Skill and BPN.

BPN	M (II)	M (III)	M (IV)	M (V)	F	sig.
Total	4.72	5.14	5.36	5.58	10.88	<.001
Autonomy	4.25	4.37	4.51	4.58	1.19	.313
Competence	5.11	5.24	5.69	6.05	21.27	<.001
Relatedness	5.09	5.79	5.89	6.09	7.34	<.001

To test the research question 3b, a one-way ANOVA was run with skill as the independent variable and the three basic psychological needs (autonomy, competence, and relatedness) as the dependent variables. For autonomy, the omnibus test of the effect of age was not statistically significant,  $F(3, 319) = 1.190$ ,  $p = .313$ . No post hoc analyses were run.

For competence, the omnibus test of the effect of age was statistically significant,  $F(3, 319) = 21.274$ ,  $p < .001$ . Post hoc analyses using LSD indicated that class II kayakers were significantly lower in competence motivation than class IV and class V kayakers,  $p = .003$  and  $p < .001$  respectively. The mean for class II kayakers was 5.11 while the mean for class IV kayakers was 5.69 and the mean for class V kayakers was 6.05. Post hoc analyses using LSD indicated that class III kayakers were significantly lower in competence motivation than class IV and class V kayakers,  $p < .001$  and  $p < .001$  respectively. The mean for class III kayakers was 5.24 while the mean for class IV kayakers was 5.69 and the mean for class V kayakers was 6.05. Post hoc analyses using LSD indicated that class IV kayakers were significantly lower in competence motivation than class V kayakers,  $p < .001$ . The mean for class IV kayakers was 5.69 while the mean for class V kayakers was 6.05. No other means were significantly different.



For relatedness, the omnibus test of the effect of age was statistically significant,  $F(3, 319) = 7.336, p < .001$ . Post hoc analyses using LSD indicated that class II kayakers were significantly lower in relatedness motivation than class III, class IV, and class V kayakers,  $p = .003, p < .001, \text{ and } p < .001$  respectively. The mean for class II kayakers was 5.09, the mean for class III kayakers was 5.79, the mean for class IV kayakers was 5.89, and the mean for class V kayakers was 6.09. Post hoc analyses using LSD indicated that the class III kayakers were significantly lower in relatedness motivation than class V kayakers,  $p = .018$ . The mean for class III kayakers was 5.79 while the mean for class V kayakers was 6.09. No other means were significantly different. Therefore, a kayaker's skill is related to basic psychological needs and hypothesis 3b is accepted.

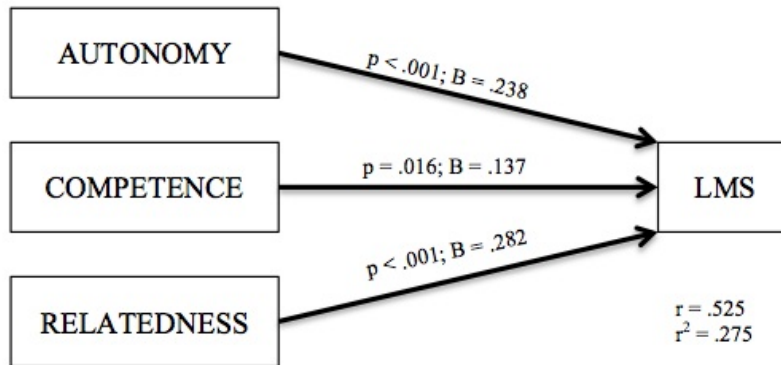
#### **Relationship of BPN on LMS.**

Research Question 4:

- a. Is there a relationship between the three basic psychological needs (autonomy, competence, and relatedness) and leisure motivation?
- b. Which of the three basic psychological needs is the most significant predictor of leisure motivations?

Hypothesis: There will be a significant positive relationship between leisure motivation and basic psychological needs satisfaction among whitewater kayakers.

Figure 2: Hypothesis Four Results.



A linear regression was run to test the relationship between each tenet of BPN and LMS (Figure 3). Autonomy ( $p < .001$ ), competence ( $p = .016$ ), and relatedness ( $p < .001$ ) were all found to be a significant predictor of LMS. Relatedness is the most significant predictor on LMS ( $B = .282$ ). Autonomy ( $B = .238$ ) and competence ( $B = .137$ ) also had a positive relationship with LMS. Therefore, hypothesis four is accepted.

## CHAPTER V

### DISCUSSION

The purpose of this study is to understand the differences in whitewater kayakers' leisure motivations and basic psychological needs based on their age, sex, and skill. The results indicate that: 1) people who participate in whitewater kayaking have preferences for classifications of rapids, 2) kayakers' motivations do vary based on their age, sex, and skill, and 3) the social context is an important motivator for the sport of kayaking.

#### Summary of Findings

The four hypotheses of this study were tested using SPSS statistical software. One-way ANOVAs, t-tests, and linear regressions were used to examine the differences between kayakers' leisure motivations and basic psychological needs based on their age, sex, and skill, their. The first ANOVA indicated a significant difference in kayakers' leisure motivations based on their age. A t-test indicated a significant difference between kayakers' leisure motivations and basic psychological needs based on their sex. The second ANOVA indicated a significant difference between kayakers' leisure motivations based on their skill. The linear regression indicated a significant relationship between kayakers' basic psychological needs and their leisure motivations.

#### Discussion

The results of the current research suggest that differences may exist among kayakers' age, sex, and skill and motivation variables for participation in whitewater kayaking. Overall, the findings of this study indicate how age, sex, and skill respectively impact the specific tenets of leisure motivation and basic psychological needs;

furthermore, the findings suggest that satisfaction of the three psychological needs of autonomy, competence, and relatedness had a positive relationship with leisure motivation.

The demographics offered notable insights into the study population. The data from Tables 7 and 8 suggest a crux in rapid preference and enjoyment beginning with class III. Though there is a significant drop from class IV to class V, the data shows that a significant percentage of respondents chose class III and class IV over all other rapids. Data suggests that whitewater kayakers have ability for rapids higher than their preference or enjoyment. While most kayakers self-report they have ability for class IV and class V rapids (74.5%, see Table 9) they prefer class III and IV (79%, see Table 7) and most enjoy class III and IV rapids (79.4%, see Table 8). These results also suggest that younger participants prefer, enjoy, and have the ability for higher class rapids while the older participants prefer and enjoy lower classes of rapids. These demographic data sets will help in the interpretation of the four research questions.

The first research question explored the differences that exist between kayakers' of different ages and the five tenets of LMS and the three tenets of BPN. The results indicate that as kayakers grow older, their leisure motivations based on intellectual, competence/mastery, and stimulus seeking decrease. These findings imply that the preference of kayakers change as they age. The literature would support this suggesting that as people get older, they tend to desire less physically active pursuits (Mota & Esculcas, 2002). Similarly, Netz and Raviv (2010) concluded that younger people are motivated by physical exercise. In further support, the age and skill demographics

suggested that although participants may have the ability for higher classes of whitewater, they prefer to paddle, or most enjoy, less challenging rapids. The results also indicate that younger kayakers may thrive on more challenging rivers and rapids. Again, this is supported through the literature of O'Connell (2010) who found that of the differing motivations between age groups, achievement (similar to competence/mastery here) was the most important to young kayakers.

Next, the results of the study suggest that as kayakers age, their social leisure motivations decrease. This finding, supported by O'Connell (2010), indicates that younger kayakers, new to the sport, may be motivated to become a part of the kayaking social world. This desire for meeting new people and getting to know others with similar interests and skill levels may result in higher social motivations for young kayakers. In contrast, older kayakers likely have established social groups and may no longer be motivated by meeting new people.

The results of this study further suggest that age is not a reliable predictor of kayakers' basic psychological needs. One notable, though only marginally significant finding, was that competence was rated highest by 18-29 year olds. This indicates that as kayakers get older, they are less motivated by meeting the basic psychological need of competence, or more plainly, achievement (O'Connell, 2010). According to Sessoms (1963), preference for leisure pursuits change as people age. As Table 7 and Table 8 indicate, younger participants both preferred and enjoyed higher rapid classes than older participants. In other words, as people age they may choose to kayak a lower class of whitewater than their abilities allow for. This is not to imply that motivation is absent for

older paddlers, rather it could suggest that as people age they may choose a boat that reduces the challenge of the river. Boats are designed to offer different experiences. Therefore, if competence motivation decreases with age, a boat that requires less skill and more ease of paddling may be preferred.

The second research question focused on differences in the five tenets of LMS and the three tenets of BPN based on a kayakers' sex. Significant differences were found between the sexes on the intellectual and stimulus avoidance subdomains of the leisure motivation scale. Men rated higher on both intellectual and stimulus avoidance than women. The results also indicate a significant difference between the sexes on the competence subdomain of BPN. Males rated significantly higher on competence than females. O'Connell (2010) suggested that risks, equipment use, and leadership motivate men. The current study suggests that men are driven by competence and intellectual motivations. This is supported by O'Connell's (2010) findings. Arguably, a focus on risk, equipment and leadership could influence men to be more focused on the intellectual and driven by meeting their need for competence than females. However, the findings of this study contradict the literature more than falling in line with it.

The results suggest that males rated higher on stimulus avoidance and that there was no significant difference found between sexes on the social, competence/mastery, and stimulus seeking subdomains (See Table 12). Again, these findings contradict the literature that suggests differences do exist. While men prefer more active and physically challenging pursuits, women may prefer less physical or more sedentary activities (Harrison, Lee, & Belcher, 1999; Mota & Esculcas, 2002; & Son, Kerstetter, & Mowen,

2008). Also, literature notes that women appear to be motivated by social interactions more than men when pursuing outdoor recreation and more specifically kayaking (Gerson, 2002; Galloway, 2010). O'Connell (2010) concluded that women are motivated by learning, nature, and creativity while men focus on risks, equipment, and leadership.

While the literature suggests that there are prescribed outdoor pursuits for each sex, women who participate in kayaking have crossed the acceptable social gender roles for various motivational reasons (Bialeschki & Henderson, 1993; McDermott, 2004). Though a small number of females participated in the study, their unwillingness to be guided by the traditional roles by participating in kayaking may help better interpret their responses on the questionnaire. That is, women who participate in whitewater kayaking may also be motivated by non-gender specific reasons. This may explain why few differences were found between male and female motivations for participation in whitewater kayaking.

The third research question tested the differences in the five tenets of LMS and the three tenets of BPN based on kayakers' skill. Across all subdomains of LMS, Class II and III kayakers were lower in motivations than Class IV and V kayakers. Less skilled kayakers rated lower on intellectual on LMS and for competence on BPN than higher skill level kayakers. Deci and Ryan (2000) suggests competence is a result of feedback, positive or negative, that individuals receive from an interaction with their environment. The data suggests that people who participate in the sport of whitewater kayaking rely on this feedback and thrive in challenging environments. Simply stated, as skill and competence increases so does motivation.

As the data suggests, people have different abilities and experience. Because of the dangerous nature of whitewater kayaking, participants may have to rely on another member of the group for safety while on the river (Fiore, 2003). As skills and danger increase, this social reliance increases as well (Olivier, 2006).

Higher skilled kayakers rated stimulus avoidance higher than lower skilled kayakers. This may be based on more highly skilled kayakers desire to kayak rivers with less people in a quieter environment. This may also suggest that highly skilled kayakers find their experiences more relaxing due to their high skill set. That is, kayakers with fewer skills may be unable to relax during participation.

The results also indicate that as the skill level of the kayaker increases, he/she rate higher on competence and stimulus seeking. This increase in skill and motivation may also involve decisions such as the type of boat a kayaker chooses. As competence and stimulus seeking increases the kayaker may opt to paddle a boat not necessarily designed for the type of whitewater to be paddled. More simply stated, the choice may be to use a boat designed for play boating on a longer river trip because of the challenge that such a boat will provide during the navigation of the river. As kayakers increase in skill, new ways need to be identified to provide them with high difficulty and high-risk experiences. Doing so will ensure that motivations of kayakers are met and they receive the maximum benefit from the experience (Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000).

The final research question: how do the tenets of BPN relate to leisure motivation, were all found to be significant. Autonomy, competence, and relatedness had significant impacts upon leisure motivations with relatedness being the largest predictor.



Autonomy, or feelings of choice, affect how paddlers decide which rapids to paddle, how to navigate those rapids, and with whom they choose to paddle. Autonomy also affects which equipment to purchase, which equipment use, and how that equipment is used. This autonomous control affects motivations when choosing which activity is pursued. The data (see Table 7) on class of rapid preferred supports this notion of choice among paddlers. While paddlers may possess the ability for a certain class of rapid, it is their choice when deciding which class they actually paddle.

Competence, or success and achievement of goals, was found to be significant in its effect on leisure motivation. As mentioned earlier, competence may encompass many skill sets and a desire to compete; however, competence is not limited to gaining skills, but recognizing individual limitations. As Table 9 and Table 7 suggest, paddlers who have the ability for class V rapids may choose to paddle class IV because the individual recognizes his/her ability may not always be in line with the demands of the river. Outside factors such as group members, safety concerns, river conditions, and personal feelings may also influence this decision.

Relatedness, or a sense of reliance upon others, seemed to have the most significant effect on leisure motivations. While relatedness is most often associated with the social aspect of motivation it is also concerned with respect and caring. Social groups exist among paddlers; they tend to participate with other paddlers they trust and respect (Gerson, 2002; Galloway, 2011; O'Connell, 2010). While laws require groups of two or more while on the river it must also be said that people have a sense of reliance upon one another for safety reasons. Whitewater kayaking is a high-risk sport and things can

sometimes go wrong. It is during these times that paddlers want to know the people they paddle with are trustworthy and will watch each other for safety.

Another social aspect of whitewater kayaking is the community it has created. Paddlers enjoy the company of each other and will offer assistance or conversation when asked. When visiting any river one will see people clad in paddling gear thumbing for rides to put-ins or take-outs and most others will stop to offer transportation. It is this social world that supports the findings of the relatedness aspect of motivational effects on leisure.

### Implications

Kayaking is a growing recreational activity and one that has received little attention in the literature in terms of motivations. It is important to understand the role that sex, skill, and age play in the motivations of kayakers to help better serve this growing population. The purpose of this study was to understand the relationship between whitewater kayaker's age, sex, and skill with their leisure motivations and basic psychological needs. This research has identified certain relationships between those motivations, demographics, and key variables.

The demographic characteristics support notions about whitewater kayaking and its participants by providing scientific data. Of all respondents only 13% (42 of 322) were female. While this 13% breaks the mold for females in a male dominated sport, it is important to note that a low sample size could have affected the results.

Further demographics relating to rapids classifications also offer insight into the sport of whitewater kayaking. According to the data, class III rapids are the crux for most

paddlers. With a significant increase in class preference, enjoyment and ability for, class III rapids were the point of distinction between most paddlers. This same demographic also illustrates that as paddlers get older their preference and enjoyment of rapids decrease. While they may possess the ability for a higher classification, a lower class is preferred and enjoyed.

Age also predicts leisure motivations and basic psychological needs. As age increases, motivation decreases, therefore industry professionals would best serve the paddling community by recognizing this relationship and program accordingly. For example, training programs could be designed specifically for kayakers who are 50 years or older. In line with previous research, while age did have a direct effect on leisure motivations it should also be noted that autonomy, competence, and relatedness had some effect (O'Connell, 2010; Sessoms, 1963).

The largest differences in leisure motivations were based on skill. As previously discussed, skill may come in a variety of forms when whitewater kayaking, and psychological needs are related to leisure motivations. As skill increases so does motivation; from leadership, increasing one's ability, and increasing personal challenge, literature supports this notion (Warren & Loeffler, 2006).

Of the three tenets of BPN, relatedness was found to have the largest relationship with LMS, and should be further reviewed for impacts on the sport. While it could be argued that competence, which had the least significant effect, is most vital to motivations, relatedness was a more significant predictor in this model. Relatedness may come in a variety of forms within the sport of whitewater kayaking. Social worlds do

exist among paddlers ranging from safety concerns to close friends to shared interests while on the river. The results of this study and previous research suggest that kayakers develop communities and prefer to paddle with others that they know and trust as support (Galloway, 2010). Galloway (2010) proposed that motivational differences exist between men and women kayakers due to a need to be around people of similar social skills, similar challenge ability, and safety concerns. Further supporting the findings of this study is research conducted by Adie, Duda, and Ntoumanis (2008) who suggested that relatedness is pivotal in athlete's needs satisfaction and sport. However, Gerson (2002) suggested the need for autonomy as a differing motivator between sexes in society. While the findings of Gerson (2002) may be accurate in some physical activity settings, the application for whitewater kayaking could be different. The need for relatedness and a social world is not only required on most rivers it is also relevant to safety.

As Gerson (2002) suggested and the findings of this study supported, differences exist between sexes on competence and intellectual motivations. To make whitewater kayaking more accessible to women a focus on making intelligent decisions and how to avoid dangerous or life threatening situations may be beneficial. Professionals in the industry should build programs to teach, train, or provide recreational opportunities aimed specifically at women.

The theory of needs satisfaction has wide applicability for leisure behavior because of intrinsic motivations. The push pull factors previously stated impact kayakers' decisions on how, when, and with whom they paddle. Since a correlation exists between motivations and internal or external factors then a relationship between the two will

affect leisure motivations. If needs are met then kayakers will continue to pursue this sport and become motivated to increase their competencies, expand their social world, and feel free to make choices based on personal styles and preferences.

### Limitations

1. While self-reporting for this project one limitation may be the inflation of the paddler's ability. Respondents will be asked to identify themselves within the whitewater classification system ranging from class I to III and class III+ to V. The study relied on each respondent to accurately identify him or herself according to a standardized system.

2. Generalizability across the entirety of the United States may be another limitation due to accessibility of rivers. Each region of the US does not possess the same accessibility to rivers as the southeast. For example, the corridor of South Carolina, Georgia, North Carolina and Tennessee have a plethora of rivers ranging across all river classifications within a short drive while other regions may only have a select few rivers which offer class III or above rivers.

3. Interpretation of the whitewater classification system is subject to personal preference and opinions. While American Whitewater, a non-profit organization, provides a definitive resource for whitewater classes each rapid and river is subject to the interpretation of the individual paddler.

4. Sample size may impact the results of the study. Only 13% of the total sample size was female, therefore, a fair representation of all women may be skewed.

5. Years of experience could impact motivations. Years of experience, or paddling, was not included in the demographic section, and therefore, could not be assessed or measured for effect.

### Future Study

Recognizing this study could not exhaust all the possible motivations for participation in the sport of whitewater kayaking has allowed opportunities for future research. Considering the small sample size of female respondents provides and opportunity to research why those women who do participate are motivated to break the norm. Why do these women paddle? What are their motivations? Are their motivations connected to effects outside of the basic psychological needs? By understanding why women participate, membership into this social world could increase.

One area that was not measured in the demographics was experience. This specific characteristic could offer an opportunity to further understand motivations and their effect on leisure in the sport of whitewater kayaking. Does an increase in years paddling change or alter motivations? Does number of years paddling increase autonomy?

Another area for future research may include the influence of age on types of rapids people prefer, enjoy, or have the ability for. A deeper examination of these topics may reveal why people choose their leisure and how youth or age affects those choices.

A final opportunity for future study involves other external regulators as a motivator. Motivations outside of basic psychological needs could offer insight into leisure motivations and why people participate. Do specific rivers or regions of the

United States attract participants? Is an attraction to purchasing and using equipment a motivator for participation? Is membership in the social world of whitewater kayakers a motivator? Future research should be conducted into motivations of whitewater kayakers for many reasons but most importantly to advance the scientific knowledge of a sport, which is increasing in popularity.

## APPENDICES



Appendix A

IRB Approval

Dear Dr. Barcelona,

The chair of the Clemson University Institutional Review Board (IRB) validated the protocol identified above using exempt review procedures and a determination was made on **February 23, 2012**, that the proposed activities involving human participants qualify as **Exempt** from continuing review under category **B2**, based on federal regulations 45 CFR 46. This exemption is valid for all organizations with a research site letter on file. You may begin this study.

Please remember that the IRB will have to review all changes to this research protocol before initiation. You are obligated to report any unanticipated problems involving risks to subjects, complications, and/or any adverse events to the Office of Research Compliance (ORC) immediately. All team members are required to review the “Responsibilities of Principal Investigators” and the “Responsibilities of Research Team Members” available at <http://www.clemson.edu/research/compliance/irb/regulations.html>.

We also ask that you notify the ORC when your study is complete or if terminated. Please let us know if you have any questions and use the IRB number and title in all communications regarding this study.

Good luck with your study.

All the best,  
Nalinee

*Nalinee D. Patin*  
IRB Coordinator  
Clemson University  
Office of Research Compliance  
Institutional Review Board (IRB)

## Appendix B

### Participant Informed Consent

Information about Being in a Research Study  
Clemson University

#### **Motivations and Whitewater Kayakers: Intrinsic or Extrinsic**

##### **Description of the Study and Your Part in It**

Robert Barcelona, Ph.D and Jon Evans are inviting you to take part in a research study. Robert Barcelona is a professor at Clemson University. Jon Evans is a graduate student at Clemson University, running this study with the help of Robert Barcelona. The purpose of this research is to determine the motivations of whitewater kayakers.

Your part in the study will be to complete a self-reporting survey.

It will take you about 10-15 minutes to be in this study.

##### **Risks and Discomforts**

We do not know of any risks or discomforts to you in this research study.

##### **Possible Benefits**

This research may help us to understand the motivations of whitewater kayakers. It is the design of this study to measure whether motivations are internal or external and how kayaker's leisure is measured.

##### **Protection of Privacy and Confidentiality**

The only personal information you will asked to provide is your age, sex, the region of the United States you most identify with, and what classification of whitewater you are most confident in paddling. Your privacy is of paramount concern to Clemson University and we will do everything we can to protect your privacy and confidentiality. We will not tell anybody outside of the research team that you were in this study or what information we collected about you in particular.

##### **Choosing to Be in the Study**

You do not have to be in this study. You may choose not to take part and you may choose to stop taking part at any time. You will not be punished in any way if you decide not to be in the study or to stop taking part in the study.

##### **Contact Information**

If you have any questions or concerns about this study or if any problems arise, please contact Robert Barcelona, Ph.D at Clemson University at (864) 656-1891. If you have

any questions or concerns about your rights in this research study, please contact the Clemson University Office of Research Compliance (ORC) at 864-656-6460 or [irb@clemson.edu](mailto:irb@clemson.edu). If you are outside of the Upstate South Carolina area, please use the ORC's toll-free number, 866-297-3071.

A copy of this form will be given to you upon request.

Appendix C

Pilot Test

**SocioDemographics**

1. What is your age? \_\_\_\_\_(Please write your age here)
  
2. What is your sex?
  - Male
  - Female
  
3. What region of the United States do you most closely identify with?
  - Lower Pacific – California, Hawaii
  - Mid-Atlantic – Delaware, D.C., Maryland, New Jersey, Pennsylvania, West Virginia, Virginia
  - Midwest – Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Texas, Wisconsin
  - Northeast – Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont
  - Northwest – Alaska, Oregon, Washington
  - Southeast – Alabama, Florida, Georgia, North Carolina, South Carolina, Tennessee
  - West – Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming
  
4. What class of rapids are you most confident in paddling?
  - Class I
  - Class II
  - Class II+
  - Class III
  - Class III+
  - Class IV
  - Class IV+
  - Class V

## NEEDS SATISFACTION IN KAYAKING

*Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons for which you practice this leisure.*

Does not correspond at all	Corresponds a little		Corresponds moderately		Corresponds a lot		Corresponds exactly
1	2	3	4	5	6	7	7

1. I feel like I can make a lot of suggestions when I kayak	1	2	3	4	5	6	7
2. I feel pressured to kayak	1	2	3	4	5	6	7
3. I am free to express my ideas and opinions when I kayak	1	2	3	4	5	6	7
4. When I kayak I have to do what I am told	1	2	3	4	5	6	7
5. My feelings are taken into consideration when I kayak	1	2	3	4	5	6	7
6. I feel like I can pretty much be myself when I kayak	1	2	3	4	5	6	7
7. There is not much opportunity for me to decide for myself how to go about kayaking	1	2	3	4	5	6	7
8. I do not feel very skilled when I kayak	1	2	3	4	5	6	7
9. People tell me I am good at kayaking	1	2	3	4	5	6	7
10. I have been able to learn interesting new skills in kayaking	1	2	3	4	5	6	7
11. Most days I feel a sense of accomplishment from kayaking	1	2	3	4	5	6	7
12. I do not get much of a chance to show how capable I am when kayaking	1	2	3	4	5	6	7
13. When I am kayaking I often do not feel very capable	1	2	3	4	5	6	7
14. I really like the people I kayak with	1	2	3	4	5	6	7
15. I get along with the people I kayak with	1	2	3	4	5	6	7
16. I pretty much keep to myself when kayaking	1	2	3	4	5	6	7
17. I consider the people I kayak with to be my friends	1	2	3	4	5	6	7
18. People I kayak with care about me	1	2	3	4	5	6	7
19. There are not many people I kayak with that I am close to	1	2	3	4	5	6	7
20. The people I kayak with do not seem to like me much	1	2	3	4	5	6	7
21. People in kayaking are pretty friendly towards me	1	2	3	4	5	6	7

## MEASURING MOTIVATION

*Using the scale below, indicate to what extent each of the following items are important to you when whitewater kayaking.*

Not at all Important	Slightly Important	Moderately Important	Very Important	Of utmost Important		
1	2	3	4	5	6	7

ONE OF MY REASONS FOR ENGAGING IN LEISURE ACTIVITIES IS:

1. to expand my interests	1	2	3	4	5	6	7
2. to seek stimulation	1	2	3	4	5	6	7
3. to make things more meaningful to me	1	2	3	4	5	6	7
4. to learn about things around me	1	2	3	4	5	6	7
5. to satisfy my curiosity	1	2	3	4	5	6	7
6. to explore new ideas	1	2	3	4	5	6	7
7. to learn about myself	1	2	3	4	5	6	7
8. to expand my knowledge	1	2	3	4	5	6	7
9. to discover new things	1	2	3	4	5	6	7
10. to be creative	1	2	3	4	5	6	7
11. to be original	1	2	3	4	5	6	7
12. to use my imagination	1	2	3	4	5	6	7
13. to be with others	1	2	3	4	5	6	7
14. to build friendships with others	1	2	3	4	5	6	7
15. to interact with others	1	2	3	4	5	6	7
16. to develop close friendships	1	2	3	4	5	6	7
17. to meet new and different people	1	2	3	4	5	6	7
18. to help others	1	2	3	4	5	6	7
19. so others would think well of me for doing it	1	2	3	4	5	6	7
20. to reveal my thoughts, feelings, or physical skills to others	1	2	3	4	5	6	7
21. to influence others	1	2	3	4	5	6	7
22. to be socially competent and skillful	1	2	3	4	5	6	7
23. to gain a feeling of achievement	1	2	3	4	5	6	7
24. to gain other's respect	1	2	3	4	5	6	7
25. to get a feeling of achievement	1	2	3	4	5	6	7
26. to see what my abilities are	1	2	3	4	5	6	7
27. to challenge my abilities	1	2	3	4	5	6	7
28. because I enjoy mastering things	1	2	3	4	5	6	7
29. to be good doing them	1	2	3	4	5	6	7
30. to improve my skill and ability in doing them	1	2	3	4	5	6	7
31. to compete against others	1	2	3	4	5	6	7
32. to be active	1	2	3	4	5	6	7
33. to develop physical skills and abilities	1	2	3	4	5	6	7
34. to keep in shape physically	1	2	3	4	5	6	7
35. to use my physical abilities	1	2	3	4	5	6	7
36. to develop physical fitness	1	2	3	4	5	6	7
37. to be in a calm atmosphere	1	2	3	4	5	6	7
38. to avoid crowded areas	1	2	3	4	5	6	7

39. to slow down	1	2	3	4	5	6	7
40. because I sometimes like to be alone	1	2	3	4	5	6	7
41. to relax physically	1	2	3	4	5	6	7
42. to relax mentally	1	2	3	4	5	6	7
43. to avoid the hustle and bustle of daily activities	1	2	3	4	5	6	7
44. to rest	1	2	3	4	5	6	7
45. to relieve stress and tension	1	2	3	4	5	6	7
46. to do something simple and easy	1	2	3	4	5	6	7
47. to unstructured my time	1	2	3	4	5	6	7
48. to get away from the responsibilities of everyday life	1	2	3	4	5	6	7

Thank you for taking time to complete the survey and helping advance the knowledge of whitewater kayaking.

Below are several questions about the survey instrument. Any feedback you could provide to improve the instrument would be greatly appreciated.

1. Were the questions applicable to whitewater kayaking?
2. How easy was the survey to read?
3. Was the layout of the survey confusing or hard to understand?
4. Other Comments:

## Appendix D

### Final Survey Instrument

1. What is your age?   \_\_18-29           \_\_30-39           \_\_40-49           \_\_50+
  
2. What is your sex?
  - Male
  - Female
  
3. What region of the United States do you most closely identify with?
  - Lower Pacific – CA, HI
  - Mid-Atlantic – DE, D.C., MD, NJ, PA, WV, VA
  - Midwest – AR, IL, IN, IA, KS, KY, LA, MI, MN, MS, MO, NE, ND, OH, OK, SD, TX, WI
  - Northeast – CT, ME, MA, NH, NY, RI, VT
  - Northwest – AK, OR, WA
  - Southeast – AL, FL, GA, NC, SC, TN
  - West – AZ, CO, ID, MT, NV, NM, UT, WY
  
4. What class of rapids do you prefer?
  - Class I
  - Class II
  - Class III
  - Class IV
  - Class V
  
5. What class of rapids do you enjoy most?
  - Class I
  - Class II
  - Class III
  - Class IV
  - Class V
  
6. What class of rapids do you feel you have the ability for?
  - Class I
  - Class II
  - Class III
  - Class IV
  - Class V
  
7. How did you hear about this research?
  - Internet / Website
  - Paddling Group



- From the researcher(s)
- From a friend

*Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons for which you whitewater kayak.*

	<b>Does not correspond at all</b>		<b>Corresponds a little</b>		<b>Corresponds moderately</b>		<b>Corresponds a lot</b>		<b>Corresponds exactly</b>	
	1	2	3	4	5	6	7			
1. I feel like I can make a lot of suggestions when I kayak	1	2	3	4	5	6	7			
2. I feel pressured to kayak	1	2	3	4	5	6	7			
3. I am free to express my ideas and opinions when I kayak	1	2	3	4	5	6	7			
4. When I kayak I have to do what I am told	1	2	3	4	5	6	7			
5. My feelings are taken into consideration when I kayak	1	2	3	4	5	6	7			
6. I feel like I can pretty much be myself when I kayak	1	2	3	4	5	6	7			
7. There is not much opportunity for me to decide for myself how to go about kayaking	1	2	3	4	5	6	7			
8. I do not feel very skilled when I kayak	1	2	3	4	5	6	7			
9. People tell me I am good at kayaking	1	2	3	4	5	6	7			
10. I have been able to learn interesting new skills in kayaking	1	2	3	4	5	6	7			
11. Most days I feel a sense of accomplishment from kayaking	1	2	3	4	5	6	7			
12. I do not get much of a chance to show how capable I am when kayaking	1	2	3	4	5	6	7			
13. When I am kayaking I often do not feel very capable	1	2	3	4	5	6	7			
14. I really like the people I kayak with	1	2	3	4	5	6	7			
15. I get along with the people I kayak with	1	2	3	4	5	6	7			
16. I pretty much keep to myself when kayaking	1	2	3	4	5	6	7			
17. I consider the people I kayak with to be my friends	1	2	3	4	5	6	7			
18. People I kayak with care about me	1	2	3	4	5	6	7			
19. There are not many people I kayak with that I am close to	1	2	3	4	5	6	7			
20. The people I kayak with do not seem to like me much	1	2	3	4	5	6	7			
21. People in kayaking are pretty friendly towards me	1	2	3	4	5	6	7			

Using the scale below, indicate to what extent each of the following items are important to you when whitewater kayaking.

Not at all Important	Slightly Important	Moderately Important	Very Important	Of utmost Important		
1	2	3	4	5	6	7

ONE OF MY REASONS FOR ENGAGING IN WHITEWATER KAYAKING IS:

1. to learn about things around me	1	2	3	4	5	6	7
2. to satisfy my curiosity	1	2	3	4	5	6	7
3. to explore new ideas	1	2	3	4	5	6	7
4. to learn about myself	1	2	3	4	5	6	7
5. to expand my knowledge	1	2	3	4	5	6	7
6. to discover new things	1	2	3	4	5	6	7
7. to be creative	1	2	3	4	5	6	7
8. to use my imagination	1	2	3	4	5	6	7
9. to build friendships with others	1	2	3	4	5	6	7
10. to interact with others	1	2	3	4	5	6	7
11. to develop close friendships	1	2	3	4	5	6	7
12. to meet new and different people	1	2	3	4	5	6	7
13. to reveal my thoughts, feelings, or physical skills to others	1	2	3	4	5	6	7
14. to be socially competent and skillful	1	2	3	4	5	6	7
15. to gain a feeling of achievement	1	2	3	4	5	6	7
16. to gain other's respect	1	2	3	4	5	6	7
17. to challenge my abilities	1	2	3	4	5	6	7
18. to be good doing them	1	2	3	4	5	6	7
19. to improve my skill and ability in doing them	1	2	3	4	5	6	7
20. to be active	1	2	3	4	5	6	7
21. to develop physical skills and abilities	1	2	3	4	5	6	7
22. to keep in shape physically	1	2	3	4	5	6	7
23. to use my physical abilities	1	2	3	4	5	6	7
24. to develop physical fitness	1	2	3	4	5	6	7
25. to slow down	1	2	3	4	5	6	7
26. because I sometimes like to be alone	1	2	3	4	5	6	7
27. to relax physically	1	2	3	4	5	6	7
28. to relax mentally	1	2	3	4	5	6	7
29. to avoid the hustle and bustle of daily activities	1	2	3	4	5	6	7
30. to rest	1	2	3	4	5	6	7
31. to relieve stress and tension	1	2	3	4	5	6	7
32. to unstructured my time	1	2	3	4	5	6	7

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