THE SENSATION-SEEKING AND MOTIVATIONAL DIMENSIONS OF STORM CHASERS

by

Paul R. Zunkel, B.S., M.S.

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Committee Members:

Richard W. Dixon, Chair

David R. Butler

Thomas J. Ballinger

Todd W. Moore

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ABSTRACT

Since the release of the Hollywood blockbuster *Twister* in 1996, and later the Discovery Channel television show Storm Chasers, 2007-2011, the general public has taken a larger collective interest in storm chasing. A storm chaser is defined as a person who observes and follows a developing thunderstorm either for educational purposes, scientific research, or as a recreational activity (Robinson 1999). This study examined the factors associated with participation in the risk recreation activity of storm chasing in the US. Following previous research, both motivations and sensation-seeking attributes were explored.

As more and more individuals take part in the recreational risk activity of storm chasing the need to examine the factors influencing these decisions is necessary. Studies have previously examined either the motivations that drive risk activities or the personality traits (i.e. sensation-seeking characteristics) associated with other risk recreational activity participants; however, little has been done to examine the risk recreational group of storm chasers.

A survey instrument gathered information on motivational dimensions, sensation seeking characteristics, and socio-demographic characteristics of storm chaser participants. Results of this study identified that participants in storm chasing do not pursue risks as their ultimate goals, but primarily seek challenging experiences. Learning and gaining insight were identified as integral motivations that influence a particular experience. Furthermore, this study corroborates Robinson's (1999) findings while

further contributing to his definition of a storm chaser. In addition to storm chasers observing and following a developing thunderstorm either for educational purposes, scientific research, or as a recreational activity this study finds that storm chasers are individuals interested in seeking an experience and are further motived by experiencing nature and learning.

I. INTRODUCTION

"What compels storm chasers to drive tremendous distances across the plains?...You can see forever...the sky and the air are clear, and what you see is tremendous - it's simply awe-inspiring." - R. Wolkomir (1994)

Millions of people throughout the US, North America, and the world engage in recreational risk activities every year (Ewert 1985); including: mountain biking, white water rafting, rock climbing, and skydiving. Risk is defined as the extent to which the outcome of a decision is uncertain (Sitkin and Pablo 1992). Risk recreation is the leisurely pursuit of an activity in a natural environment that may contain uncertainty and potential harm (Robinson 1992). Storm chasing is a risk recreation activity growing in popularity. Since the release of the Hollywood blockbuster *Twister* in 1996, and later the Discovery Channel television show Storm Chasers, which aired from 2007-2011, the general public has taken a larger collective interest in storm chasing (Bluestein 1999; Robertson 1999; Cantillon and Bristow 2001; Creyer, Ross, and Evers 2003; Xu *et al*. 2012; Zunkel, Dixon, and Wilkerson 2015). Storm chasing is no longer a strictly research-based activity solely comprised of researchers. In fact, the majority of those who engage in storm chasing do so as a leisure activity.

Storm chasing is defined as the pursuit of any severe weather condition, regardless of motive (i.e. curiosity, adventure, and scientific investigation), or for news or media coverage (Glickman 2000). Storm chasers are individuals who chase and intercept severe weather and document and report the phenomena as it occurs. Robertson (1999)

defined a storm chaser as a person who observes and follows a developing thunderstorm either for educational purposes, scientific research, or as a recreational activity. Similarly, Bristow and Cantillon (2000) defined a storm chaser as an individual who recreationally pursues meteorological phenomena (Cantillion, Merriam, and Naughton 2000). Jones and Coleman (2004) identified nine basic categories of individuals or groups who chase severe weather: scientists and researchers, hobbyists and amateurs, storm spotters, media personnel, tour groups, thrill seekers, locals, hurricane hunters, and fulltime professionals.

Research Questions

This research examines the factors associated with participation in storm chasing activities in the US and provides a geographic dimension to the current literature on storm chasing. Following previous research on risk recreation activities, both motivations and sensation seeking attributes of storm chasers are explored. Three research questions guide this investigation:

1. What are the sensation seeking attributes of storm chasers?

2. What are the motivations of storm chasers?

3. What are the relationships between motivations and sensation seeking attributes of storm chasers?

Significance of the Study

Storm chasing is often misconstrued in the eyes of the uninformed. If a film was produced regarding the real-life account of storm chasing, viewers might find themselves bored and uninterested because the majority of time spent storm chasing is spent driving to a destination or waiting for storms to develop. Media, such as movies, television shows, and printed stories misinform and skew the reality of storm chasing. Portrayals often show a false ease or a constant fortune when intercepting severe weather which, in turn, encourages inexperienced individuals to travel to severe weather prone areas and chase storms for all the wrong reasons (Jones and Coleman 2004). When inexperienced individuals enter the field to chase severe weather they can endanger not only themselves but other storm chasers and members of the general public.

As more and more individuals take part in the recreational risk activity of storm chasing the need to examine the factors influencing these decisions is necessary. Studies have previously examined either the motivations that drive risk activities or the personality traits (i.e. sensation-seeking characteristics) associated with other risk recreational activity participants. Examples include: scuba diving (Meyer, Thapa, and Pennington-Gray 2002), white-water rafting (Fluker and Turner 2000), sky diving (Celsi, Rose and Leigh 1993), and mountain climbing (Cronin 1991). However, with the exception of Xu *et al*. (2012), little has been done to examine the risk recreational group of storm chasers.

Despite the knowledge gained from previous research, calls for further quantitative and mixed-methods exploration (Robertson, 1999; Bristow and Cantilon 2000; Cantilon and Bristow 2001; Xu *et al*. 2012; Zunkel, Dixon, and Wilkerson 2015)

are found in the literature. Additionally, many veteran storm chasers and weather enthusiasts are uncomfortable with the term "recreational" as it applies to storm chasing because it groups experienced chasers with inexperienced newcomers and has a negative connotation (Robertson 1999). In this study a storm chaser is defined as an individual who observes and follows a developing thunderstorm either for educational purposes, scientific research, or as a recreational activity.

II. REVIEW OF LITERATURE

2.1 Storm Chasing History

It is imperative that thunderstorms, especially severe thunderstorms, be intercepted, observed, and documented in order to learn about severe weather for meteorology and climatology studies and public safety awareness. Because thunderstorms are typically isolated and affect small geographic areas, the chances of observing a thunderstorm and its associated hazards are quite small. In the early 20th century what was known about severe thunderstorms and tornadoes came from eyewitness accounts and later from outbreak events near radar sites. Before the introduction of interception and observation programs, very little was known about the structure and behavior of severe thunderstorms and tornadoes. Several individuals who lived prior to WWII deserve praise for their discoveries and advancements in the science of severe weather, including: Benjamin Franklin, James Pollard Espy, William C. Redfield, and Lt. John Park Finley (Sandlin 2013). Each individual would leave his mark and help increase the general scientific knowledge of storms.

On 2 November, 1743, an event occurred which cast a new light on the movement and structure of storm systems. While attempting to view a lunar eclipse in Philadelphia, PA, a storm, and possible weakening hurricane, clouded the sky and interrupted the eclipse. Benjamin Franklin, after viewing the event, gathered eyewitness reports about the storm and talked to observers and was able, for the first time, to comprehensively document the movement of storms in the Northern Hemisphere. Years later, in his letter on 13 February, 1749, to clergyman Jared Eliot, Franklin described that

storms begin to the “leeward,” (start earlier in the region toward which the wind is blowing) and begin later to the “windward,” (the opposite direction) (Lipman 2011). Franklin correctly determined that the surface winds of a storm system were only incidental to the forward movement of the storm (Lipman 2011; Sandlin 2013).

In 1821 the “Great September Gale”, another possible hurricane, struck the northeastern US coast causing a storm surge that flooded the New Jersey coastline as well as several streets on Manhattan Island. William C. Redfield, a successful businessman from Connecticut, while out observing the storm damage with his son in rural Connecticut noticed an interesting damage pattern. Near Middletown, in the center of the state, trees had been blown over toward the northwest. In neighboring Massachusetts, the trees had fallen in the opposite direction, pointing toward the southeast. Redfield realize that in just 70 miles (112 km) the winds had reversed direction and proposed that the storm was a progressive ‘whirl-wind’, or a cyclonic rotating storm. Redfield published his findings in “Remarks on the Prevailing Storms of the Atlantic Coast” in July 1831 (Sandlin 2013; Moore 2015).

In 1834 James Pollard Espy became a meteorologist for both the Franklin Institute and the American Philosophical Society of Philadelphia. As chair of a joint committee, he established a network of weather observers to study storms. Espy’s most notable experimental work centered on heat effects. He created an instrument, termed the “nephelescope,” to simulate the behavior of clouds and to measure the dry and moist adiabatic cooling rates. Espy deduced the role of latent heat in cloud formation and rainfall. He was also the first to point out that the latent heat released by condensation of the vapor in clouds resulted in a considerable expansion of the air; the latent heat,

therefore, provided the energy for continued upward movement of the cloud and storm formation (Sandlin 2013).

The differing ideas between William Redfield and James Espy resulted in a heated long-standing feud between the two men. In 1856, the solution to the storm controversy came to an end. William Ferrel of Nashville, TN demonstrated in his "Winds and Currents of the Ocean" that wind should twist around the center of a storm and that circulating wind was caused by the rotary motion of the Earth (Sandlin 2013). Once the Earth's rotation was added to Espy's theory, a true picture of atmospheric circulation arose. This discovery meant that both Espy and Redfield had been partially correct. The winds did rush upward as Espy had argued and they did revolve around a central point as Redfield claimed.

In May 1879, a US Army Signal Service observer was sent to the central plains to investigate reports of tornadoes. This individual, John Park Finley, would become one of the first to specifically study tornadoes. Finley is widely remembered for creating the most complete climatology of tornadoes that struck the US between 1794 and the end of 1881, titled "Character of Six Hundred Tornadoes" (Galway 1985; Bradford 1999; Heidorn 2008; Sandlin 2013). While working on the report, Finley became convinced he could devise a viable method for forecasting tornadoes. In 1884 Finley began issuing regular tornado predictions, however, these experimental forecasts failed to reach the general public as the term "tornado" was banned for public use until the 1950s out of concern that the term would cause widespread fear. Finley based his forecasts on an analysis of the morning surface weather map supplemented with climatological data. He outlined his initial tornado forecast rules in an 1884 article in *Science* and later revised

the rules to include features a forecaster should look for on the weather chart (Heidorn 2008; Sandlin 2013). The revisions were published in 1888 in the *American Meteorological Journal*. The first successful forecast would not come until almost 1950, but much of what is known today about severe events, more specifically tornado forecasting, is directly related to Finley's work (Bradford 1999; Heidorn 2008).

2.1.1 History: Post WWII to 1970s

Storm chasing as it is recognized today began after WWII (Cantillon and Bristow 2001). A major milestone was achieved several years after the end of the war, the successful forecast of a tornado. On 20 March, 1948, a tornado roared through Tinker Air Force Base just outside Oklahoma City, OK, damaging millions of dollars in planes and equipment. Five days later, Air Force Captain Robert C. Miller and Major Ernest J. Fawbush correctly predicted, using radar imagery and environmental conditions, that the atmospheric conditions were ripe for tornadoes in the vicinity of Tinker Air Force Base. Later that evening on 25 March, 1948, a tornado struck the Tinker Air Force Base causing considerable damage, a few injuries, but most importantly no fatalities (Sandlin 2013).

Military pilots who had a working knowledge of radar technology were given an opportunity to study storms first hand by flying through them (Bristow and Cantillon 2000). The information gained from these flights became the basis for understanding tornado producing storms. The post-WWII era brought many highway improvements, which helped bring storm chasing from the air to the ground (Bristow and Cantillon 2000).

2.1.2 History: 1970s

The 1970s were primarily responsible for establishing a successful methodology for intercepting severe thunderstorms. Beginning in the late 1960s, the National Severe Storms Laboratory (NSSL) began a Tornado Intercept Program with the intent of intercepting tornadoes using vehicles, particularly armored tanks (Bluestein 1999). Switching to mobile automobiles instead of tanks allowed researchers to better visually capture severe storms from safe distances. Apart from the plethora of photographs and videos captured during these observations, the main result of this early program was the establishment of a methodology for safely intercepting a severe thunderstorm. This method has remained largely unchanged since its inception approximately 40 years ago.

The interception of a severe storm typically begins early in the morning of the predicted severe event with the identification of a geographic area that has a high probability of experiencing severe weather. Identification is based on morning surface, sounding, and model data (Robertson 1999). After identifying a prime location, storm chasers arrive in the targeted area prior to storm formation. After development, chasers must travel to the exact area and attempt to position themselves approximately 1.6 to 4.8 km (1 to 3 miles) in front and to the southern portion of the anticipated path of the storm's wall cloud or updraft base (Bluestein 1999). This area is considered the most likely region of tornadic development in a supercell thunderstorm (Brooks 1951). This distance typically allows a storm chaser to safely observe a tornado without the danger from airborne debris.

One shortcoming was quickly identified. The further an individual was from a radar site, the more difficult it was to correlate between *in situ* data and radar data. While chasers were in the field observing, recording pictures, video, and taking *in situ* measurements of severe thunderstorms, a meteorologist at the NSSL headquarters coordinated information to those in the field. This meteorologist, termed a "nowcaster", provided interceptors with up-to-the minute surface observations, interpretation of satellite data, short-term forecasts, and radar information (Bluestein 1999). Many chasers had limited understanding of how these radar signatures related to their on-site observations.

2.1.3 History: 1980s

In the 1980s, the NSSL incorporated scientific equipment into the field, including the TOTO (Totable Tornado Observatory) sensor package and LANL (Los Alamos National Laboratory) Doppler radar. Discoveries made during this decade include that the maximum speed of tornadoes can marginally exceed 100 m/s (~225 mph) in large, violent tornadoes and verification that relatively high wind speeds may still occur in a tornado near the end of its life-cycle.

After successfully developing a methodology to safely intercept severe thunderstorms and tornadoes, officials at the NSSL began to integrate advanced scientific equipment into the field to collect *in situ* data during severe thunderstorms. In 1980 Al Bedard at the Wave Propagation Laboratory in Boulder, Colorado, along with Howard Bluestein at the University of Oklahoma at Norman constructed a 400-pound instrument package named TOTO, which was named after the dog in the 1939 movie *The Wizard of*

Oz and later was the inspiration for the device 'Dorothy' in the 1996 movie *Twister*. TOTO was designed to be transported via pickup truck and deployed in approximately 30 seconds into the path of an oncoming tornado (Bedard and Ramzy 1983). The implementation of TOTO began in the summer of 1981 with its overall goal to collect and record measurements of wind speed, wind direction, pressure, and temperature (Bluestein 1983; Bluestein 1999). Results from TOTO indicated that the barometric pressure under a wall cloud is typically 2–5 millibars less compared to the surrounding atmosphere (Bluestein 1983). TOTO was placed under several wall clouds but was never successfully struck by a tornado. Testing conducted at Texas A&M University's wind tunnel in March 1983 revealed that wind speeds of approximately 50 m/s (110 mph), much less than the maximum wind speed in many violent tornadoes, could topple the instrument onto its side (Bluestein 1999). Approximately five years after the projects inception, the TOTO project was abandoned.

Much of the knowledge gained regarding severe thunderstorms and tornadoes came from chance situations when a storm passed by a fixed radar site. Researchers had been interested in creating a reliable, sturdy portable radar dish capable of traveling into the field with the goal of capturing radar data during severe weather and tornado outbreaks. Scientists proposed that a higher resolution image could be attained if a portable radar was transported and placed close to a severe thunderstorm or tornado. This imagery would allow for more precise identification of storm movement and structure while also providing imagery at high frequencies. Using a portable radar, scientists would be able to scan the area much closer to the ground compared to a traditional radar site many miles away. This portable radar would increase the number of

datasets while also increasing the sensitivity to the highest wind speeds in these severe storms. Coupled with ground visual documentation and surface measurements, portable radar introduced a new dimension to studying severe storms.

In 1986, technicians from Texas Instruments made available to severe weather researchers a portable, 3 centimeter wavelength, continuous-wave Doppler radar from the LANL (Bluestein 1999). The LANL radar was a low-power, battery-operated, solid-state, portable version of the first meteorological Doppler radar used to collect wind spectra from a 1958 tornado in Kansas (Brown and Lewis 2005). After upgrading the LANL, radar researchers and operators were able to monitor and record base velocity data, the approaching and receding winds relative to the position of the radar, in real time. Previously, base directional velocity data was recorded separately then manually combined into one image (Whiton *et al.* 1998). This new feature allowed operators to analyze base velocity data in real-time, resulting in better positioning of storm chasers. Beginning in 1987, with support from the NSSL during the Doppler/Lightning (DOPLIGHT '87) project and the National Science Foundation (NSF), the upgraded LANL radar was taken into the field to record data on severe thunderstorms (Bluestein 1999).

Between the storm seasons of 1990 and 1991, LANL radar data, coupled with the efforts of storm chasers and support from the NSSL and the NSF, made several important discoveries about the characteristics of tornadoes (Bluestein 1999). One discovery was that the thermodynamic maximum speed limit of tornadoes, originally thought to be approximately 100 m/s (~225 mph), can be marginally exceeded in large, violent tornadoes (Snow and Pauley 1984; Bluestein 1999). Another important discovery was

the confirmation of Fujita Scale F-5 wind speeds in a tornado. F-5 wind speed intensities had previously been indirectly estimated using photogrammetric analysis of debris and by physically examining damage caused by tornadoes after the incident. A third discovery made by the LANL radar was the measurement of relatively high wind speeds in a tornado near the end of its life-cycle, termed the rope-out stage.

The combination of portable Doppler radar and field experiments helped usher scientists into a new age of thunderstorm and tornado understanding. Unfortunately, operators quickly noticed disadvantages when the LANL radar was brought into the field. One disadvantage was that the resolution of the Doppler radar was too low to resolve the substructure of the wind field in tornadoes. With the radar's 5° beam width antennas, its cross-beam resolution could stretch approximately 300 m or more at safe distances from a tornado, even though its along-the-beam resolution in its Frequency Modulated Continuous-Wave (FMCW) mode was 75 m (Bluestein 1999). To attain finer resolution in the cross-beam direction, larger antennas would need to be installed. Unfortunately, adding larger antennas would have rendered the system less portable or not portable at all. In 1995, after eight years of service, the LANL Doppler radar was decommissioned.

2.1.4 History: 1990s

A research project named the Verification of the Origins of Rotation in Tornadoes Experiment (VORTEX) was conducted during the spring of 1994 and 1995. VORTEX sought to examine tornadogenesis, tornado dynamics, kinematics, and how the environment regulates storm structure. Results of the VORTEX project included identifying kinematic similarities between tornadic and non-tornadic supercells, the

importance of downdrafts in mesocyclones as an important factor in tornado formation and intensity, and the first detailed three-dimensional maps of tornado winds.

A research experiment conducted during the spring of 1994 and 1995 tested multiple hypotheses concerning tornadogenesis, tornado dynamics, kinematics, and how the environment regulates storm structure. The VORTEX project involved a multiplatform, storm intercept, and field experiment in the southern plains (Rasmussen *et al*. 1994). The first intercept experiment was focused on making decisions involving the placement of equipment in the field by someone in a mobile vehicle, rather than back at the NSSL or the University of Oklahoma. A new feature used during this experiment was the implementation of twelve mobile vehicles, each equipped with meteorological instruments to measure and record wind speed, wind direction, temperature, and humidity (Rasmussen *et al*. 1994). Another innovation introduced during this study was the use of global positioning system (GPS) satellites and receivers to georeference the data collected.

The VORTEX project resulted in a fundamental change in the understanding of severe thunderstorm and tornado development. Field observations revealed striking kinematic similarities between tornadic and non-tornadic supercells. Both tornadic and non-tornadic supercell storms were found to contain strong low-level rotating updrafts, termed mesocyclones (Bluestein *et al.* 1998). Another result of the VORTEX project was the idea that the thermodynamic properties of downdrafts in mesocyclones can be an important factor in tornado formation and intensity. The understanding of thunderstorm features, such as outflow boundaries and anvil shadows was also greatly enhanced during this project (Wurman *et al.* 2012). Although researchers were not able to determine how

exactly these features assisted in the evolution of tornadoes, valuable field data was collected to aid lab simulations. Additionally, the first detailed three-dimensional maps of the winds in a tornado were obtained by the prototype Doppler on Wheels (DOW) mobile radar (Bluestein 1999). These three-dimensional images documented the horizontal and vertical distribution of intense winds in both the core and surrounding regions at fine temporal and spatial resolution (Wurman *et al*. 2012). The images gave scientists a first ever look at the evolution of tornadic winds, the central downdrafts, rapid changes in tornado structure, and the vertical and horizontal distribution of debris.

2.1.5 History: 2000s

After the successful completion of the VORTEX project in 1995, questions remained regarding the evolution of supercell thunderstorms prior to and during tornadogenesis as well as during the life cycle of a tornado. The second research project, termed VORTEX2, involved more than 100 scientists and students using 40 vehicles to document and study supercell thunderstorms and tornadoes (Cobb 2010). The overall mission of VORTEX2 was to improve the accuracy, lead time, and false-alarm rates of tornado warnings; observe the differences between non-tornadic supercells, weakly tornadic supercells, and violently tornadic supercells, and determine how thunderstorms, such as Mesoscale Convective Systems, interact with one another and with their local environment and how these interactions affect tornado genesis (Wurman *et al*. 2012).

The project covered an area of approximately 1.2 million square kilometers from the Dakotas to southwestern Texas and from Colorado and Wyoming to Iowa and Missouri (VORTEX2 2012). The first year of the project, 2009, presented challenges for

the VORTEX2 team because of an uncommonly quiet storm year. During the second and final year of the VORTEX2 project, in 2010, data were collected from over a dozen tornadic supercells (VORTEX2 2012). Results from this study are still being analyzed and published (Wakimoto *et al.* 2011; Atkins *et al.* 2012; Wurman, Kosiba, and Robinson 2013; Supinie *et al.* 2016).

Today, much of the storm chasing activity is performed by individuals not associated with a research institution or the NWS. While these storm chasers may not bring expensive research equipment into the field their presence in nonetheless important. The current, modern day, storm chasers perform the activity because they are interested in severe weather and assist the NWS to validate storm reports and confirm that what is being seen on a computer screen is actually occurring in the field. In fact, storm chasers are integral to the addition of storm data to the official record.

2.2 Motivational Theories of Recreation Participation

Motivations are the cause that activates human behavior (Mook 1996; Mannell and Kleiber 1997). Motivation is defined as a state of need or a condition that drives an individual toward certain types of action likely to bring satisfaction (Moutinho 2000). Maslow (1943) developed the Need Hierarchy Theory classifying motivations based on five types of human needs, including: physiological, safety, love, esteem, and self-actualization. Maslow placed these five needs within a hierarchy, from physical needs being the lowest to self-actualization being highest and stated that the appearance of one type of need depends on the satisfaction of the previous need category. Maslow's hierarchy has some limitations. Maslow noted that behavior is multi-motivated, and not

all behaviors are determined by basic needs. Therefore, efforts to explain and understand motivations continued to develop.

White (1959) proposed that there are two types of motivations: intrinsic and extrinsic (Deci 1975). Intrinsic motivations refer to engaging in an activity purely for the pleasure and satisfaction derived from doing the activity, even in the absence of external constraints or material rewards (Deci and Ryan 1985). Deci (1975) stated that intrinsic motivation stems from the psychological needs of competence and self-determination, whereas extrinsic motivation pertains to a wide variety of behaviors that are engaged towards an end and not for their own sake.

Intrinsic and extrinsic motivations have been examined in different recreational activities. Bennett and Kramer (2000) found that a set of intrinsic (i.e. the feeling, the challenge, self-satisfaction, and fulfillment) and extrinsic motivations (i.e. sponsorship, travel, and competition) drive participation in surfing. Diehm and Armatas (2004) found when comparing surfers and golfers in Australia that surfers scored significantly higher than golfers in intrinsic motivations. The Intrinsic-Extrinsic Theory also has limitations. First, recreationists usually engage in recreational activities based on a combination of both intrinsic and extrinsic rewards. Also, the definition of intrinsic and extrinsic motivation is very subjective, and varies among different researchers (Deci 1971; Iso-Ahola 1980).

Iso-Ahola (1982) postulated that leisure is driven by two dimensions: 1) seeking psychological satisfactions and 2) escaping from a routine environment. These two dimensions are not mutually exclusive, and it is often possible for an individual to be engaged in both motives simultaneously (Iso-Ahola 1983; 1990). Furthermore, both

dimensions have a personal (psychological) and interpersonal (social) component (Iso-Ahola 1990; Ross and Iso-Ahola 1991). Personal satisfactions consist mainly of self-determination, sense of competence, challenge, learning, exploration and relaxation. Interpersonal satisfaction contains engaging in leisure activities for social contact and connectedness (Iso-Ahola 1990). The four dimensions (personal seeking, interpersonal seeking, personal escaping, and interpersonal escaping) were shown to operate as important motives for leisure behavior (Snepenger *et al*. 2006).

Although Iso-Ahola (1980) established that leisure and recreation were driven by escapism and seeking motives, specific motivations were still unknown to researchers. As a result, many researchers observed and interviewed participants in their leisure activities to develop inventories measuring leisure motivations. The Recreation Experience Preference (REP) scales developed by Driver (1983) and his colleagues are among the best-known and tested inventories (Mannell and Kleiber 1997). The REP scales have been employed in numerous outdoor recreation settings (Beh and Bruyere 2007). The instrument measures the extent to which specific satisfactions are desired and expected from leisure activities or settings, and have proven to be a valid and reliable indicator of recreation motivations and benefits (e.g. Manfredo, Driver, and Tarrant 1996). The full REP scale includes 234 items in twenty-one domains, including Achievement, Stimulation, Learning, and Social Interaction. However, due to the comprehensive nature and length of the scale, most studies select and measure motivational domains relevant to the study context. Schuett (1993) chose 13 domains from the REP scales to study whitewater kayaking participants. Yuan and McEwen (1989) identified 31 items from the REP scales to study the preferences of campers.

Virden and Knopf (1989) selected 37 specific scale items to study the relationships between activities, experiences, and environmental settings. Xu *et al.* (2012) chose 21 specific scale items to study the motivations and sensation-seeking characteristics of recreational storm chasing tour participants.

2.3 Personality Traits and Sensation Seeking

The idea of Sensation Seeking was proposed by Marvin Zuckerman in 1971 to explain the differences in an individual's willingness to participate in risky activities across a wide range of behaviors. Zuckerman (1994) noted that sensation seeking is "a trait defined by the seeking of varied, novel, complex and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience" (Zuckerman 1994, p. 27). Simply put, a sensation seeker is a person who needs varied, novel, and complex sensations and experiences to maintain an optimal level of arousal (Zuckerman 1971).

The Optimal Level of Stimulation (OLS), first formulated by Wundt in 1873, re-emerged during the 1950s and early 1960s to explain the curvilinear relationship between affective reactions and intensities of stimulation (Zuckerman 1978). The Sensation Seeking Scale (SSS) was developed in an attempt to provide an operational measure of the OLS construct (Zuckerman 1978). Since sensation-seeking was first proposed by Zuckerman in the early 1970's, it has been through several stages of development; specifically, five different forms of the scale. Among these scales, the SSS-V (five) is the most common and widely used.

According to Zuckerman (1979), the SSS-V consists of four sub-scales: (1) Thrill and Adventure Seeking, measuring the desire to engage in risky, impulsive, and adventurous activities offering the individual unique sensations; (2) Experience Seeking, measuring the desire to seek new sensations through the mind and senses and having an unconventional lifestyle; (3) Boredom Susceptibility, measuring aversion to routine, repetitive, and monotonous invariant situations; and (4) Disinhibition, measuring the need to seek social stimulation through disinhibited behavior. Each of the four sub-scales includes ten forced-choice items (Zuckerman 1979). A high score in the subscales indicates a great need for stimulation or a high level of sensation seeking. A total score for sensation seeking is derived from the summation of four independent scales. Research has shown that the SSS-V scale is a reliable and valid measurement of sensation seeking for a variety of activities (Zuckerman 1978; Zuckerman, Eysenck, and Eysenck 1978; Shoham, Rose, and Kahle 2000).

Although the SSS-V scale has been widely used, it has received criticism in four areas, as delineated by Arnett (1996) and Hoyle *et al.* (2002). First, responses to several items related to strenuous physical activities, such as skiing and mountain climbing, were likely affected by respondent age. Second, original words in some items were colloquial, dated and no longer appropriate, reflecting idioms of the late 1960's to early 1970's when the scale was developed (e.g. hippies). Third, the scale contained numerous items related to alcohol or drug use and sexual behavior, thus rendering the form tautological for many sensation-seeking studies for which the scale had been used. Fourth, since the scale has 40 items in total, it's lengthy and too time-consuming for respondents and may not be

included in a study with monetary and space limits. Also, the forced-choice format is cumbersome, and may limit the understanding of the study outcomes.

Hoyle *et al.* (2002) revised the SSS-V, and developed a new scale to measure sensation seeking, termed the Brief Sensation Seeking Scale (BSSS). In the new scale, the alcohol, drug and sex related questions and outdated colloquial statements were deleted. The new scale measures sensation seeking still using the four subscales, but is much shorter, with two items for each sub scale. The BSSS also uses a five-point Likert format (from strongly agree to strongly disagree) instead of the forced-choice format in the original scale (Hoyle *et al*. 2002). The strength of the BSSS is its reflection of the full content domain of the original sensation seeking scale, thereby allowing researchers using the BSSS to derive predictions from findings based on SSS-V (Hoyle *et al.* 2002). Similar to the SSS-V, the BSSS has high internal consistency and reliability (Hoyle *et al*. 2002; Gosling, Rentfrow, and Swann 2003). The BSSS is also limited like the SSS-V. Previous studies that supported the construct validity of BSSS all have high school students or adolescents as their sample subjects (Donohew *et al*. 2000; Stephenson *et al.* 1999; Palmgreen *et al*. 2001). Therefore, the validity of BSSS in those non-student samples is unclear. In addition, with only two items per category, it is too brief to fully distinguish sensation seeking levels among participants.

Other scales have been developed beyond SSS-V and BSSS to measure sensation seeking, including the Arnett Inventory of Sensation Seeking (Arnett 1994), Impulsive Sensation Seeking Scale (Zuckerman, Kuhlman, and Camac 1988), and Need Inventory of Sensation Seeking (Roth, Hammelstein, and Brähler 2007). However, the SSS-V still remains the most widely used and is the basis of many of these subsequent scales.

2.4 Motivations in Risk Recreation

Studies have found that several motivations are associated with participation in risk recreational activities. For example, Meyer, Thapa, and Pennington-Gray (2002) examined the motivations of scuba divers in north central Florida and found four motivations driving participation in this activity, including: to view underwater animal and plant life, because it is stimulating and exciting, to explore things, and for the adventure of the activity. In addition, researchers found significant gender differences with females being more intrinsically motivated and males being more extrinsically motivated.

Studies have also examined the impact of previous experiences on motivations. Fluker and Turner (2000) studied participants on a one-day rafting trip of a whitewater rafting company in Melbourne, Australia. Motivations varied greatly among people with or without previous experience. Participants without prior rafting experience focused more on the action of whitewater rafting by seeking a new experience and exploring adventure alternatives, and are willing to take risks to experience this activity. In contrast, participants with prior rafting experience tend to be more motivated by ancillary benefits of whitewater rafting, such as being with friends in a natural environment (Fluker and Turner 2000). Differences between experienced and novel participants were found in other risk recreation activity participants such as skydivers (Celsi, Rose, and Leigh 1993). First-time skydivers were driven by curiosity, thrill seeking, social compliance, and a desire for adventure whereas experienced skydivers seek skill-status and social recognition within the skydiving community.

2.5 Sensation Seeking in Risk Recreation

Similar to motivations, sensation-seeking as an important personality trait has been shown to influence participation in risk recreation (Ewert 1985). Several studies have found that sensation seeking differentiates high or low risk activity participants from the general population (Babbitt, Rowland, and Franken 1990; Jack and Ronan 1998; Slanger and Rudestam 1997; Diehm and Armatasm 2004; Xu *et al*. 2012). For example, examining sensation seeking among female participants in aerobic exercise class, a low risk recreation activity, Babbitt, Rowland, and Franken (1990) found that female participants had a lower sensation-seeking level compared to the Australian general population who does not participate in aerobics.

Studies also found that high-risk activity participants have different sensation-seeking levels compared to the general population. For example, Cronin (1991) found that members of a university mountain climbing club scored higher on each of the four subscales and the total sensation seeking scores than the general population or the control group. Similar results were found regarding hang gliding (Jack and Ronan 1998; Wagner and Houlihan 1994), skiing, rock climbing, white water kayaking, and stunt flying (Slanger and Rudestam 1997), sky diving, mountaineering, motor-car racing (Jack and Ronan 1998), parasailing (Chirivella and Martinez 1994) and downhill skiing (Calhoon 1988).

Depending on the nature of certain activities and other contextual conditions, risk recreation participants may not score higher on all subscales of sensation seeking, compared to the general population. For example, recreational surfers in Australia

(Diehm and Armatas, 2004) scored lower on boredom susceptibility which is related to the nature of surfing itself. Surfers have to control boredom because of the variability of surf conditions, which may cause them to wait considerable lengths of time for appropriate conditions for surfing. Similarly, scuba divers in Pittsburgh, PA did not score different from the reference population on the total scores, but scored significantly lower on the Boredom Susceptibility and Disinhibition subscales, while scoring higher on the Thrill and Adventure Seeking and Experience Seeking subscales (Taylor *et al*. 2001).

2.6 Sensation Seeking and Storm Chasing

Few have studied why individuals storm chase and what motivates them to do so (Robertson 1999; Cantillon and Bristow 2001). Robertson (1999) mapped the storm-chasing routes of five recreational storm chasers who drove throughout the day and undertook extended pursuits. The results dispelled several common stereotypes associated with the activity. According to Robertson (1999), recreational storm chasing is not always an exciting or thrilling activity, nor were recreational chasers reckless daredevils by intentionally putting themselves in life threatening danger being too close to a severe storm or tornado.

Weber (2001) found the motivations of enjoying nature and learning to be particularly important in outdoor adventure tourism activities. Research examining the motivations and characteristics of storm chasers is largely biased, focusing on individuals taking part in recreational storm chasing tours. Xu *et al.* (2010) examined the responses of 115 individuals taking part in a recreational guided storm chasing tour across the Great Plains and found that recreational storm chasers were mostly motivated by enjoying

nature and learning. The study suggests that recreational storm chasers consider learning from the activity itself and being with people who share similar interests to be important components in the overall storm-chasing experience. Xu *et al.* (2012) further examined the sensation-seeking traits associated with recreational guided storm-chasing tour participants' socio-demographics, storm-chasing involvement, and tour satisfaction levels. Results showed that several socio-demographic, storm-chasing involvement, and tour satisfaction indicators are associated with experience seeking, thrill and adventure seeking, and boredom susceptibility dimensions (Xu *et al.* 2012).

Chen *et al.* (2010) used Importance-Performance Analysis (IPA) to examine recreational storm chasers' perceptions of the operational attributes of guided tours. Results of the study indicate that recreational storm chasers are motivated by enjoying nature, learning, stimulation, and socializing with similar people (Chen *et al.* 2010).

Richard Wolkomir (1994) asked "what compels storm chasers to drive tremendous distances across the plains?" Zunkel (2013) identified that a storm chaser's confidence in their severe weather understanding may be a factor influencing the range of travel taken to storm chase (Zunkel, Dixon, and Wilkerson 2015). Zunkel (2013) examined the responses of over 200 individual storm chasers and found that education level does not influence the range of travel taken to observe and follow severe weather. However, further analysis identified that a person's confidence level was a better variable affecting a storm chaser's geographic chasing range.

Zunkel, Dixon, and Wilkerson (2015) used binary logistic regression on existing data from Zunkel (2013) to identify how confidence influences storm chasing motivations and behavior characteristics. Results indicated that individuals with a longer

history of documentation are 3.7 times more likely to have high confidence; individuals who travel longer average distances are 2.5 times more likely to have confidence; and individuals who encounter barriers, e.g. lack of experience and high monetary costs, are less likely to have confidence. Additionally, analysis showed a strong correlation to the amount of time a storm chaser has been active in the field to confidence. Individuals with higher confidence are 3.8 times more likely to have a longer history of storm chasing; individuals who frequently chase are 2.5 times more likely to have a longer history of storm chasing; and individuals who receive monetary gain are 3.7 times more likely to have a longer history of storm chasing.

III. STUDY SITE LOCATION

The US averages approximately 100,000 thunderstorms annually with roughly 10% of thunderstorms becoming severe (SpotterNetwork 2012). This high frequency makes the US the number one country in the world for severe thunderstorm occurrences. The National Weather Service (NWS) defines a severe thunderstorm as a storm that produces either one-inch (2.54 cm) diameter-sized or greater hail, wind gusts exceeding 58 miles per hour (93 kilometers per hour), or a thunderstorm that produces a tornado (Glickman 2000). Depending on the variables and calculation methods, the areas known for severe thunderstorm and tornado development can shift dramatically across the country from the Rocky Mountains to the Appalachian Mountains depending on the time of the year (Ashley 2007; Dixon *et. al* 2011). Although the Florida Peninsula experiences the highest frequency of thunderstorms, most storms in this area are typically short-lived and less violent compared to other regions of the US.

There is an ongoing debate in the field of meteorology of the possible existence of multiple tornado alleys in the US (see: Broyles and Crosbie 2004; Ashley 2007; Gagan, Gerard, and J. Gordon 2010; Dixon *et. al* 2011; Dixon *et al*. 2014; Agee *et al*. 2016). Areas of study include the Great Plains (commonly referred to by the nickname "Tornado Alley") and several states in the southeastern portion of the country (referred to as "Dixie Alley"; Figure 1) (Broyles and Crosbie 2004; Ashley 2007; Gagan, Gerard, and Gordon 2010; Agee *et al*. 2016). Conversely, the opposing argument contends that areas of tornado occurrence are seasonally driven and that shortcomings in the dataset of tornado occurrence limit the ability to definitively discern if there are multiple alleys or if tornado

occurrence is mostly limited to the eastern US (Dixon *et al*. 2011; Dixon *et al*. 2014; Coleman and Dixon 2014). This study has no bearing on the existence or nonexistence of multiple tornado alleys. Because the US has the highest frequency and occurrence of severe thunderstorms and tornadoes the study area for this research project will include the contiguous US. Specifically, this study will focus on storm chasers within the US.

IV. METHODOLOGY

4.1 Study Population

The subjects in the study are storm chasers, individuals who observe and follow developing thunderstorms for educational purposes, scientific research, or as a recreational activity (Robertson 1999). Determining and locating a study population is difficult because the number of storm chasers in the US is unknown. Several factors exist that limit the ability to accurately determine the number of storm chasers. These factors include: the limited severe weather season, which usually begins in the springtime in March and concludes in the late summer in August; the few membership organization options available catering strictly to storm chasers; and most notably, the inability to keep track of storm chasers in a unified database (Zunkel, Dixon, and Wilkerson 2015).

The total number of current storm chasers remains uncertain; however, approximations can be made for a larger and related group termed weather enthusiasts. A weather enthusiast is an individual highly interested in meteorology or weather, but not necessarily self-identifying as a storm chaser. Examples of particular weather enthusiasts include: cloud watchers, storm spotters, and emergency managers. Two of the largest online membership organizations for weather enthusiasts, SKYWARN and SpotterNetwork, have a combined total membership in excess of 325,000; approximately 300,000 SKYWARN members and 25,000 SpotterNetwork members (Zunkel, Dixon, and Wilkerson 2015).

Participants in the study were located electronically using two online sources, SpotterNetwork and the Reddit subreddit group r/stormchasing. In 2006, AllisonHouse

LLC introduced an organizational network to incorporate weather enthusiasts, storm chasers, storm spotters, coordinators, and public servants, in a seamless information network called SpotterNetwork (Pietrycha *et al.* 2009). SpotterNetwork is designed to improve the flow of real-time information without human intervention by allowing a storm observer to report on multiple types of severe weather hazards using a graphical user interface on a personal computer which can be received by a meteorologist at the NWS, within 45 seconds, allowing for near real-time quantification (Jans and Keen 2012).

The website Reddit (Reddit.com) has become one of the most visited websites on the internet since its creation in 2005 (Gilbert 2013). Reddit is an entertainment, social news networking service, and news website where registered community members can submit content, such as text posts or direct links, making it similar to an online bulletin board system. Registered users can vote submissions up or down to organize the posts and determine their position on the site's pages. The submissions with the most positive votes appear on the main page or the top of a category. Content entries are organized by areas of interest called "subreddits". Subreddit topics include: news, gaming, movies, music, books, fitness, food, and photosharing, among many others. One particular subreddit called “storm chasing” has just under 3,000 members (2,942 as of 5 February 2017) and caters to individuals interested in the storm-chasing activity.

4.2 Data Collection

To address the study objectives, a survey instrument (Appendix B) gathered information on motivational dimensions, sensation-seeking characteristics, and socio-

demographic characteristics of storm chasers in the US. A consent form (Appendix A) was available for participants taking the survey. The study adapted a survey questionnaire based on Xu *et al.'s* (2012) study. Each question was formatted based on a five-point Likert type scale where 1 equaled very unimportant and 5 equaled very important. The first portion of the survey was adapted from B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory which categorizes motivations into specific domains (Manfredo, Driver, and Tarrant 1996). Unlike Xu *et al.* (2012), which focused more on the motivational domain Achievement, this section of the questionnaire contains three questions for each of the six motivational domains (Achievement, Enjoying Nature, Learning, Risk Taking, Similar People, and Stimulation) for a total of eighteen questions. The second portion of the questionnaire was adapted from Marvin Zuckerman's Sensation Seeking Theory which factors sensation seeking into four categories: Thrill and adventure seeking, Experience seeking, Disinhibition, and Boredom susceptibility (Zuckerman 1971). This portion of the questionnaire contains four questions each relating to one of the four sensation seeking categories for a total of sixteen questions. The third portion of the questionnaire contains seven questions and focused on the socio-demographic information of the study participants.

Because data collection was performed online, a tool was necessary to collect and store the large volumes of survey responses for an extended period of time. The website SurveyMonkey (SurveyMonkey.com) has been used previously to store survey questionnaire responses for several weeks and longer (Zunkel 2013). SurveyMonkey is a leading provider of web-based survey solutions allowing users to gather information from a variety of people, organizations, and companies (SurveyMonkey 2013).

SurveyMonkey can generate and store a large volume of survey responses and also hyperlink the surveys resulting in less complication and faster response times.

The survey questionnaire was electronically distributed in two ways. One method of distribution involved the organization SpotterNetwork distributing the survey hyperlink via their social media (Facebook and Twitter) accounts and the second method of distribution involved posting the survey hyperlink directly to the subreddit r/stormchasing. According to Duggan and Brenner (2013), approximately 67% of online adults are Facebook users and 6% of online adults are Reddit users (Duggan and Smith 2013). Storm chasers using either, or both, websites had the full duration of the 2016 severe weather season to participate in this study.

The survey questionnaire was submitted to the Texas State University Institutional Review Board (IRB) for expedited exemption on 28 January, 2016. The survey questionnaire was accepted for exemption by the Texas State University IRB on 2 February, 2016, under EXP2016C9970T (Appendix C). The survey hyperlink was uploaded to r/stormchasing on 2 March, 2016. Six days later, on 8 March, 2016, the survey was posted to social media, in particular Facebook and Twitter, via the organization SpotterNetwork. Data collection was completed at the conclusion of the 2016 severe weather season, 1 September, 2016. Participants had the option of choosing whether to answer every question or not. Incomplete responses could not be used in statistical analysis and incomplete responses were omitted. 209 responses were collected, however, responses from 48 participants were removed because of missing responses. Surprisingly, an international audience responded to the call for study participants. Ten participants were identified from Australia, Germany, New Zealand, Canada (6), and the

United Kingdom. Because this study focused specifically on US storm chasers the responses from the 10 international participants were not included in the final results. A total of 151 responses remained and were analyzed.

4.3 Data Analysis

This study used Statistical Packages for the Social Sciences (SPSS) 22.0 software to conduct descriptive and inferential statistics. Likert scale responses were numerically coded (Tables 1-4). Descriptive statistics were used to examine the motivations of recreational storm chasers. Specifically, means and standard deviations were used to describe each of the six motivation dimensions (Achievement, Stimulation, Risk Taking, Similar People, Learning, and Enjoy Nature). Also, composite means of each motivational dimension were calculated by averaging the items included in each dimension. Likewise, descriptive statistics were used to assess the sensation seeking attributes of recreational storm chasers; means and standard deviations were used to describe each of the four sensation-seeking dimensions (Thrill and Adventure Seeking, Experience Seeking, Boredom Susceptibility, Disinhibition). Cronbach's alphas were computed to assess each factor's internal reliability.

Cronbach's alpha (α) is a measure of internal consistency, or how closely related a set of items are as a group and is considered to be a measure of scale reliability. Reliability is important because without this metric it is impossible to evaluate validity associated with the scores of the scales used in a research study. There are no definitive rules for interpreting internal consistency. De Vellis and Dancer (1991) note the internal consistency guideline of .9 or better are excellent, between .90 and .80 are good, between

.80 and .70 are acceptable, between .70 and .60 are questionable, between .60 and .50 are poor, and anything below .50 is unacceptable. Meyers, Gamst, and Guarino (2006) use the internal consistency guideline of .90 or better are outstanding, high to middle .8s are very good, low .8s are good, high to middle .7s are acceptable, low .7s are borderline acceptable, high to middle .6s are okay for research purposes, low .6s are problematic, and anything below that is not acceptable. Following Xu *et al*. (2012), an alpha of at least 0.70 was used as criterion for acceptable internal reliability (Corina, 1993).

Finally, a correlation analysis was conducted, using Spearman's rank coefficient, to analyze the relationships between motivations and sensation-seeking attributes of recreational storm chasers. Correlations were run in which each of the four sensation-seeking dimensions was correlated with each of the six motivation dimensions. Additional correlations assessed the composite means of the motivation and sensation-seeking dimensions.

4.4 Determining Significance of Correlations

Statistical significance was obtained if the *p*-value of the correlation was 0.05 or smaller. Numerous correlations resulted in positive and negative correlations in the correlation matrix, however, many of the significant correlations did not represent more than 15% of the total variance. In order to distinguish between what is statistically significant and what is truly noteworthy a threshold of 0.400 was established. Correlations below .400 failed to explain more than 15% of the total variance. Furthermore, significant correlations below the .400 threshold were categorized as

Statistical Significance whereas significant correlations above the .400 threshold were categorized as Practical Significance.

V. RESULTS

5.1 Sensation Seeking Correlations

Marvin Zuckerman's Sensation-Seeking theory factors sensation seeking into four categories: Thrill and Adventure Seeking, Experience Seeking, Disinhibition, and Boredom Susceptibility (Table 4) (Zuckerman 1971). Results in the first section identify the statistically significant and practically significant correlations within and between the categories of the sensation seeking. The first section details statistical significance, correlations below the .400 threshold, for correlations within and then between particular sensation seeking categories. The second section details practical significance, correlations above the .400 threshold, for correlations within and then between sensation seeking categories.

5.1.1 Statistical Significance

The following section discusses the results of correlations exhibiting a significance below the .400 threshold. As previously mentioned, correlations below .400 failed to explain more than 15% of the total variance.

5.1.1.1 Within Categories

For Marvin Zuckerman's Sensation Seeking theory, each particular category is comprised of four variables (Table 4). The results showed that statistical significance was identified for variables within particular categories of sensation seeking.

Correlations identified within categories examined the variables of one particular category and then analyzed the correlations among the associated category variables.

5.1.1.1.1 Thrill and Adventure Seeking

The variable 'Relaxation is my most important goal for recreation, within the category of Thrill and Adventure Seeking, was positively correlated to the variable 'I prefer safe sports and activities' (.295; significant at 0.01 level). The variable 'I prefer safe sports and activities' was found to be positively correlated with the variable 'Relaxation is my most important goal for recreation' (.295; significant at 0.01 level).

5.1.1.1.2 Boredom Susceptibility

The category Boredom Susceptibility also constitutes the Sensation-Seeking theory. Within Boredom Susceptibility, the variable 'I prefer friends who are excitingly unpredictable' was found to have a positive correlation to the variable 'I don't mind watching a movie I have seen before' (.226; significant at 0.01 level), a positive correlation to the variable 'I get restless when I spend too much time at home' (.302; significant at 0.01 level), and a negative correlation to the variable 'I like the comfortable familiarity of my usual environment' (-.184; significant at 0.05 level). The variable 'I don't mind watching a movie I have seen before' was determined to have a positive correlation to the variable 'I prefer friends who are excitingly unpredictable' (.226; significant at 0.01 level). The variable 'I get restless when I spend too much time at home' was positively correlated to the variable 'I prefer friends who are excitingly unpredictable' (.302; significant at 0.01 level). The variable 'I like the comfortable

familiarity of my usual environment' was negatively correlated to the variable 'I prefer friends who are excitingly unpredictable' (-.184; significant at 0.05 level).

5.1.1.1.3 Experience Seeking

The category Experience Seeking is the third category comprising the Sensation-Seeking theory. Comprising Experience Seeking is the variable 'I like to try new foods that I have not tasted before' which had a positive correlation to the variables 'I like to explore strange places' (.355; significant at 0.01 level) and 'I may change my itinerary on impulse when I travel' (.202; significant at 0.01 level). The variable 'I like to explore strange places', also within Experience Seeking, was positively correlated to 'I like to try new foods that I have never tasted before' (.355; significant at 0.01 level), 'I may change my itinerary on impulse when I travel (.356; significant at 0.01 level), and 'I prefer not to use a guide even in a place I don't know (.235; significant at 0.01 level). Another variable within the group of Experience Seeking is 'I may change my itinerary on impulse when I travel'. This variable was found to be positively correlated to the variables 'I like to try new foods that I have never tasted before' (.355; significant at 0.01 level), 'I like to explore strange places' (.356; significant at 0.01 level), and 'I prefer not to use a guide even in a places' (.325; significant at 0.01 level). Lastly, the variable 'I prefer not to use a guide even in a place I don't know' was positively correlated to the variables 'I like to try to explore strange places' (.235; significant at 0.01 level) and 'I may change my itinerary on impulse when I travel' (.325; significant at 0.01 level).

5.1.1.1.4 Disinhibition

The final category within Sensation-Seeking is Disinhibition. The variable 'I like friends that are different than me' had a positive correlation to the variable 'I like to have uncontrollable exciting experiences' (.231; significant at 0.01 level). The variable 'I prefer quiet parties with good conversation' had a negative correlation to the variable 'I like to have unconventional exciting experiences' (-.172; significant at 0.05 level). The variable 'I like to have unconventional exciting experiences' had a positive correlation to the variables 'I like friends that are different than me' (.231; significant at 0.01 level) and 'I don't mind watching a movie I have seen before' (.226; significant at 0.01 level), and a negative correlation to the variable 'I prefer quiet parties with good conversation' (-.172; significant at 0.05 level).

5.1.1.2 Between Categories

For Marvin Zuckerman's Sensation-Seeking theory, each particular category is comprised of four variables (Table 4). The results showed that statistical significance was identified for variables between particular categories of sensation seeking. Correlations identified between categories examined the variables of one particular category and then analyzed the correlations to the variables comprising the rest of the sensation seeking categories.

5.1.1.2.1 Thrill and Adventure Seeking

Correlations were noted comparing the variables between the categories of Sensation Seeking. For the category Thrill and Adventure Seeking, the variable 'I like to

try risky sports or activities' was positively correlated to the variables 'I get restless when I spend too much time at home' (.236; significant at 0.01 level), 'I like to explore strange places' (.211; significant at 0.01 level), 'I may change my itinerary on impulse when I travel' (.256; significant at 0.01 level), and 'I prefer not to use a guide even in a place I don't know' (.192: significant at 0.05 level). A negative correlation was identified to the variables 'I like the comfortable familiarity of my usual environment' (-.261; significant at 0.01 level) and 'I prefer quiet parties with good conversation' (-.188; significant at 0.05 level).

The variable 'Relaxation is my most important goal for recreation' was identified having a positive correlation to the variable 'I like the comfortable familiarity of my usual environment' (.310; significant at 0.01 level), a negative correlation to the variables 'I like to try new foods that I have not tasted before' (-.168; significant at 0.05 level) and 'I like to have unconventional exciting experiences' (-.222; significant at 0.01 level).

The variable 'I prefer safe sports and activities' was found to have a negative correlation to the variables 'I prefer friends who are excitingly unpredictable' (-.278; significant at 0.01 level), 'I don't mind watching a movie I have seen before' (-.197; significant at 0.05 level), 'I like to explore strange places' (-.169; significant at 0.05 level), 'I may change my itinerary on impulse when I travel' (-.225; significant at 0.01 level), and 'I like to have unconventional exciting experiences' (-.361; significant at 0.01 level). A positive correlation was identified to the variables 'I like the comfortable familiarity of my usual environment' (.278; significant at 0.01 level) and 'I prefer quiet parties with good conversation' (.196; significant at 0.05 level).

The variable ‘I like to do frightening things’ was found to have a positive correlation to the variable ‘I don’t mind watching a movie I have seen before’ (.345; significant at 0.01 level), a positive correlation to the variable ‘I get restless when I spend too much time at home’ (.307; significant at 0.01 level), a positive correlation to the variable ‘I like to explore strange places’ (.237; significant at 0.01 level), a positive correlation to the variable ‘I may change my itinerary on impulse when I travel’ (.319; significant at 0.01 level), a positive correlation to the variable ‘I prefer not to use a guide even in a place I don’t know’ (.304; significant at 0.01 level), and a positive correlation to the variable ‘I like friends that are different than me’ (.183; significant at 0.05 level). A negative correlation was identified to the variables ‘I like the comfortable familiarity of my usual environment’ (-.281; significant at 0.01 level) and ‘I prefer quiet parties with good conversation’ (-.166; significant at 0.05 level).

5.1.1.2.2 Boredom Susceptibility

Continuing the examination of correlations between the categories of Sensation Seeking, within the category of Boredom Susceptibility, the variable ‘I prefer friends that are excitingly unpredictable’ was found to be negatively correlated to the variables ‘I prefer safe sports and activities’ (-.278; significant at 0.01 level) and ‘I like the comfortable familiarity of my usual environment’ (-.185; significant at 0.05 level), positively correlated to the variables ‘I get restless when I spend too much time at home’ (.302; significant at 0.01 level), ‘I may change my itinerary on impulse when I travel’ (.282; significant at 0.01 level), ‘I prefer not to use a guide even in a place I don’t know’ (.229; significant at 0.01 level), ‘I like friends that are different than me’ (.271;

significant at 0.01 level), and ‘I like to have unconventional exciting experiences’ (.362; significant at 0.01 level). The second variable within Boredom Susceptibility ‘I don’t mind watching a movie I have seen before’ was discovered to be negatively correlated to the variable ‘I prefer safe sports and activities’ (-.197; significant at 0.05 level) and positively correlated to the variables ‘I like to do frightening things’ (.345; significant at 0.01 level), ‘I prefer friends who are excitingly unpredictable’ (.226; significant at 0.01 level), and ‘I prefer not to use a guide even in a place I don’t know’ (.162; significant at 0.05 level). Another variable within the category of Boredom Susceptibility ‘I get restless when I spend too much time at home’ was identified as having a positive correlation to the variables ‘I like to try risky sports or activities’ (.236; significant at 0.01 level), ‘I like to do frightening things’ (.307; significant at 0.01 level), ‘I prefer friends who are excitingly unpredictable’ (.302; significant at 0.01 level), ‘I like to try new foods that I have not tasted before’ (.170; significant at 0.05 level), ‘I like to explore strange places’ (.201; significant at 0.05 level), ‘I prefer not to use a guide even in a place I don’t know’ (.286; significant at 0.01 level), ‘I like friends that are different than me’ (.198; significant at 0.05 level), and ‘I like to have unconventional exciting experiences’ (.303; significant at 0.01 level). A negative correlation was identified to the variable ‘I prefer quiet parties with good conversation’ (-.178; significant at 0.05 level). The variable ‘I like the comfortable familiarity of my usual environment’, within Boredom Susceptibility, was identified as being positively correlated to the variables ‘Relaxation is my most important goal for recreation’ (.310; significant at 0.01 level) and ‘I prefer safe sports and activities’ (.278; significant at 0.01 level). A negative correlation was identified to the variables ‘I like to try risky sports or activities’ (-.261; significant at 0.01

level), ‘I like to do frightening things’ (-.281; significant at 0.01 level), ‘I prefer friends who are excitingly unpredictable’ (-.184; significant at 0.05 level), ‘I like to explore strange places’ (-.172; significant at 0.05 level), ‘I may change my itinerary on impulse when I travel’ (-.201; significant at 0.05 level), ‘I prefer not to use a guide even in a place I don’t know’ (-.230; significant at 0.01 level), and ‘I like to have unconventional exciting experiences’ (-.160; significant at 0.05 level). The variable ‘I may change my itinerary on impulse when I travel’ was found to have a positive correlation to the variables ‘I like to try risky sports or activities’ (.256; significant at 0.01 level), ‘I like to do frightening things’ (.319; significant at 0.01 level), ‘I like to try new foods that I have not tasted before’ (.202; significant at 0.05 level), ‘I like to explore strange places’ (.356; significant at 0.01 level), ‘I prefer not to use a guide even in a place I don’t know’ (.325; significant at 0.01 level), ‘I like friends that are different than me’ (.228; significant at 0.01 level), and ‘I don’t mind watching a movie I have seen before’ (.162; significant at 0.05 level). A negative correlation was discovered to the variable ‘I prefer safe sports and activities’ (-.225; significant at 0.01 level) and ‘I prefer quiet parties with good conversation’ (-.201; significant at 0.05 level).

5.1.1.2.3 Experience Seeking

The third category in the Sensation-Seeking theory is Experience Seeking. Analyzing the variables specific to this category certain variables were correlated to the other variables between the groups of Sensation-Seeking. The variable ‘I like to try new foods that I have never tasted before’ was found to have a negative correlation to the variable ‘Relaxation is my most important goal for recreation’ (-.168; significant at 0.05

level) and a positive correlation to the variables ‘I get restless when I spend too much time at home’ (.170; significant at 0.05 level), ‘I like to explore strange places’ (.355; significant at 0.01 level), ‘I may change my itinerary on impulse when I travel’ (.202; significant at 0.05 level), and ‘I like to have unconventional exciting experiences’ (.237; significant at 0.01 level).

The variable ‘I like to explore strange places’ was positively correlated to the variables ‘I like to try risky sports or activities’ (.211; significant at 0.01 level), ‘I like to do frightening things’ (.237; significant at 0.01 level), ‘I get restless when I spend too much time at home’ (.201; significant at 0.05 level), ‘I like to try new foods that I have not tasted before’ (.355; significant at 0.01 level), ‘I may change my itinerary on impulse when I travel’ (.356; significant at 0.01 level), ‘I prefer not to use a guide even in a place I don’t know’ (.235; significant at 0.01 level), ‘I like friends that are different than me’ (.171; significant at 0.05 level), and ‘I like to have unconventional exciting experiences’ (.312; significant at 0.01 level). A negative correlation was discovered to the variables ‘I prefer safe sports and activities’ (-.169; significant at 0.05 level) and ‘I like the comfortable familiarity of my usual environment’ (-.172; significant at 0.05 level).

The variable ‘I may change my itinerary on impulse when I travel’ was identified as positively correlated to the variables ‘I like to try risky sports or activities’ (.256; significant at 0.01 level), ‘I like to do frightening things’ (.319; significant at 0.01 level), ‘I prefer friends who are excitingly unpredictable’ (.282; significant at 0.01 level), ‘I like to try new foods that I have not tasted before’ (.202; significant at 0.05 level), ‘I like to explore strange places’ (.356; significant at 0.01 level), negatively correlated to the variable ‘I prefer safe sports and activities’ (-.225; significant at 0.01 level), ‘I prefer not

to use a guide even in a place I don't know' (.325; significant at 0.01 level), 'I like friends that are different than me' (.228; significant at 0.01 level) and negatively correlated to the variable 'I like the comfortable familiarity of my usual environment' (-.201; significant at 0.05 level).

The final variable specific to Experience Seeking 'I prefer to use a guide even in a place I don't know' was analyzed among the categories of Sensation Seeking. A positive correlation was identified for the variables 'I like to try risky sports or activities' (.192; significant at 0.05 level), 'I like to do frightening things' (.304; significant at 0.01 level), 'I prefer friends who are excitingly unpredictable' (.229; significant at 0.01 level), 'I get restless when I spend too much time at home' (.286; significant at 0.01 level), 'I like to explore strange places' (.235; significant at 0.01 level), 'I may change my itinerary on impulse when I travel' (.325; significant at 0.01 level), and 'I like to have unconventional exciting experiences' (.353; significant at 0.01 level) A negative correlation was identified to the variables 'I prefer safe sports and activities' (-.252; significant at 0.01 level) and 'I like the comfortable familiarity of my usual environment' (-.230; significant at 0.01 level).

5.1.1.2.4 Disinhibition

The fourth category within Sensation Seeking is Disinhibition. The variable 'I like friends that are different than me' was positively correlated to the variables 'I like to do frightening things' (.183; significant at 0.05 level), 'I prefer friends who are excitingly unpredictable' (.271; significant at 0.01 level), 'I get restless when I spend too much time at home' (.198; significant at 0.05 level), 'I like to explore strange places' (.171;

significant at 0.05 level), ‘I may change my itinerary on impulse when I travel’ (.228; significant at 0.01 level), and ‘I like to have unconventional exciting experiences’ (.231; significant at 0.01 level).

The variable ‘I prefer quiet parties with good conversation’ was negatively correlated to the variable ‘I like to try risky sports or activities’ (-.188; significant at 0.05 level) and positively correlated to the variables ‘I prefer safe sports and activities’ (.196; significant at 0.01 level) and negatively correlated to the variables ‘I like to do frightening things’ (-.188; significant at 0.05 level), ‘I get restless when I spend too much time at home’ (-.178; significant at 0.05 level), and ‘I like to have unconventional exciting experiences’ (-.172; significant at 0.05 level).

The variable ‘I like to have unconventional exciting experiences’ was identified having a negative correlation to the variables ‘Relaxation is my most important goal for recreation’ (-.222; significant at 0.01 level), ‘I prefer safe sports and activities’ (-.361; significant at 0.01 level), ‘I like the comfortable familiarity of my usual environment’ (-.160; significant at 0.05 level), ‘I prefer quiet parties with good conversation’ (-.172; significant at 0.05 level). A positive correlation was identified to the variables ‘I prefer friends who are excitingly unpredictable’ (.362; significant at 0.01 level), ‘I get restless when I spend too much time at home’ (.303; significant at 0.01 level), ‘I like to try new foods that I have not tasted before’ (.237; significant at 0.01 level), ‘I like to explore strange places’ (.312; significant at 0.01 level), ‘I prefer not to use a guide even in a place I don’t know’ (.353; significant at 0.01 level), and ‘I like friends that are different than me’ (.231; significant at 0.01 level).

5.1.2 Practical Significance

The following section discusses the results of correlations exhibiting a significance greater than the .400 threshold. As previously mentioned, correlations above .400 explained more than 15% of the total variance.

5.1.2.1 Within Categories

For Marvin Zuckerman's Sensation Seeking theory (Table 4), each particular category is comprised of four variables. The results showed that practical significance was identified for variables within particular categories of sensation seeking. Correlations identified within categories examined the variables of one particular category and then analyzed the correlations among the associated category variables.

5.1.2.1.1 Thrill and Adventure Seeking

Correlations deemed practically significant were identified for numerous correlations within the Sensation Seeking categories. The variable 'I like to try risky sports or activities' was positively correlated to the variable 'I like to do frightening things' (.512; significant at 0.01 level) and negatively correlated to the variable 'I prefer safe sports and activities' (-.466; significant at 0.01 level). The variable 'I prefer safe sports and activities' was negatively correlated to the variables 'I like to try risky sports and activities' (-.466; significant at 0.01 level) and 'I like to do frightening things' (-.411; significant at 0.01 level). The variable 'I like to do frightening things' was positively correlated to the variable 'I like to try risky sports or activities' (.512; significant at 0.01

level) and negatively correlated to the variable ‘I prefer safe sports and activities’ (-.411; significant at 0.01 level).

5.1.2.2 Between Categories

For Marvin Zuckerman's Sensation Seeking theory, each particular category is comprised of four variables (Table 4). The results showed that practical significance was identified for variables between particular categories of sensation seeking. Correlations identified between categories examined the variables of one particular category and then analyzed the correlations to the variables comprising the rest of the sensation seeking categories.

5.1.2.2.1 Thrill and Adventure Seeking

Correlations were identified between the categories to Sensation Seeking. The category Thrill and Adventure Seeking was comprised of four variables. The variable ‘I like to try risky sports or activities’ was identified as having a positive correlation to the variables ‘I prefer friends who are excitingly unpredictable’ (.461; significant at 0.01 level) and ‘I like to have unconventional exciting experiences’ (.417; significant at 0.01 level). The variable ‘I like to do frightening things’ was positively correlated to the variables ‘I prefer friends who are excitingly unpredictable’ (.498; significant at 0.01 level) and ‘I like to have unconventional exciting experiences’ (.547; significant at 0.01 level).

5.1.2.2.2 Boredom Susceptibility

The second category within the Sensation-Seeking theory is Boredom Susceptibility. The variable 'I prefer friends that are excitingly unpredictable' was positively correlated to the variables 'I like to try risky sports or activities' (.461; significant at 0.01 level) and 'I like to explore strange places' (.498; significant at 0.01 level). The variable 'I may change my itinerary on impulse when I travel' was also positively correlated to the variables 'I get restless when I spend too much time at home' (.421; significant at 0.01 level) and 'I like to have unconventional exciting experiences' (.436; significant at 0.01 level).

5.1.2.2.3 Experience Seeking

Within the category, Experience Seeking, the variable 'I may change my itinerary on impulse when I travel' was found to possess a positive correlation to the variable 'I like to have unconventional exciting experiences' (.436; significant at 0.01 level).

5.1.2.2.4 Disinhibition

The fourth and final category in the Sensation-Seeking theory is Disinhibition. The variable 'I like to have unconventional exciting experiences' was identified as being positively correlated to the variables 'I like to try risky sports or activities' (.417; significant at 0.01 level), 'I like to do frightening things' (.547; significant at 0.01 level), and 'I may change my itinerary on impulse when I travel' (.436; significant at 0.01 level).

5.2 Motivational Dimensions

B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory categorizes motivations into specific domains, including: Achievement, Stimulation, Risk Taking, Similar People, Learning, and Enjoy Nature (Table 5) (Manfredo, Driver, and Tarrant 1996). Results in the first section identify the statistically significant and practically significant correlations within and between the motivational dimension categories. The first section details statistical significance, correlations below the .400 threshold, within and between particular motivational dimension categories. The second section details practical significance, correlations above the .400 threshold, within and between motivational dimension categories.

5.2.1 Statistical Significance

The following section discusses the results of correlations exhibiting a significance below the .400 threshold. As previously mentioned, correlations below .400 failed to explain more than 15% of the total variance.

5.2.1.1 Within Categories

The results showed that statistical significance was identified for variables within particular categories of B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory. Correlations identified within categories examined the variables of one particular category and then analyzed the correlations among the associated category variables.

5.2.1.1.1 Achievement

The category Achievement is in the Recreation Experience Preference (REP) motivational scale and theory. The variable 'To challenge myself' was positively correlated to the variable 'To be recognized for doing it' (.366; significant at 0.01 level). The variable 'To be recognized for doing it' was positively correlated to the variable 'To challenge myself' (.366; significant at 0.01 level).

5.2.1.1.2 Enjoying Nature

The category Enjoy Nature is in the Recreation Experience Preference (REP) motivational scale and theory. The variable 'To enjoy the sights of nature' was positively correlated to the variable 'To be in a natural setting' (.321; significant at 0.01 level). The variable 'To experience the power of nature, thunderstorms, and tornadoes' was positively correlated to the variable 'To be in a natural setting' (.297; significant at 0.01 level). The variable 'To be in a natural setting' was positively correlated to the variables 'To enjoy the sights of nature' (.321; significant at 0.01 level) and 'To experience the power of nature, thunderstorms, and tornadoes' (.297; significant at 0.01 level).

5.2.1.1.3 Learning

The category Learning is the third category in the Recreation Experience Preference (REP) motivational scale and theory. The variable 'To learn and develop my knowledge and understanding of storms and tornadoes' was identified having a positive correlation to the variables 'To experience new and different things' (.224; significant at 0.01 level) and 'To get to know the lay of the land' (.257; significant at 0.01 level). The

variable ‘To experience new and different things’ was identified having a negative correlation to the variables ‘To learn and develop my knowledge and understanding of storms and tornadoes’ (.224; significant at 0.01 level) and ‘To get to know the lay of the land’ (.372; significant at 0.01 level). The variable ‘To get to know the lay of the land’ was identified having a positive correlation to the variables ‘To learn and develop my knowledge and understanding of storms and tornadoes’ (.257; significant at 0.01 level) and ‘To experience new and different things’ (.372; significant at 0.01 level).

5.2.1.2 Between Categories

Between categories represents the correlations identified for variables in particular categories compared to variables in different categories in the greater. For B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory, each particular category is comprised of six variables (Table 5). The results showed that statistical significance was identified for variables between particular motivational dimension categories. Correlations identified between categories examined the variables of one particular category and then analyzed the correlations to the variables comprising the rest of the motivational dimension categories.

5.2.1.2.1 Achievement

In the category Achievement, the variable ‘To challenge myself’ was identified as possessing a positive correlation to the variables ‘To experience a lot of action’ (.323; significant at 0.01 level), ‘To take risks’ (.394; significant at 0.01 level), ‘To be with members of my storm chasing team or group’ (.161; significant at 0.05 level), ‘To be

with people who have similar values' (.170; significant at 0.05 level), 'To enjoy the sights of nature' (.222; significant at 0.01 level), 'To experience the power of nature, thunderstorms, and tornadoes' (.293; significant at 0.01 level), 'To be in a natural setting' (.219; significant at 0.01 level), and 'To get to know the lay of the land' (.311; significant at 0.01 level).

The variable 'To be recognized for doing it' was positively correlated to the variables 'To have thrills and excitement' (.221; significant at 0.01 level), 'To experience a lot of action' (.366; significant at 0.01 level), 'To feel exhilaration' (.309; significant at 0.01 level), 'To be in dangerous situations' (.359; significant at 0.01 level), 'To experience not knowing what will happen' (.328; significant at 0.01 level), 'To be with members of my storm chasing team or group' (.236; significant at 0.01 level), and 'To experience new and different things' (.264; significant at 0.01 level).

The variable 'To gain a sense of self confidence' was positively correlated to the variables 'To have thrills and excitement' (.354; significant at 0.01 level), 'To experience a lot of action' (.351; significant at 0.01 level), 'To feel exhilaration' (.369; significant at 0.01 level), 'To be in dangerous situations' (.358; significant at 0.01 level), 'To be with members of my storm chasing team or group' (.348; significant at 0.01 level), 'To be with people who are similarly interested in storm chasing' (.220; significant at 0.01 level), 'To be with people who have similar values' (.329; significant at 0.01 level), 'To enjoy the sights of nature' (.175; significant at 0.01 level), 'To experience the power of nature, thunderstorms, and tornadoes' (.237; significant at 0.01 level), 'To be in a natural setting' (.225; significant at 0.01 level), 'To learn and develop my knowledge and

understanding of storms and tornadoes' (.254; significant at 0.01 level), and 'To experience new and different things' (.394; significant at 0.01 level).

5.2.1.2.2 Stimulation

The Recreation Experience Preference (REP) motivational scale and theory variable 'To have thrills and excitement' in the category Stimulation was identified to be positively correlated to the variables 'To be recognized for doing it' (.221; significant at 0.01 level), 'To gain a sense of self confidence' (.354; significant at 0.01 level), 'To be with people who have similar values' (.218; significant at 0.01 level), 'To enjoy the sights of nature' (.226; significant at 0.01 level), 'To be in a natural setting' (.216; significant at 0.01 level), and 'To experience new and different things' (.392; significant at 0.01 level).

The variable 'To experience a lot of action' was identified to be positively correlated to the variables 'To challenge myself' (.323; significant at 0.01 level), 'To be recognized for doing it' (.366; significant at 0.01 level), 'To gain a sense of self confidence' (.351; significant at 0.01 level), 'To be with people who have similar values' (.224; significant at 0.01 level), 'To enjoy the sights of nature' (.227; significant at 0.01 level), 'To be in a natural setting' (.176; significant at 0.05 level), and 'To get to know the lay of the land' (.239; significant at 0.01 level).

The variable 'To feel exhilaration' was identified to be positively correlated to the variables 'To be recognized for doing it' (.309; significant at 0.01 level), 'To gain a sense of self confidence' (.369; significant at 0.01 level), 'To be in dangerous situations' (.387; significant at 0.01 level), 'To enjoy the sights of nature' (.293; significant at 0.01

level), ‘To be in a natural setting’ (.216; significant at 0.01 level), and ‘To get to know the lay of the land’ (.253; significant at 0.01 level).

5.2.1.2.3 Risk Taking

The variable ‘To be in dangerous situations’, in the category Risk Taking, was positively correlated to the variables ‘To be recognized for doing it’ (.359; significant at 0.01 level), ‘To gain a sense of self confidence’ (.358; significant at 0.01 level), ‘To feel exhilaration’ (.387; significant at 0.01 level), ‘To be with members of my storm chasing team or group’ (.190; significant at 0.05 level), ‘To be with people who have similar values’ (.271; significant at 0.01 level), ‘To experience the power of nature, thunderstorms, and tornadoes’ (.244; significant at 0.01 level), and ‘To experience new and different things’ (.358; significant at 0.01 level).

The variable ‘To experience not knowing what will happen’ was positively correlated to the variables ‘To be recognized for doing it’ (.328; significant at 0.01 level), ‘To be with members of my storm chasing team or group’ (.185; significant at 0.05 level), ‘To be with people who have similar values’ (.258; significant at 0.01 level), ‘To enjoy the sights of nature’ (.260; significant at 0.01 level), ‘To experience the power of nature, thunderstorms, and tornadoes’ (.320; significant at 0.01 level), ‘To be in a natural setting’ (.265; significant at 0.01 level), and ‘To get to know the lay of the land’ (.268; significant at 0.01 level).

The variable ‘To take risks’ was identified as positively correlated to the variables ‘To challenge myself’ (.394; significant at 0.01 level), ‘To be with members of my storm chasing team or group’ (.252; significant at 0.05 level), ‘To be with people who have

similar values' (.322; significant at 0.01 level), 'To experience the power of nature, thunderstorms, and tornadoes' (.265; significant at 0.01 level), and 'To get to know the lay of the land' (.269; significant at 0.01 level).

5.2.1.2.4 Similar People

In the category Similar People, the variable 'To be with members of my storm chasing team or group' was identified as positively correlated to the variables 'To challenge myself' (.161; significant at 0.05 level), 'To be recognized for doing it' (.236; significant at 0.01 level), 'To gain a sense of self confidence' (.348; significant at 0.01 level), 'To be in dangerous situations' (.190; significant at 0.05 level), 'To experience not knowing what will happen' (.185; significant at 0.05 level), 'To take risks' (.252; significant at 0.01 level), 'To learn and develop my knowledge and understanding of storms and tornadoes' (.205; significant at 0.01 level), 'To experience new and different things' (.163; significant at 0.05 level), and 'To get to know the lay of the land' (.280; significant at 0.01 level).

The variable 'To be with people who are similarly interested in storm chasing' was positively correlated to the variables 'To gain a sense of self confidence' (.220; significant at 0.01 level), 'To enjoy the sights of nature' (.196; significant at 0.05 level), 'To experience the power of nature, thunderstorms, and tornadoes' (.209; significant at 0.05 level), 'To learn and develop my knowledge and understanding of storms and tornadoes' (.321; significant at 0.01 level), and 'To get to know the lay of the land' (.168; significant at 0.05 level).

The variable ‘To be with people who have similar values was identified as having a positive correlation to the variables ‘To challenge myself’ (.170; significant at 0.05 level), ‘To gain a sense of self confidence’ (.329; significant at 0.01 level), ‘To have thrills and excitement’ (.218; significant at 0.01 level), ‘To experience a lot of action’ (.224; significant at 0.01 level), ‘To be in dangerous situation’ (.271; significant at 0.01 level), ‘To experience not knowing what will happen’ (.258; significant at 0.01 level), ‘To take risks’ (.322; significant at 0.01 level), ‘To be in a natural setting’ (.204; significant at 0.05 level), ‘To learn and develop my knowledge and understanding of storms and tornadoes’ (.240; significant at 0.01 level), ‘To experience new and different things’ (.188; significant at 0.05 level), and ‘To get to know the lay of the land’ (.320; significant at 0.01 level).

5.2.1.2.5 Enjoy Nature

The variable ‘To enjoy the sights of nature’, in the category Enjoy Nature, was positively correlated to the variables ‘To challenge myself’ (.222; significant at 0.01 level), ‘To gain a sense of self confidence’ (.175; significant at 0.05 level), ‘To have thrills and excitement’ (.218; significant at 0.01 level), ‘To feel exhilaration’ (.293; significant at 0.01 level), ‘To experience not knowing what will happen’ (.260; significant at 0.01 level), ‘To be with people who are similarly interested in storm chasing’ (.196; significant at 0.05 level), ‘To learn and develop my knowledge and understanding of storms and tornadoes’ (.277; significant at 0.01 level), and ‘To experience new and different things’ (.277; significant at 0.01 level).

The variable ‘To experience new and different things’ was positively correlated to the variables ‘To challenge myself’ (.293; significant at 0.01 level), ‘To gain a sense of self confidence’ (.237; significant at 0.01 level), ‘To be in dangerous situations’ (.244; significant at 0.01 level), ‘To experience not knowing what will happen’ (.320; significant at 0.01 level), ‘To take risks’ (.265; significant at 0.01 level), ‘To be with people who are similarly interested in storm chasing’ (.209; significant at 0.05 level), ‘To learn and develop my knowledge and understanding of storms and tornadoes’ (.313; significant at 0.01 level), and ‘To experience new and different things’ (.391; significant at 0.01 level).

The variable ‘To be in a natural setting’ was positively correlated to the variable ‘To challenge myself’ (.219; significant at 0.01 level), ‘To gain a sense of self confidence’ (.225; significant at 0.01 level), ‘To have thrills and excitement’ (.216; significant at 0.01 level), ‘To experience a lot of action’ (.176; significant at 0.05 level), ‘To feel exhilaration’ (.216; significant at 0.01 level), ‘To experience not knowing what will happen’ (.265; significant at 0.01 level), ‘To be with people who have similar values’ (.204; significant at 0.05 level), ‘To experience new and different things’ (.205; significant at 0.05 level) and ‘To get to know the lay of the land’ (.251; significant at 0.01 level).

5.2.1.2.6 Learning

The Recreation Experience Preference (REP) motivational scale and theory variable ‘To learn and develop my knowledge and understanding of storms and tornadoes’, in the Learning category, was positively correlated to the variables ‘To gain a

sense of self confidence' (.254; significant at 0.01 level), 'To be recognized for doing it' (.264; significant at 0.01 level), 'To gain a sense of self confidence' (.394; significant at 0.01 level), 'To have thrills and excitement' (.392; significant at 0.01 level), 'To be with members with my storm chasing team or group' (.163; significant at 0.05 level), 'To be with people who have similar values' (.188; significant at 0.05 level), 'To enjoy the sights of nature' (.277; significant at 0.01 level), 'To experience the power of nature, thunderstorms, and tornadoes' (.391; significant at 0.01 level), and 'To be in a natural setting' (.205; significant at 0.05 level).

The variable 'To experience new and different things' was found to be positively correlated to the variables 'To be recognized for doing it' (.264; significant at 0.01 level), 'To gain a sense of self confidence' (.394; significant at 0.01 level), 'To have thrills and excitement' (.392; significant at 0.01 level), 'To be in dangerous situations' (.358; significant at 0.01 level), 'To be with members with my storm chasing team or group' (.163; significant at 0.05 level), 'To be with people who have similar values' (.188; significant at 0.01 level), 'To enjoy the sights of nature' (.277; significant at 0.01 level), 'To experience the power of nature, thunderstorms, and tornadoes' (.391; significant at 0.01 level), and 'To be in a natural setting' (.205; significant at 0.05 level).

The variable 'To get to know the lay of the land' was positively correlated tot the variables 'To challenge myself' (.311; significant at 0.01 level), 'To experience a lot of action' (.239; significant at 0.01 level), 'To feel exhilaration' (.253; significant at 0.01 level), 'To experience not knowing what will happen' (.268; significant at 0.01 level), 'To take risks' (.269; significant at 0.01 level), 'To be with members with my storm chasing team or group' (.280; significant at 0.01 level), 'To be with people who are

similarly interested in storm chasing' (.168; significant at 0.05 level), 'To be with people who have similar values' (.320; significant at 0.01 level), and 'To be in a natural setting' (.251; significant at 0.01 level).

5.2.2 Practical Significance

The following section discusses the results of correlations exhibiting a significance greater than the .400 threshold. As previously mentioned, correlations above .400 explained more than 15% of the total variance.

5.2.2.1 Within Categories

The results showed that practical significance was identified for variables within particular categories of B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory. Correlations identified within categories examined the variables of one particular category and then analyzed the correlations among the associated category variables.

5.2.2.1.1 Achievement

The Recreation Experience Preference (REP) motivational scale and theory variable 'To challenge myself', in the category Achievement, was identified as positively correlated with the variable 'To gain a sense of self confidence' (.499; significant at 0.01 level). The variable 'To be recognized for doing it' was positively correlated 'To gain a sense of self confidence' (.445; significant at 0.01 level). The variable 'To gain a sense of self confidence' was positively correlated to the variables 'To challenge myself' (.499;

significant at 0.01 level) and ‘To be recognized for doing it’ (.445; significant at 0.01 level).

5.2.2.1.2 Stimulation

In the category Stimulation, the variable ‘To have thrills and excitement’ was identified possessing a positive correlation to the variables ‘To experience a lot of action’ (.584; significant at 0.01 level) and ‘To feel exhilaration’ (.634; significant at 0.01 level). The variable ‘To experience a lot of action’ was identified containing a positive correlation the variables ‘To have thrills and excitement’ (.584; significant at 0.01 level) and ‘To feel exhilaration’ (.669; significant at 0.01 level). The variable ‘To feel exhilaration’ was identified possessing a positive correlation to the variables ‘To have thrills and excitement’ (.634; significant at 0.01 level) and ‘To experience a lot of action’ (.669; significant at 0.01 level).

5.2.2.1.3 Risk Taking

The variable ‘To be in dangerous situations’, in the category Risk Taking, was identified as positively correlated to the variables ‘To experience not knowing what will happen’ (.464 significant at 0.01 level) and ‘To take risks’ (.644 significant at 0.01 level). The variable ‘To experience not knowing what will happen’ was positively correlated to the variables ‘To be in dangerous situations’ (.464; significant at 0.01 level) and ‘To take risks’ (.601; significant at 0.01 level). The variable ‘To take risks’ was found to have a positive correlation to the variables ‘To be in dangerous situations’ (.644; significant at

0.01 level) and ‘To experience not knowing what will happen’ (.601; significant at 0.01 level).

5.2.2.1.4 Similar People

In the category Similar People, the variable ‘To be with members of my storm chasing team or group’ was positively correlated to the variables ‘To be with people who are similarly interested in storm chasing’ (.555; significant at 0.01 level) and ‘To be with people who have similar values’ (.664; significant at 0.01 level). The variable ‘To be with people who are similarly interested in storm chasing’ was identified as being positively correlated to the variable ‘To be with members of my storm chasing team or group’ (.555; significant at 0.01 level) and ‘To be with people who have similar values’ (.574; significant at 0.01 level). The variable ‘To be with people who have similar values’ was positively correlated to the variables ‘To be with members of my storm chasing team or group’ (.664; significant at 0.01 level) and ‘To be with people who have similar values’ (.574; significant at 0.01 level).

5.2.2.1.5 Enjoy Nature

The Recreation Experience Preference (REP) motivational scale and theory variable ‘To enjoy the sights of nature’, in the category Enjoy Nature, was positively correlated to the variable ‘To experience the power of nature, thunderstorms, and tornadoes’ (.539; significant at 0.01 level). The variable ‘To experience the power of nature, thunderstorms, and tornadoes’ was positively correlated to the variable ‘To enjoy the sights of nature’ (.539; significant at 0.01 level).

5.2.2.2 Between Categories

Between categories represents the correlations identified for variables in particular categories compared to variables in different categories in the greater. For B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory, each particular category is comprised of six variables (Table 5). The results showed that practical significance was identified for variables between particular motivational dimension categories. Correlations identified between categories examined the variables of one particular category and then analyzed the correlations to the variables comprising the rest of the motivational dimension categories.

5.2.2.2.1 Achievement

Examination of the variables in the category Achievement compared to other motivational dimension categories found several correlations. The variable 'To challenge myself' was identified as having a positive correlation to the variables 'To have thrills and excitement' (.452; significant at 0.01 level), 'To feel exhilaration' (.414; significant at 0.01 level), 'To be in dangerous situations' (.435; significant at 0.01 level), and 'To experience new and different things' (.445; significant at 0.01 level). The variable 'To be recognized for doing it' was positively correlated to the variable 'To take risks' (.413; significant at 0.01 level). The variable 'To gain a sense of self confidence' was identified as having a positive correlation to the variables 'To experience not knowing what will happen' (.500; significant at 0.01 level), 'To take risks' (.442; significant at 0.01 level), and 'To get to know the lay of the land' (.442; significant at 0.01 level).

5.2.2.2.2 Stimulation

In the motivational dimension category Stimulation, the variable ‘To have thrills and excitement’ was identified as having a positive correlation to the variables ‘To challenge myself’ (.452; significant at 0.01 level), ‘To be in dangerous situations’ (.532; significant at 0.01 level), ‘To experience not knowing what will happen’ (.509; significant at 0.01 level), ‘To take risks’ (.565; significant at 0.01 level), and ‘To experience the power of nature, thunderstorms, and tornadoes’ (.433; significant at 0.01 level). The variable ‘To experience a lot of action’ was positively correlated to the variables ‘To be in dangerous situations’ (.504; significant at 0.01 level), ‘To experience not knowing what will happen’ (.539; significant at 0.01 level), ‘To take risks’ (.586; significant at 0.01 level), ‘To experience the power of nature, thunderstorms, and tornadoes’ (.403; significant at 0.01 level), and ‘To experience new and different things’ (.502; significant at 0.01 level). The final variable ‘To feel exhilaration’ was identified as having a positive correlation to the variables ‘To challenge myself’ (.414; significant at 0.01 level), ‘To experience not knowing what will happen’ (.504; significant at 0.01 level), ‘To take risks’ (.496; significant at 0.01 level), ‘To experience the power of nature, thunderstorms, and tornadoes’ (.454; significant at 0.01 level), and ‘To experience new and different things’ (.444; significant at 0.01 level).

5.2.2.2.3 Risk Taking

In the category Risk Taking the variable ‘To be in dangerous situations’ was positively correlated to the variables ‘To challenge myself’ (.435; significant at 0.01

level), ‘To have thrills and excitement’ (.532; significant at 0.01 level), and ‘To experience a lot of action’ (.504; significant at 0.01 level). The variable ‘To experience not knowing what will happen’ was determined to be positively correlated to the variables ‘To challenge myself’ (.429; significant at 0.01 level), ‘To gain a sense of self confidence’ (.500; significant at 0.01 level), ‘To have thrills and excitement’ (.509; significant at 0.01 level), ‘To experience a lot of action’ (.539; significant at 0.01 level), ‘To feel exhilaration’ (.504; significant at 0.01 level), and ‘To experience new and different things’ (.550; significant at 0.01 level). The final variable ‘To take risks’ was positively correlated to the variables ‘To be recognized for doing it’ (.413; significant at 0.01 level), ‘To gain a sense of self confidence’ (.442; significant at 0.01 level), ‘To have thrills and excitement’ (.565; significant at 0.01 level), ‘To experience a lot of action’ (.586; significant at 0.01 level) ‘To feel exhilaration’ (.496; significant at 0.01 level), and ‘To experience new and different things’ (.501; significant at 0.01 level).

5.2.2.2.4 Enjoy Nature

The variable ‘To enjoy the sights of nature’, in the category Enjoy Nature, was determined to be positively correlated to the variable ‘To experience a lot of action’ (.403; significant at 0.01 level). The variable ‘To experience new and different things’ was positively correlated to the variables ‘To have thrills and excitement’ (.433; significant at 0.01 level), ‘To experience a lot of action’ (.403; significant at 0.01 level), and ‘To feel exhilaration’ (.454; significant at 0.01 level).

5.2.2.2.5 Learning

The variable ‘To learn and develop my knowledge and understanding of storms and tornadoes’, in the category Learning, was found to have a positive correlation to the variables ‘To experience a lot of action’ (.502; significant at 0.01 level), ‘To feel exhilaration’ (.444; significant at 0.01 level), and ‘To take risks’ (.501; significant at 0.01 level). The second variable ‘To experience new and different things’ was determined to possess positive correlations to the variables ‘To challenge myself’ (.445; significant at 0.01 level), ‘To experience a lot of action’ (.502; significant at 0.01 level), ‘To feel exhilaration’ (.444; significant at 0.01 level), ‘To experience not knowing what will happen’ (.550; significant at 0.01 level), and ‘To take risks’ (.501; significant at 0.01 level). The final variable ‘To get to know the lay of the land’ was positively correlated to the variable ‘To gain a sense of self confidence’ (.442; significant at 0.01 level).

5.3 Sensation Seeking and Motivational Dimensions

Similarly to Xu *et al*. 2012, the categories of Marvin Zuckerman's Sensation-Seeking theory (Table 4) were analyzed against the categories of B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory (Table 5). Results in this section identify the statistically significant and practically significant correlations analyzed between the sensation seeking and motivational dimension categories. The first section details statistical significance, correlations below the .400 threshold, and the second section details practical significance, correlations above the .400 threshold, for correlations between the categories of sensation seeking and motivational dimensions.

5.3.1 Statistical Significance

The following section discusses the results of correlations exhibiting a significance below the .400 threshold. As previously mentioned, correlations below .400 failed to explain more than 15% of the total variance.

The sensation seeking variable 'I like to try risky sports and activities' was identified as possessing a positive correlation to the motivational dimension variables 'To gain a sense of self-confidence' (.272; significant at 0.01 level), 'To experience a lot of action' (.348; significant at 0.01 level), 'To feel exhilaration' (.328; significant at 0.01 level), 'To experience not knowing what will happen' (.356; significant at 0.01 level), 'To be with people who have similar values' (.202; significant at 0.05 level), 'To experience the power of nature, thunderstorms, and tornadoes' (.191; significant at 0.05 level), 'To be in a natural setting' (.179; significant at 0.05 level), 'To experience new and different things' (.335; significant at 0.01 level), and 'To get to know the lay of the land' (.165; significant at 0.05 level).

The sensation seeking variable 'I prefer safe sports and activities' was negatively correlated to the motivational dimension variables 'To challenge myself' (-.229; significant at 0.01 level), 'To have thrills and excitement' (-.254; significant at 0.01 level), 'To experience a lot of action' (-.192; significant at 0.05 level), 'To feel exhilaration' (-.172; significant at 0.05 level), 'To be in dangerous situations' (-.262; significant at 0.01 level), 'To take risks' (-.255; significant at 0.01 level), 'To be with members of my storm chasing team or group' (-.196; significant at 0.05 level), 'To be with people who are similarly interested in storm chasing' (-.189; significant at 0.05

level), ‘To be with people who have similar values’ (-.257; significant at 0.01 level), ‘To learn and develop my knowledge and understanding of storms and tornadoes’ (-.208; p<05), and ‘To experience new and different things’ (-.199; significant at 0.05 level).

The sensation seeking variable ‘I like to do frightening things’ was positively correlated to the motivational dimension variables ‘To be recognized for doing it’ (.271; significant at 0.01 level), ‘To be with members of my storm chasing team or group’ (.198; significant at 0.05 level), ‘To be with people who are similarly interested in storm chasing’ (.184; significant at 0.05 level), ‘To be with people who have similar values’ (.360; significant at 0.01 level), ‘To experience the power of nature, thunderstorms, and tornadoes’ (.337; significant at 0.01 level), and ‘To experience new and different things’ (.395; significant at 0.01 level).

The sensation seeking variable ‘I prefer friends who are excitingly unpredictable’ was positively correlated to the motivational dimension variables ‘To challenge myself’ (.332; significant at 0.01 level), ‘To be recognized for doing it’ (.276; significant at 0.01 level), ‘To gain a sense of self confidence’ (.346; significant at 0.01 level), ‘To have thrills and excitement’ (.391; significant at 0.01 level), ‘To have thrills and excitement’ (.391; significant at 0.01 level), ‘To experience a lot of action’ (.286; significant at 0.01 level), ‘To feel exhilaration’ (.297; significant at 0.01 level), ‘To experience not knowing what will happen’ (.371; significant at 0.01 level), ‘To be with members of my storm chasing team or group’ (.231; significant at 0.01 level), ‘To be with people who are similarly interested in storm chasing’ (.195; significant at 0.05 level), ‘To be with people who have similar values’ (.304; significant at 0.01 level), ‘To experience new and

different things' (.327; significant at 0.01 level), and 'To get to know the lay of the land' (.165; significant at 0.05 level).

The sensation seeking variable 'I don't mind watching a movie I have seen before' was positively correlated to the motivational dimension variables 'To be recognized for doing it' (.228; significant at 0.01 level), 'To gain a sense of self confidence' (.218; significant at 0.01 level), 'To be in dangerous situations' (.208; significant at 0.05 level), 'To take risks' (.168; significant at 0.01 level), 'To be with people who are similarly interested in storm chasing' (.202; significant at 0.05 level), 'To be with people who have similar values' (.250; significant at 0.01 level), and 'To learn and develop my knowledge and understanding of storms and tornadoes' (.247; significant at 0.01 level).

The sensation seeking variable 'I get restless when I spend too much time at home' was positively correlated to the motivational dimension variables 'To gain a sense of self confidence' (.226; significant at 0.01 level), 'To have thrills and excitement' (.365; significant at 0.01 level), 'To experience a lot of action' (.330; significant at 0.01 level), 'To feel exhilaration' (.271; significant at 0.01 level), 'To be in dangerous situations' (.297; significant at 0.01 level), 'To take risks' (.313; significant at 0.01 level), 'To be with members of my storm chasing team or group' (.336; significant at 0.01 level), 'To be with people who are similarly interested in storm chasing' (.272; significant at 0.01 level), 'To be with people who have similar values' (.361; significant at 0.01 level), and 'To experience new and different things' (.369; significant at 0.01 level).

The sensation seeking variable ‘I like the comfortable familiarity of my usual environment’ was identified as negatively correlated to the variable ‘To experience not knowing what will happen’ (-.173; significant at 0.01 level).

The sensation seeking variable ‘I like to try new foods that I have never tasted before’ was identified as positively correlated to the variables ‘To be in a natural setting’ (.202; significant at 0.05 level) and ‘To experience new and different things’ (.198; significant at 0.05 level).

The sensation seeking variable ‘I like to explore strange places’ was positively correlated to the variables ‘To challenge myself’ (.315; significant at 0.01 level), ‘To have thrills and excitement (.209; significant at 0.01 level), ‘To feel exhilaration’ (.238; significant at 0.01 level), ‘To take risks’ (.253; significant at 0.01 level), ‘To be in a natural setting’ (.199; significant at 0.05 level), and ‘To experience new and different things’ (.372; significant at 0.01 level).

The sensation seeking variable ‘I may change my itinerary on impulse when I travel’ was positively correlated to the variables ‘To challenge myself’ (.315; significant at 0.01 level), ‘To gain a sense of self confidence’ (.219; significant at 0.01 level), ‘To have thrills and excitement (.311; significant at 0.01 level), ‘To experience a lot of action’ (.246; significant at 0.01 level), ‘To feel exhilaration’ (.200; significant at 0.05 level), ‘To be in dangerous situations’ (.264; significant at 0.01 level), ‘To take risks’ (.254; significant at 0.01 level), ‘To be with people who have similar values’ (.229; significant at 0.01 level), ‘To experience new and different things’ (.390; significant at 0.01 level), and ‘To get to know the lay of the land’ (.171; significant at 0.05 level).

The sensation seeking variable ‘I prefer to not use a guide even in a place I don’t know’ was positively correlated to the variables ‘To challenge myself’ (.184; significant at 0.05 level), ‘To gain a sense of self confidence’ (.207; significant at 0.05 level), ‘To have thrills and excitement (.336; significant at 0.01 level), ‘To experience a lot of action’ (.242; significant at 0.01 level), ‘To feel exhilaration’ (.321; significant at 0.01 level), ‘To be in dangerous situations’ (.220; significant at 0.01 level), ‘To experience not knowing what will happen’ (.341; significant at 0.01 level), ‘To take risks’ (.293; significant at 0.01 level), ‘To enjoy the sights of nature’ (.169; significant at 0.05 level), ‘To experience the power of nature, thunderstorms, and tornadoes’ (.308; significant at 0.01 level), ‘To be in a natural setting’ (.172; significant at 0.05 level), and ‘To experience new and different things’ (.329; significant at 0.01 level).

The sensation seeking variable ‘I like friends that are different than me’ was positively correlated to the variables ‘To challenge myself’ (.178; significant at 0.05 level), ‘To be in a natural setting’ (.187; significant at 0.05 level), and ‘To experience new and different things’ (.279; significant at 0.01 level).

The sensation seeking variable ‘I prefer quiet parties with good conversation’ was negatively correlated to the variables ‘To experience a lot of action’ (-.195; significant at 0.05 level), ‘To be in dangerous situations’ (-.166; significant at 0.05 level), ‘To take risks’ (-.172; significant at 0.05 level), and ‘To experience new and different things’ (-.172; significant at 0.05 level).

The sensation seeking variable ‘Stimulants make me uncomfortable’ was found to have a positive correlation to the variable ‘To be with people who have similar values’

(.172; significant at 0.05 level) and a negative correlation to the variable ‘To experience the power of nature, thunderstorms, and tornadoes’ (-.191; significant at 0.05 level).

The sensation seeking variable ‘I like to have unconventional exciting experiences’ was positively correlated to the variables ‘To challenge myself’ (.363; significant at 0.01 level), ‘To gain a sense of self confidence’ (.276; significant at 0.01 level), ‘To be in dangerous situations’ (.376; significant at 0.01 level), ‘To take risks’ (.386; significant at 0.01 level), ‘To be with people who have similar values’ (.265; significant at 0.01 level), ‘To enjoy the sights of nature’ (.197; significant at 0.05 level), ‘To experience the power of nature, thunderstorms, and tornadoes’ (.332; significant at 0.01 level), and ‘To get to know the lay of the land’ (.221; significant at 0.01 level).

The motivational dimension variable ‘To challenge myself’ was examined against numerous sensation seeking variables. A negative correlation was identified for the variable, ‘I prefer safe sports and activities’ (-.229; significant at 0.01 level). Positive correlations were identified for the variables ‘I prefer friends who are excitingly unpredictable’ (.332; significant at 0.01 level), ‘I like to explore strange places’ (.315; significant at 0.01 level), ‘I may change my itinerary when I travel’ (.213; significant at 0.01 level), ‘I prefer not to use a guide even in a place I don’t know’ (.184; significant at 0.05 level), ‘I like friends that are different from me’ (.178; significant at 0.05 level), and ‘I like to have unconventional exciting experiences’ (.363; significant at 0.01 level).

The motivational dimension variable ‘To be recognized for doing it’ was positively correlated to the sensation seeking variables ‘I like to do frightening things’ (.271; significant at 0.01 level), ‘I prefer friends who are excitingly unpredictable’ (.276;

significant at 0.01 level), and ‘I don’t mind watching a movie I have seen before’ (.228; significant at 0.01 level).

The motivational dimension variable ‘To gain a sense of self confidence’ was positively correlated to the sensation seeking variables ‘I like to try risky sports and activities’ (.272; significant at 0.01 level), ‘I prefer friends who are excitingly unpredictable’ (.346; significant at 0.01 level), ‘I don’t mind watching a movie I have seen before’ (.218; significant at 0.01 level), ‘I get restless when I spend too much time at home’ (.226; significant at 0.01 level), ‘I may change my itinerary on impulse when I travel’ (.219; significant at 0.01 level), ‘I prefer not to use a guide even in a place I don’t know’ (.207; significant at 0.01 level), and ‘I like to have unconventional exciting experiences’ (.276; significant at 0.01 level).

The motivational dimension variable ‘To have thrills and excitement’ was negatively correlated to the variable ‘I prefer safe sports and activities’ (-.254; significant at 0.01 level). A positive correlation was identified to the variables ‘I prefer friends who are excitingly unpredictable’ (.391; significant at 0.01 level), ‘I get restless when I spend too much time at home’ (.365; significant at 0.01 level), ‘I like to explore strange places’ (.209; significant at 0.01 level), ‘I may change my itinerary on impulse when I travel’ (.311; significant at 0.01 level), and ‘I prefer not to use a guide even in a place I don’t know’ (.336; significant at 0.01 level).

The motivational dimension variable ‘To experience a lot of action’ was positively correlated to the sensation seeking variables ‘I like to try risky sports and activities’ (.348; significant at 0.01 level), ‘I prefer friends who are excitingly unpredictable’ (.286; significant at 0.01 level), ‘I get restless when I spend too much time

at home' (.330; significant at 0.01 level), 'I may change my itinerary on impulse when I travel' (.246; significant at 0.01 level), and 'I prefer not to use a guide even in a place I don't know' (.242; significant at 0.01 level). A negative correlation was identified to the variables 'I prefer safe sports and activities' (-.192; significant at 0.05 level) and 'I prefer quiet parties with good conversation' (-.196; significant at 0.05 level).

The motivational dimension variable 'To feel exhilaration' was positively correlated to the sensation seeing variables 'I like to try risky sports and activities' (.328; significant at 0.01 level), 'I prefer friends who are excitingly unpredictable' (.297; significant at 0.01 level), 'I get restless when I spend too much time at home' (.271; significant at 0.01 level), 'I like to explore strange places' (.238; significant at 0.01 level), 'I may change my itinerary on impulse when I travel' (.200; significant at 0.05 level), and 'I prefer not to use a guide even in a place I don't know' (.321; significant at 0.01 level). A negative correlation was identified to the variable 'I prefer safe sports and activities' (-.179; significant at 0.05 level).

The motivational dimension variable 'To be in dangerous situations' was negatively correlated to the sensation seeking variables 'I prefer safe sports and activities' (-.262; significant at 0.01 level) and 'I prefer quiet parties with good conversation' (-.166; significant at 0.05 level). A positive correlation was identified to the variables 'I don't mind watching a movie I have seen before' (.208; significant at 0.05 level), 'I get restless when I spend too much time at home' (.297; significant at 0.01 level), 'I may change my itinerary on impulse when I travel' (.264; significant at 0.01 level), 'I prefer not to use a guide even in a place I don't know' (.220; significant at 0.01 level), and 'I like to have unconventional exciting experiences' (.376; significant at 0.01 level).

The motivational dimension variable ‘To experience not knowing what will happen’ was positively correlated to the sensation seeking variables ‘I like to try risky sports and activities’ (.356; significant at 0.01 level), ‘I prefer friends who are excitingly unpredictable’ (.371; significant at 0.01 level), ‘I like to explore strange places’ (.187; significant at 0.05 level), and ‘I prefer not to use a guide even in a place I don’t know’ (.341; significant at 0.01 level). A negative correlation was identified to the variable ‘I like the comfortable familiarity of my usual environment’ (-.171; significant at 0.05 level).

The motivational dimension variable ‘To take risks’ was negatively correlated to the sensation seeking variables ‘I prefer safe sports and activities’ (-.255; significant at 0.01 level) and ‘I prefer quiet parties with good conversation’ (-.172; significant at 0.05 level). Positive correlations were identified to the variables ‘I don’t mind watching a movie I have seen before’ (.168; significant at 0.05 level), ‘I get restless when I spend too much time at home’ (.313; significant at 0.01 level), ‘I like to explore strange places’ (.253; significant at 0.01 level), ‘I may change my itinerary on impulse when I travel’ (.254; significant at 0.01 level), ‘I prefer not to use a guide even in a place I don’t know’ (.293; significant at 0.01 level), and ‘I like to have unconventional exciting experiences’ (.386; significant at 0.01 level).

The motivational dimension variable ‘To be with members of my storm chasing team or group’ was negatively correlated to the sensation seeking variable ‘I prefer safe sports and activities’ (-.196; significant at 0.05 level). A positive correlation was identified to the variables ‘I like to do frightening things’ (.198; significant at 0.05 level),

‘I prefer friends who are excitingly unpredictable’ (.231; significant at 0.01 level), and ‘I get restless when I spend too much time at home’ (.336; significant at 0.01 level).

The motivational dimension variable ‘To be with people who are similarly interested in storm chasing’ was negatively correlated to the sensation seeking variable ‘I prefer safe sports and activities’ (-.189; significant at 0.05 level). A positive correlation was identified to the variables ‘I like to do frightening things’ (.184; significant at 0.05 level), ‘I prefer friends who are excitingly unpredictable’ (.195; significant at 0.05 level), ‘I don’t mind watching a movie I have seen before’ (.202; significant at 0.05 level), and ‘I get restless when I spend too much time at home’ (.272; significant at 0.01 level).

The motivational dimension variable ‘To be with people who have similar values’ was negatively correlated to the sensation seeking variable ‘I prefer safe sports and activities’ (-.257; significant at 0.01 level). A positive correlation was identified to the variables ‘I like to try risky sports and activities’ (.202; significant at 0.05 level), ‘I like to do frightening things’ (.360; significant at 0.01 level), ‘I prefer friends who are excitingly unpredictable’ (.304; significant at 0.01 level), ‘I don’t mind watching a movie I have seen before’ (.250; significant at 0.05 level), ‘I get restless when I spend too much time at home’ (.361; significant at 0.01 level), ‘I may change my itinerary on impulse when I travel’ (.229; significant at 0.01 level), ‘Stimulants make me uncomfortable’ (.172; significant at 0.05 level), and ‘I like to have unconventional exciting experiences’ (.265; significant at 0.01 level).

The motivational dimension variable ‘To enjoy the sights of nature’ was positively correlated to the sensation seeking variables ‘I prefer not to use a guide even in

a place I don't know' (.169; significant at 0.05 level) and 'I like to have unconventional exciting experiences' (.197; significant at 0.05 level).

The motivational dimension variable 'To experience the power of nature, thunderstorms, and tornadoes' was negatively correlated to the sensation seeking variable 'Stimulants make me uncomfortable' (-.191; significant at 0.05 level). A positive correlation was identified to the variables 'I like to try risky sports and activities' (.191; significant at 0.05 level), 'I like to do frightening things' (.337; significant at 0.01 level), 'I prefer not to use a guide even in a place I don't know' (.308; significant at 0.01 level), and 'I like to have unconventional exciting experiences' (.332; significant at 0.01 level).

The motivational dimension variable 'To be in a natural setting' was positively correlated to the sensation seeking variables 'I like to try risky sports and activities' (.179; significant at 0.05 level), 'I like to try new foods that I have never tasted before' (.202; significant at 0.05 level), 'I like to explore strange places' (.199; significant at 0.05 level), 'I prefer not to use a guide even in a place I don't know' (.172; significant at 0.05 level), and 'I like friends that are different than me' (.187; significant at 0.05 level).

The motivational dimension variable 'To learn and develop my knowledge and understanding of storms and tornadoes' was identified as having a negative correlation to the sensation seeking variable 'I prefer safe sports and activities' (-.208; significant at 0.05 level) and a positive correlation to the sensation seeking variable 'I don't mind watching a movie I have seen before' (.247; significant at 0.01 level).

The motivational dimension variable 'To experience new and different things' was positively correlated to the sensation seeking variables 'I like to try risky sports and activities' (.335; significant at 0.01 level), 'I like to do frightening things' (.395;

significant at 0.01 level), 'I prefer friends who are excitingly unpredictable' (.327; significant at 0.01 level), 'I get restless when I spend too much time at home' (.369; significant at 0.01 level), 'I like to try new foods that I have never tasted before' (.198; significant at 0.05 level), 'I like to explore strange places' (.372; significant at 0.01 level), 'I may change my itinerary on impulse when I travel' (.390; significant at 0.01 level), 'I prefer not to use a guide even in a place I don't know' (.329; significant at 0.01 level), and 'I like friends that are different than me' (.279; significant at 0.01 level). A negative correlation was identified to the variable 'I prefer quiet parties with good conversation' (-.172; significant at 0.05 level).

The motivational dimension variable 'To get to know the lay of the land' was identified as having a positive correlation to the sensation seeking variables 'I like to try risky sports and activities' (.165; significant at 0.05 level), 'I prefer friends who are excitingly unpredictable' (.165; significant at 0.05 level), 'I may change my itinerary on impulse when I travel' (.171; significant at 0.05 level), and 'I like to have unconventional exciting experiences' (.221; significant at 0.01 level).

5.3.2 Practical Significance

The following section discusses the results of correlations exhibiting a significance greater than the .400 threshold. As previously mentioned, correlations above .400 explained more than 15% of the total variance.

The sensation seeking variable 'I like to try risky sports and activities' was positively correlated to the motivational dimension variables 'To challenge myself' (.446; significant at 0.01 level), 'To have thrills and excitement' (.443; significant at 0.01 level),

‘To be in dangerous situations’ (.483; significant at 0.01 level), and ‘To take risks’ (.429; significant at 0.01 level).

The sensation seeking variable ‘I like to do frightening things’ was positively correlated to the motivational dimension variables ‘To challenge myself’ (.420; significant at 0.01 level), ‘To gain a sense of self confidence’ (.425; significant at 0.01 level), ‘To have thrills and excitement’ (.506; significant at 0.01 level), ‘To experience a lot of action’ (.443; significant at 0.01 level), ‘To feel exhilaration’ (.419; significant at 0.01 level), ‘To be in dangerous situations’ (.572; significant at 0.01 level), ‘To experience not knowing what will happen’ (.450; significant at 0.01 level), and ‘To take risks’ (.543; significant at 0.01 level).

The sensation seeking variable ‘I prefer friends who are excitingly unpredictable’ was positively correlated to the variables ‘To be in dangerous situations’ (.443; significant at 0.01 level) and ‘To take risks’ (.465; significant at 0.01 level).

The sensation seeking variable ‘I get restless when I spend too much time at home’ was positively correlated to the motivational dimension variable ‘To experience not knowing what will happen’ (.446; significant at 0.01 level).

The sensation seeking variable ‘I may change my itinerary on impulse when I travel’ was positively correlated to the motivational dimension variable ‘To experience not knowing what will happen’ (.412; significant at 0.01 level).

The sensation seeking variable ‘I like to have unconventional exciting experiences’ was positively correlated to the motivational dimension variables ‘To have thrills and excitement (.472; significant at 0.01 level), ‘To experience a lot of action’ (.406; significant at 0.01 level), ‘To feel exhilaration’ (.432; significant at 0.01 level), ‘To

experience not knowing what will happen' (.400; significant at 0.01 level), and 'To experience new and different things' (.461; significant at 0.01 level).

The motivational dimension variable 'To challenge myself' was positively correlated to the sensation seeking variables 'I like to try risky sports and activities' (.446; significant at 0.01 level) and 'I like to do frightening things' (.420; significant at 0.01 level).

The motivational dimension variable 'To gain a sense of self confidence' was positively correlated to the sensation seeking variable 'I like to do frightening things' (.425; significant at 0.01 level).

The motivational dimension variable 'To have thrills and excitement' was positively correlated to the sensation seeking variables 'I like to try risky sports and activities' (.443; significant at 0.01 level), 'I like to do frightening things' (.506; significant at 0.01 level), and 'I like to have unconventional exciting experiences' (.472; significant at 0.01 level).

The motivational dimension variable 'To experience a lot of action' was positively correlated to the sensation seeking variables 'I like to do frightening things' (.443; significant at 0.01 level) and 'I like to have unconventional exciting experiences' (.406; significant at 0.01 level).

The motivational dimension variable 'To feel exhilaration' was positively correlated to the sensation seeking variables 'I like to do frightening things' (.419; significant at 0.01 level) and 'I like to have unconventional exciting experiences' (.432; significant at 0.01 level).

The motivational dimension variable ‘To be in dangerous situations’ was positively correlated to the sensation seeking variables ‘I like to try risky sports and activities’ (.483; significant at 0.01 level), ‘I like to do frightening things’ (.572; significant at 0.01 level), and ‘I prefer friends who are excitingly unpredictable’ (.443; significant at 0.01 level).

The motivational dimension variable ‘To experience not knowing what will happen’ was positively correlated to the sensation seeking variables ‘I like to do frightening things’ (.450; significant at 0.01 level), ‘I get restless when I spend too much time at home’ (.446; significant at 0.01 level), ‘I may change my itinerary on impulse when I travel’ (.412; significant at 0.01 level), and ‘I like to have unconventional exciting experiences’ (.400; significant at 0.01 level).

The motivational dimension variable ‘To take risks’ was positively correlated to the sensation seeking variables ‘I like to try risky sports and activities’ (.429; significant at 0.01 level), ‘I like to do frightening things’ (.543; significant at 0.01 level), and ‘I prefer friends who are excitingly unpredictable’ (.465; significant at 0.01 level).

The motivational dimension variable ‘To experience new and different things’ was identified as being positively correlated to the variable ‘I like to have unconventional exciting experiences’ (.461; significant at 0.01 level).

5.4 Descriptive Statistics

The means and associated standard deviations were calculated for every variable in the Sensation-Seeking and Motivational Dimensional theory and scales, as shown in Table 5. Within the sensation seeking category Thrill and Adventure Seeking the

variable “I like to try risky sports and activities’ had a mean score of 2.95 with a standard deviation of 1.336, the variable ‘Relaxation is my most important goal for recreation’ has a mean score of 3.01 with an associated standard deviation of 1.095, the variable ‘I prefer safe sports and activities’ had a mean score of 2.73 and a standard deviation of 1.083, and the variable ‘I like to do frightening things’ had a mean score of 3.22 and an associated standard deviation of 1.243.

In the sensation seeking category of Boredom Susceptibility the variable ‘I prefer friends who are excitingly unpredictable’ had a mean score of 2.85 with a standard deviation of 1.157. The variable ‘I don’t mind seeing a movie I have seen before’ had a mean score of 4.19 and an associated standard deviation of 1.005. The variable ‘I get restless when I spend too much time at home’ had a mean of 3.85 and a standard deviation of 1.246. The variable ‘I like the comfortable familiarity of my usual environment’ had a mean score of 3.44 and an associated standard deviation of 1.043.

The sensation seeking category Experience Seeking contains four variables, the variable ‘I like to try new food that I have never tasted before’ had a mean score of 3.65 and a standard deviation of 1.218. The variable ‘I like to explore strange places’ had a mean score of 4.32 and a standard deviation of .788. The variable ‘I may change my itinerary on impulse when I travel’ had a mean score of 3.79 and a standard deviation of 1.109. The variable ‘I prefer not to use a guide even in a place I don’t know’ had a mean score of 3.56 and a standard deviation of 1.158.

The final sensation seeking category Disinhibition contains four variables. The first variable ‘I like friends that are different than me’ had a mean score of 3.21 and an associated standard deviation of .984. The variable ‘I prefer quiet parties with good

conversations' had a mean score of 3.81 and a standard deviation of 1.024. The variable 'Stimulants make me uncomfortable' had a mean score of 3.19 and a standard deviation of 1.324. The final variable 'I like to have unconventional exciting experiences' had a mean score of 4.08 and a standard deviation of .876.

The first category in B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory, Achievement, contains three variables. The first variable 'To challenge myself' had a mean score of 3.62 and a standard deviation of 1.171. The variable 'To be recognized for it' had a mean score of 2.34 and a standard deviation 1.183. The variable 'To gain a sense of self-confidence' had a mean score of 3.46 and a standard deviation of 1.170.

The second category in B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory, Stimulation, contains three variables. The first variable 'To have thrills and excitement' had a mean score of 3.65 and a standard deviation of 1.097. The variable 'To experience a lot of action' had a mean score of 3.53 and a standard deviation of 1.038. The variable 'To feel exhilaration' had a mean score of 3.54 and an associated standard deviation of 1.076.

The third category in B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory, Risk Taking, contains three variables. The first variable 'To be in dangerous situations' had a mean score of 2.42 and a standard deviation of 1.122. The second variable 'To experience not knowing what will happen' had a mean score of 3.38 and a standard deviation of 1.171. The third variable 'To take risks' had a mean score of 2.70 and a standard deviation of 1.221.

The fourth variable in B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory, Similar People, has three variables. The first variable 'To be with members of my storm chasing team or group' had a mean score of 3.58 and a standard deviation of 1.169. The second variable 'To be with people who are similarly interested in storm chasing' had a mean score of 3.82 and a standard deviation of .994. The third variable 'To be with people who have similar values' had a mean score of 3.70 and a standard deviation of 1.077.

The fifth variable in B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory, Enjoy Nature, has three variables. The first variable 'To enjoy the sights of nature' had a mean score of 4.77 and an associated standard deviation of .616. The second variable 'To experience the power of nature, thunderstorms, and tornadoes' had a mean score of 4.68 and an associated standard deviation of .606. The third variable 'To be in natural setting' had a mean score of 4.13 and a standard deviation of .794.

The sixth and final variable in B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory, Learning, has three variables. The first variable 'To learn and develop my knowledge and understanding of storms and tornadoes' had a mean score of 4.68 and an associated standard deviation of .638. The second variable 'To experience new and different things' had a mean score of 4.13 and an associated standard deviation of .936. The final variable 'To get to know the lay of the land' had a mean score of 3.66 and an associated standard deviation of 1.077.

The categories comprising the Sensation-Seeking and Motivational Dimension theories were examined for their means and standard and deviations, as shown in Table 6.

The first sensation seeking category, Thrill and Adventure Seeking, had a mean score of 2.98 and a standard deviation of .020. The second sensation seeking category, Boredom Susceptibility, had a mean of 3.58 and a standard deviation of .577. The third sensation seeking category, Experience Seeking, had a mean score of 3.83 and a standard deviation of .340. The fourth Sensation-Seeking category, Disinhibition, had a mean score of 3.57 and a standard deviation of .444.

The first category comprising the B. L. Driver's Recreation Experience Preference (REP) motivational scale and theory, Achievement, had a mean score of 3.14 and a standard deviation of .697. The second category, Enjoy Nature, had a mean score of 4.52 and a standard deviation of .346. The third category, Learning, had a mean score of 4.15 and a standard deviation of .511. The fourth category, Risk taking, had a mean score of 2.83 and a standard deviation of .494. The fifth category, Similar People, had a mean score of 3.70 and a standard deviation of .120. The sixth and final category, Stimulation, had a mean score of 3.57 and a standard deviation of .067.

5.5 Internal Reliability

The internal reliability of the four categories comprising the Sensation-Seeking theory were calculated, as seen in Table 7. Unfortunately, the results of the sensation seeking Cronbach's alpha scores were all below the desired .70 threshold (Corina 1993). The category Thrill and Adventure Seeking had a Cronbach's alpha score $\alpha = .653$. The Boredom Susceptibility category had a Cronbach's alpha score $\alpha = .406$. The category Experience Seeking had a Cronbach's alpha score $\alpha = .575$. The final category in the Sensation-Seeking theory was Disinhibition with a Cronbach's alpha score $\alpha = .207$.

Because this study is exploratory in nature, lower alpha scores were accepted for the categories of Thrill and Adventure Seeking and Experience Seeking as their scores were above the .5 threshold of unacceptable (De Vellis and Dancer 1991).

The internal reliability was determined for the six categories comprising the Recreation Experience Preference (REP) motivational scale and theory, shown in Table 8. Four of the six categories had Cronbach's alpha scores above the desired .70 threshold. However, because all of the Cronbach's alpha scores were above .50, anything below that value is deemed unacceptable, their alpha scores were accepted (De Vellis and Dancer 1991). The variable Achievement had a had a Cronbach's alpha score $\alpha = .716$. The variable Stimulation had a Cronbach's alpha score $\alpha = .841$. The variable Risk Taking had a Cronbach's alpha score $\alpha = .801$. The variable Similar People had a Cronbach's alpha score $\alpha = .827$. The variable Enjoy Nature scored below the .70 threshold and had a Cronbach's alpha score $\alpha = .602$. The final category Learning, also below the .70 threshold, had a Cronbach's alpha score $\alpha = .558$.

5.6 Storm Chaser Demographics

The majority of the participants in this study identified as male (n=125) with about 17% identifying as female (n=26). Approximately 97% (146) of the participants identified as White/Caucasian, <1% (3) of the participants identified as Latino/Hispanic, <1% (2) of the participants identified as Other, and 0% of the study participants identified as either Black/African American or Asian. On average, study participants were in their mid-30s (mean score of 36.1 with an associated standard deviation of 12.1). The majority of storm chaser participants possessed or were working towards attaining a four-

year degree, as similarly noted in Zunkel (2013). Approximately 14% (21) of the study participants possessed a High School Diploma or Less, 30% (45) of the participants identified as having previously taken Some College courses, 13% (20) of the participants had graduated with a Two-year College Degree, 30% (45) of the participants claimed to have graduated with a Four-year College Degree, and 13% (20) of the participants identified as possessing an Advanced Degree. Roughly 60% (91) of the storm chasing participants were Full Time Employees, 9% (14) storm chasers were Part Time Employees, 13 (20) participants identified as students, 6% (9) storm chasers identified as Retired, 3% (4) individuals claimed to be Unemployed, and 9% (13) claimed to be Other in regards to their employment status. In regards to where study participants discovered the survey questionnaire, roughly 50% (75) of the participants found the questionnaire through SpotterNetwork's social media (Facebook and Twitter) accounts, 30% (46) individuals located the survey questionnaire through Reddit, and 20% (30) storm chaser participants located the survey questionnaire in some Other location.

As seen in Figure 2, participants in this study were identified from 30 states, including: Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Virginia, and West Virginia. Several states were found to have higher concentrations of participating storm chasers. The state with the largest number respondents was Texas with 27 respondents from 22 locations (Arlington, Aubrey, Austin, Coppers Cove, Denton (2), Fort Worth (3), Frisco, Henderson, Houston, Lockhart, Mansfield, North Richland Hills (3), Plano, Quinlan, Red

Oak, Rowlett, San Angelo, San Antonio, Snyder, Spring Branch, Temple, and Texarkana). The state with the second largest number of participants was Oklahoma with 19 from 9 locations (Elgin, McAlester, Norman (6), Oklahoma City (5), Pryor, Ravia, Waurika, Wilburton, Yukon (2)). The state with the third largest number of responders was Illinois with 17 responders from 17 locations (Bartlett, Belvidere, Canton, DeKalb, Edwardsville, Elburn, Elgin, Jacksonville, Litchfield, Lockport, Morris, Oswego, Romeoville, Skokie, Summerfield, Villa Park, and Warsaw).

Surprisingly, an international audience noticed the call for study participants. International participants were identified from Australia, Germany, New Zealand, Canada (6), and the United Kingdom. Because this study focused on specifically US storm chasers the responses from the 10 international participants were not included in the final results.

VI. ANALYSIS & CONCLUSIONS

The purpose of this study was to examine the sensation seeking attributes and motivations of storm chasers and to analyze the relationships between the sensation seeking attributes and motivations of storm chasers. Three questions guided this research study, including: 1) What are the sensation seeking attributes of storm chasers? 2) What are the motivations of storm chasers? and 3) What are the relationships between sensation seeking attributes and motivations of storm chasers? This chapter includes analysis of the three research questions guiding this study, interpretation of the results from the previous chapter, study limitations, and conclusions of this study.

6.1 Research Question 1

The first research question asked 'What are the sensation seeking attributes of storm chasers?' The study found that storm chasers are influenced by the sensation seeking category of Experience Seeking more than any other category. It should be noted that the Cronbach's alpha internal reliability score did not reach the .70 threshold for this Experience Seeking category. However, because the alpha score was above the .5 threshold of unacceptable the alpha score was accepted (De Vellis and Dancer 1991).

The sensation seeking category of Experience Seeking (comprised of the variables 'I like to try new foods that I have never tasted before' with a mean score of 3.65 and a standard deviation of 1.218, 'I like to explore strange places' with a mean score of 4.32 and a standard deviation of .788, 'I may change my itinerary on impulse when I travel' had a mean score of 3.79 and a standard deviation of 1.109, and 'I prefer not to use a

guide even in a place I don't know' had a mean score of 3.56 and a standard deviation of 1.158) was identified as having a mean 3.83 with a standard deviation of .340.

Other risk recreation studies have found and reported a relative higher score of Experience Seeking with lower scores in other sensation seeking categories. For example, Diehm and Armatas (2004) identified that Australian recreational surfers scored lower on the category of Boredom Susceptibility because surfers may control boredom with the variability of the activity and surfing conditions. Recreational scuba divers in Pittsburgh scored significantly lower on the Boredom Susceptibility and Disinhibition categories, while scoring higher on the Thrill and Adventure Seeking and Experience Seeking categories (Taylor *et al*. 2001). Cronin (1991) found that recreational mountain climbers scored relatively higher on both Thrill and Adventure Seeking and Experience Seeking categories.

6.2 Research Question 2

The second research question asked 'What are the motivations of storm chasers?' and found that storm chasers are motivated by B. L. Driver's Recreation Experience Preference (REP) motivational categories Enjoy Nature and Learning more than any other motivational categories. The Cronbach's alpha internal reliability score did not reach the .70 threshold for either of these categories. However, because both variables did not deviate far from the threshold, and the categories had alpha scores above the .5 threshold of unacceptable, the alpha scores were accepted (De Vellis and Dancer 1991).

The motivational dimension category Enjoy Nature (comprised of the variables: 'To enjoy the sights of nature' with a mean score of 4.77 and a standard deviation of

.616, ‘To experience the power of nature and thunderstorms’ with a mean score of 4.68 and a standard deviation of .606, and the variable ‘To be in a natural setting’ with a mean score of 4.13 and a standard deviation of .794), was found to have a mean score of 4.52 and a standard deviation of .346. The motivational dimension category Learning (comprised of the variables: ‘To learn and develop my knowledge and understanding of storms and tornadoes’ with a mean score of 4.68 and a standard deviation of .638, ‘To experience new and different things with a mean score of 4.13 and a standard deviation of .936, and the variable ‘To get to know the lay of the land with a mean score of 3.66 and a standard deviation of 1.077), was identified as having a mean of 4.15 and a standard deviation of .511.

The categories Enjoy Nature and Learning are important motivations for participants in risk recreation activities and have been identified in previous literature. For example, studies of mountaineers (Ewert 1985) and recreational scuba divers (Meyer, Thapa, and Pennington-Gray 2002; Meisel and Cottrell 2003) found that participants were most motivated by the motivations Enjoy Nature and Learning and least motivated by risks associated with those activities. Xu *et al*. (2010, 2012) identified that storm chasing tour participants were motivated by the motivational categories of Enjoy Nature, Learning, and Stimulation and were least motivated by the motivations Achievement and Taking Risks.

6.3 Research Question 3

The third research question asked ‘What are the relationships between motivations and sensation seeking attributes of storm chasers?’ Unlike the study

performed by Xu *et al*. (2010, 2012), this study found that the sensation seeking category of Thrill and Adventure Seeking was correlated to the motivational categories Achievement, Stimulation, and Risk Taking. Additionally, the study found that the motivational dimensions of Risk Taking and Stimulation were correlated to all of the sensation seeking category variables, Thrill and Adventure Seeking, Boredom Susceptibility, Experience Seeking, and Disinhibition. The Cronbach's alpha internal reliability score surpassed the .70 threshold for the motivational dimensions Risk Taking $\alpha = .801$ and Stimulation $\alpha = .841$; however, the Cronbach's alpha did not reach the .70 threshold for any of the sensation seeking categories.

This is one of the first times that the Sensation-Seeking theory by Marvin Zuckerman and the Recreation Experience Preference (REP) motivational categories and theory by B. L. Driver have been positively correlated against each other. Furthermore, it is important to mention that a significant positive correlation was found between Experience Seeking and two motivational dimensions: Enjoy Nature and Learning.

6.4 Study Limitations

There were several limitations to this study. First, drawing a random sample of recreational storm chasers is not feasible, given the relatively small number of participants who are dispersed throughout the US and even the world. Second, although storm chasing is a small niche activity and therefore a small sample size is justified and acceptable, however the small sample size is still a limitation of this study. Third, all of the sensation seeking categories did not meet the acceptable internal reliability threshold of .70 and if this study were to be repeated either modifications of the current question

variables or a selection of new variables might be desired to achieve acceptable internal consistency. Given these limitations, any generalizations or interpretations of the results beyond the scope of this study should be done with caution

6.5 Study Findings

Storm chasing differs in numerous ways from other recognized forms of extreme sport or adventure travel. Storm chasing is a tedious and time-consuming endeavor that requires considerable travel over vast expanses of territory. As such, it is most rewarding when it is appreciated not for its thrill-seeking qualities but for the diverse array of experiences it can provide (Robinson 1999). Storm chasing continues to grow in popularity and many veterans believe that increased participation will result in storm chasing becoming dangerous to an unacceptable degree. It should be noted that similar sentiments are to be found among longtime devotees of other leisure activities that are experiencing increased growth.

This study adapted Robinson's (1999) definition of a storm chaser, an individual who observes and follows a developing thunderstorm either for educational purposes, scientific research, or as a recreational activity. In his study, Robinson (1999) disputes the argument often portrayed by individuals unfamiliar with the activity or the popular media that storm chasers are reckless daredevils (Faidley 1996; Storm Chasers 1996). In this study, the sensation seeking category Thrill and Adventure Seeking was the lowest scoring of all sensation seeking categories. This low score indicates that the participants were not interested in thrill and adventure seeking or reckless dare-devilism, and additionally confirms that participants in various risk recreation activities do not pursue

risks as their ultimate goals, but primarily seek challenging experiences. Ewert and Hollenhorst (1994) state that although adventure re-creators seek out increasingly difficult and challenging opportunities, they paradoxically do not necessarily seek higher levels of risk. Furthermore, learning and gaining insight as integral parts of risk recreation and not as side effects also appeared to be present among tourists engaged in this kind of risk recreation (Weber 2001). Finally, this study corroborates Robinson's findings while further contributing to his definition of a storm chaser. In addition to storm chasers observing and following a developing thunderstorm either for educational purposes, scientific research, or as a recreational activity, this study finds that storm chasers are individuals interested in seeking an experience and are further motived by experiencing nature and learning.

In the summer of 2006 I chased my first tornado near Northfield, MN, in southern MN. Since that day, I have been captivated by the phenomena of tornadoes. Through the years, and multiple chasing excursions, I've witnessed many successful, as well as disappointing, chasing seasons. I've watched both seasoned veterans and inexperienced individuals enter the field to intercept, document, and report on severe weather phenomena and tell their tale after their excursion. My personal experiences corroborate the findings of this study. Many of the individuals whom I have met throughout my chasing career speak of the importance of safety. Unfortunately, many storm chasers were reminded of the harsh reality and the ultimate consequence possible with this type of activity during the El Reno, OK, tornado in 2013. Many, including myself, believe that the storm chasing community should make safety the top priority. By focusing on safety, the false reputation that all storm chasers are reckless dare-devils will be exposed.

While accidents will always occur, it is up to the community to make sure that safety is the priority. If individuals are safety conscious they should have little problem learning and enjoying nature while experiencing the storm chasing activity.

VII. FUTURE RESEARCH

Study results suggest that the sensation seeking construct should undergo continued testing. Specifically, results for this study showed that all the sensation seeking categories (Thrill and Adventure Seeking, Boredom Susceptibility, Experience Seeking, and Disinhibition) scored below the desired internal reliability of .70. Further testing may include selecting or modifying the questions used for the sensation seeking categories. Also, two of the motivational dimensions also scored below the desired internal reliability of .70. Continued testing may result in higher internal reliability scores.

Given that correlations were found between motivations and sensation seeking attributes, further research to examine causality of these relationships is also needed. Replication of this study in other types of risk recreation activities would be important. Additionally, it would be interesting to analyze the relationship of demographics characteristics with motivation dimensions as well as sensation seeking attributes; previous studies have found motivational differences between genders and sensation seeking differences associated with participants' age (Meyer, Thapa, and Pennington-Gray 2002; Xu *et al*. 2012). Specifically, it is suggested that future research examine whether motivations or sensation seeking could predict participation behaviors on a given risk recreation activity (e.g. frequency of participation, willingness of future participation). Likewise, future study could also examine whether behavior and personal attributes (e.g. skilled versus non-skilled participants) influence storm chasing motivations as previous studies in other types of risk recreation has suggested (Celsi,

Rose, and Leigh 1993; Fluker and Turner 2000). Also, future studies might examine whether differences exist between recreational storm chasers and the general population or control groups regarding their sensation seeking levels as conducted in other risk recreation activities (Calhoon 1988; Chirivella and Martinez 1994; Wagner and Houlihan 1994; Cronin 1991; Slanger and Rudestam 1997; Jack and Ronan 1998).

Additionally, a larger study size would allow for better representation of the study group and further examination of the reasoning behind why individuals storm chase. In this study one of the two weather enthusiast groups, SpotterNetwork, responded to the study's request for participants. The weather enthusiast group SKYWARN, with over 300,000 members, would be a great asset if the organization chose to participate in further studies.

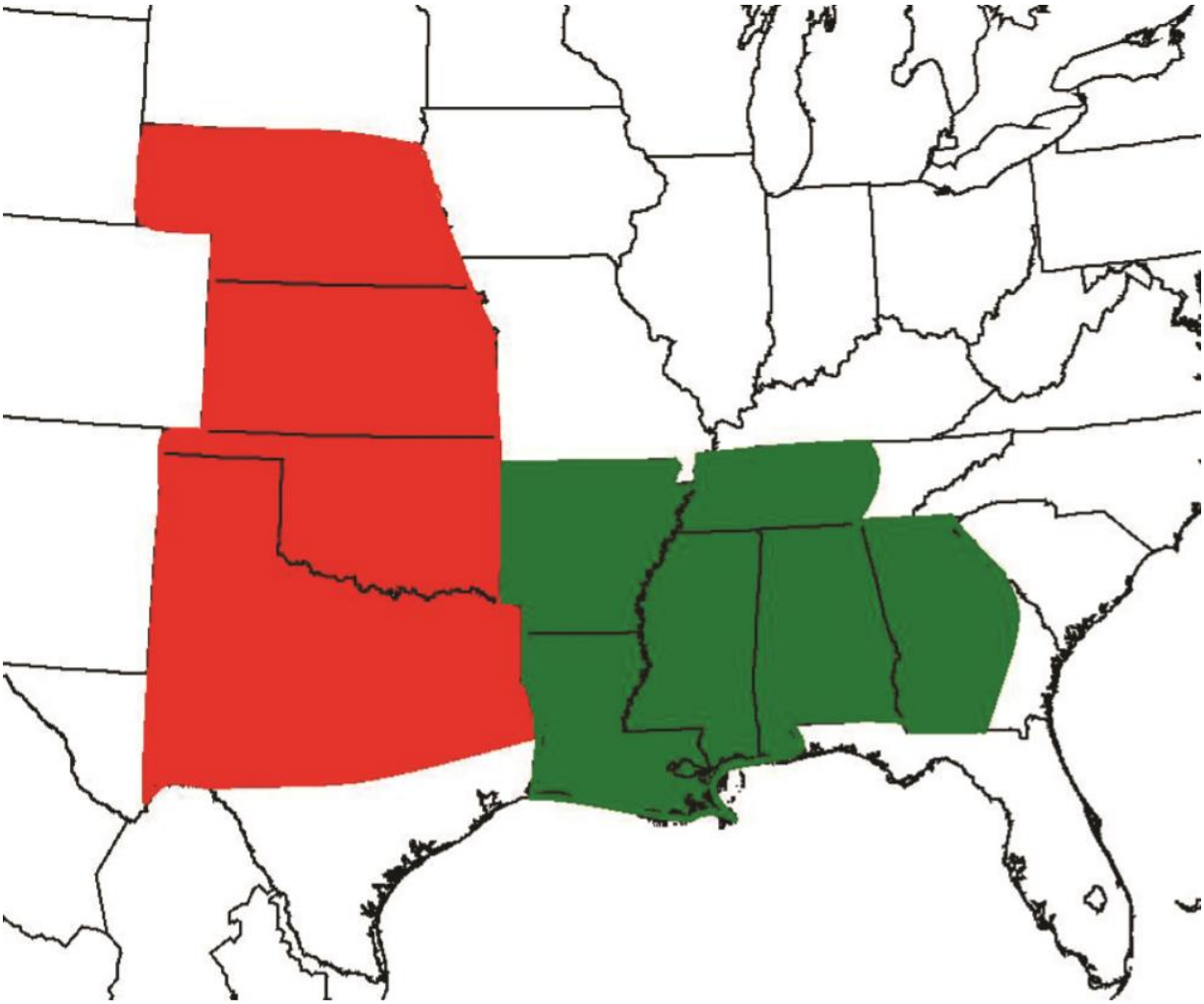

FIGURE 1
A map showing one example of the distinct “Tornado Alleys" in the US. Tornado Alley is shown in red and Dixie Alley is displayed in green (Gagan, Gerard, and Gordon 2010).

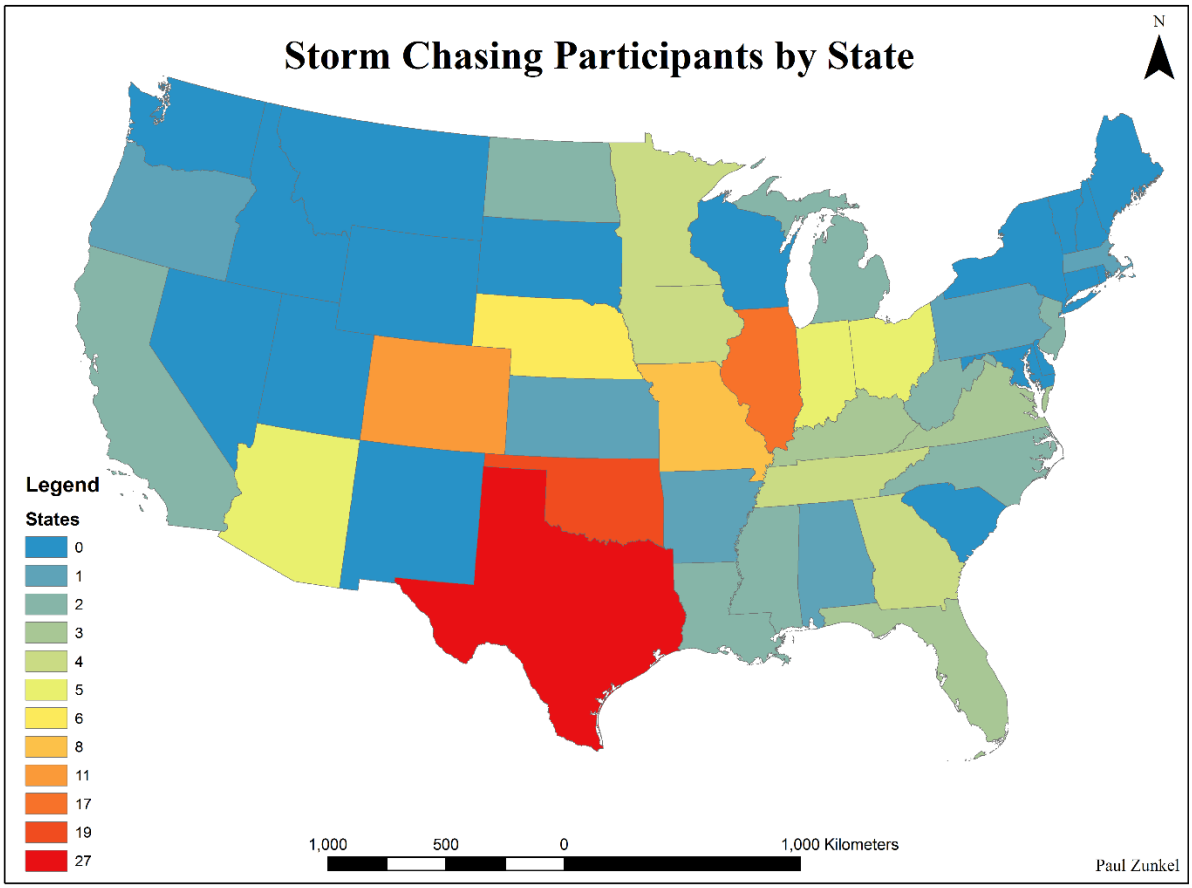

FIGURE 2
Storm chasing participants by state. Texas (27) has the most number of participants followed by Oklahoma (19) and Illinois (17).

APPENDIX SECTION

COVER LETTER FOR SURVEY

This research survey focuses on studying the motivations and sensation-seeking characteristics of storm chasers. In this study we define ***storm chasers*** as individuals who observe and follow developing thunderstorms either for educational purposes, scientific research, or as a recreational activity. ***Storm chasing*** is the broad term for the pursuit of any severe weather phenomena, regardless of motive, including: curiosity, adventure, scientific investigation, or for news or media coverage. You will be asked questions regarding your sensation-seeking characteristics (section 1), motivational reasoning (section 2), and demographic information (section 3). All of your information will be kept private and can be viewed only by authorized research staff members. The survey takes less than 10 minutes to complete. The findings from this research will be included in my dissertation which is one of the components of my degree program for the PhD in Geography.

I understand that none of my answers will be released and no names will be recorded. I understand that the risks of participating in this study are minimal. I understand that participating in this study will help the researchers better understand why storm chasers go into the field and what motivates them to do so.

I understand that I can contact Dr. Richard W. Dixon at 512-245-7436 or rd11@txstate,edu about any concerns I have regarding this project. I understand that I also may contact the Texas State University Institutional Review Board Chair, Dr. Jon Lasser, at 512-245-3413 or lasser@txstate.edu with any questions about research with human participants at Texas State University.

I understand that participation in this project is voluntary and I have the right to stop at any time. My decision whether or not to participate will not affect my relationship with Texas State University. By completing this survey, I agree to participate in this study and acknowledge that I identify as a storm chaser and that I am at least 18 years of age. Also, I am aware that there are no direct benefits to me as a result of my participation in this research.

Participants in this study will receive for their records a copy of the consent form. You may print this page for your records before continuing.

TXST IRB LOG # EXP2016C9970T
Date of TXST IRB approval: 2 February, 2016

Paul Zunkel, M.S., B.S.
Texas State University

Department of Geography
San Marcos, TX, 78666
USA
(512) 245-0328

SURVEY QUESTIONNAIRE

Sensation Seeking Characteristics: How much do you agree or disagree with the following statements? You may skip any questions you prefer not to answer.

1. I like to try risky sports or activities (e.g. skydiving, white water rafting, bungee jumping, etc.)
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

2. I prefer friends who are excitingly unpredictable
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

3. I like friends that are different than me
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

4. I like to try new foods that I have never tasted before
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

5. I prefer quiet parties with good conversation
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

6. I like to explore strange places
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

7. I don't mind watching a movie I have seen before
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

8. Relaxation is my most important goal for recreation
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

9. I get restless when I spend too much time at home
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

10. Stimulants (e.g. drugs, alcohol, etc.) make me uncomfortable
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

11. I may change my itinerary on impulse when I travel
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

12. I prefer safe sports and activities (e.g. walking, yoga, etc.)
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

13. I like to have unconventional exciting experiences
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

14. I prefer not to use a guide even in a place I don't know
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

15. I like the comfortable familiarity of my usual environment
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

16. I like to do frightening things
A) Strongly Disagree
B) Somewhat Disagree
C) Neither
D) Somewhat Agree
E) Strongly Agree

Motivational Reasoning: How important are the following reasons for going storm chasing? You may skip any questions you prefer not to answer.

1. To challenge myself
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

2. To have thrills and excitement
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

3. To be in dangerous situations
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

4. To be with members of my storm chasing team or group
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

5. To be recognized for doing it
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

6. To be with people who are similarly interested in storm chasing
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

7. To enjoy the sights of nature
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

8. To gain a sense of self-confidence
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

9. To experience not knowing what will happen
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

10. To take risks
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

11. To learn and develop my knowledge and understanding of storms and tornadoes
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

12. To experience new and different things
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

13. To experience the power of nature, thunderstorms, and tornadoes
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

14. To experience a lot of action
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

15. To get to know the lay of the land
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

16. To feel exhilaration
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

17. To be with people who have similar values
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

18. To be in a natural setting
A) Very unimportant
B) Unimportant
C) Neither
D) Important
E) Very Important

Demographics: Please provide the following information about yourself. You may skip any question you prefer not to answer.

1. What is your age? _____

2. What is your gender?
A) Female
B) Male

3. What is your highest level of education?
A) High school diploma or less
B) Some college
C) Two-year college degree
D) Four-year college degree
E) Advanced degree

4. What is your employment status?
A) Full time employee
B) Part time employee
C) Student
D) Retired
E) Unemployed
F) Other

5. What is your race/ethnicity?
A) White/Caucasian
B) Black/African American
C) Asian
D) Latino/Hispanic
E) Other

6. Where did you hear about this survey?
A) SpotterNetwork
B) Reddit
C) Other

7. What is your zip code of your primary residence? _____

INSTITUTIONAL REVIEW BOARD EXEMPTION

Exemption Request EXP2016C9970T - Approval

Actions

AVPR IRB [ospirb@txstate.edu]

To: Zunkel, Paul R

Inbox

Monday, February 01, 2016 10:47 AM

DO NOT REPLY TO THIS MESSAGE. This email message is generated by the IRB online application program.

Based on the information in IRB Exemption Request EXP2016C9970T which you submitted on 01/28/16 08:48:26, your project is exempt from full or expedited review by the Texas State Institutional Review Board.

If you have questions, please submit an IRB Inquiry form:

http://www.txstate.edu/research/irb/irb_inquiry.html

Comments:
No comments.

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Institutional Review Board

Office of Research Compliance

Texas State University-San Marcos

(ph) 512/245-2314 / (fax) 512/245-3847 / ospirb@txstate.edu / JCK 489

601 University Drive, San Marcos, TX 78666

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TABLE 1

Coding design for the first portion of the survey questionnaire, sensation-seeking characteristics.

Sample Coding – Sensation-Seeking	
Likert Response	**Recoded Value**
Strongly Disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

TABLE 2

Coding design for the second portion of the survey questionnaire, motivational reasoning.

Sample Coding – Motivational Reasoning	
Likert Response	**Recoded Value**
Very Unimportant	1
Unimportant	2
Neither	3
Important	4
Very Important	5

TABLE 3

Dimension table for the first portion of the survey questionnaire. Associated questions are grouped by their associated primary dimension.

Dimensions Table – Sensation Seeking	
Dimension	**Associated Questions**
Thrill and Adventure Seeking	- I like to try risky sports and activities - Relaxation is my most important goal for recreation - I prefer safe sports and activities - I like to do frightening things
Boredom Susceptibility	- I prefer friends who are excitingly unpredictable - I don't mind watching a movie I have seen before - I get restless when I spend too much time at home - I like the comfortable familiarity of my usual environment
Experience Seeking	- I like to try new food that I have never tasted before - I like to explore strange places - I may change my itinerary on impulse when I travel - I prefer not to use a guide even in a place I don't know
Disinhibition	- I like friends that are different than me - I prefer quiet parties with good conversation - Stimulants make me uncomfortable - I like to have unconventional exciting experiences

TABLE 4

Dimension table for the second portion of the survey questionnaire. Associated questions are grouped by their six associated primary dimension.

Dimensions Table – Motivational Reasoning	
Dimension	**Associated Questions**
Achievement	- To challenge myself - To be recognized for doing it - To gain a sense of self-confidence
Enjoying Nature	- To enjoy the sights of nature - To experience the power of nature, thunderstorms, and tornadoes - To be in a natural setting
Learning	- To learn and develop my knowledge and understanding of storms and tornadoes - To experience new and different things - To get to know the lay of the land
Risk Taking	- To be in dangerous situations - To experience not knowing what will happen - To take risks
Similar People	- To be with members of my storm chasing team or group - To be with people who are similarly interested in storm chasing - To be with people who have similar values
Stimulation	- To have thrills and excitement - To experience a lot of action - To feel exhilaration

TABLE 5

Mean and standard deviation values for each particular survey questionnaire variable.

Variable	Mean	Std. Deviation
I like to try risky sports and activities	2.95	1.336
Relaxation is my most important goal for recreation	3.01	1.095
I prefer safe sports and activities	2.73	1.083
I like to do frightening things	3.22	1.243
I prefer friends who are excitingly unpredictable	2.85	1.157
I don't mind watching a movie I have seen before	4.19	1.005
I get restless when I spend too much time at home	3.85	1.246
I like the comfortable familiarity of my usual environment	3.44	1.043
I like to try new food that I have never tasted before	3.65	1.218
I like to explore strange places	4.32	.788
I may change my itinerary on impulse when I travel	3.79	1.109
I prefer not to use a guide even in a place I don't know	3.56	1.158
I like friends that are different than me	3.21	.984
I prefer quiet parties with good conversation	3.81	1.024
Stimulants make me uncomfortable	3.19	1.324
I like to have unconventional exciting experiences	4.08	.876
To challenge myself	3.62	1.171
To be recognized for doing it	2.34	1.183
To gain a sense of self-confidence	3.46	1.170
To have thrills and excitement	3.65	1.097
To experience a lot of action	3.53	1.038
To feel exhilaration	3.54	1.076
To be in dangerous situations	2.42	1.122
To experience not knowing what will happen	3.38	1.171
To take risks	2.70	1.221
To be with members of my storm chasing team or group	3.58	1.169
To be with people who are similarly interested in storm chasing	3.82	.994
To be with people who have similar values	3.70	1.077
To enjoy the sights of nature	4.77	.616
To experience the power of nature, thunderstorms, and tornadoes	4.68	.606
To be in a natural setting	4.13	.794
To learn and develop my knowledge and understanding of storms and tornadoes	4.68	.638
To experience new and different things	4.13	.936
To get to know the lay of the land	3.66	1.077

TABLE 6

Mean and standard deviation values for each sensation seeking and motivational dimension category.

Dimension	Mean	Standard Deviation
-Sensation Seeking-		
Thrill and Adventure Seeking	2.98	.202
Boredom Susceptibility	3.58	.577
Experience Seeking	3.83	.340
Disinhibition	3.57	.444
-Motivational Reasoning-		
Achievement	3.14	.697
Enjoying Nature	4.52	.346
Learning	4.15	.511
Risk Taking	2.83	.494
Similar People	3.70	.120
Stimulation	3.57	.067

TABLE 7

Cronbach's alpha score for the Sensation-Seeking categories.

Cronbach's Alpha – Sensation-Seeking	
Thrill and Adventure Seeking	α= .653
Boredom Susceptibility	α= .406
Experience Seeking	α= .575
Disinhibition	α= .207

TABLE 8

Cronbach's alpha score for the Motivational Dimensions categories.

Cronbach's Alpha – Motivational Dimensions	
Achievement	α= .716
Stimulation	α= .841
Risk Taking	α= .801
Similar People	α= .828
Enjoy Nature	α= .602
Learning	α= .558

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