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**AUTOBIOGRAPHICAL MEMORY OF NATURE-BASED TOURISTS: FORMATION  
OF PLACE ATTACHMENT AND INFLUENCES ON VISITOR BEHAVIOR**

Ph.D. Dissertation

By

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Autobiographical memory of Nature-based Tourists: Formation of Place Attachment and Influences on Visitor Behavior

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The National Park Service (NPS) is currently beginning the celebration of 100 years as a formal agency. Yellowstone National Park, the world's 1<sup>st</sup> national park, catered to over 4 million visitors during 2015. Visitation is rising, but there are underlying issues that are highlighted in a recent guiding document; *Revisiting Leopold* (2012). Congressional budgets are decreasing, younger generations are losing interest in nature, and diverse populations have yet to become fully vested in the NPS. Realizing these pressing issues, Yellowstone sought to understand ways in which visitors can support the park and how to engage visitors to create long-lasting relationships.

The purpose of this study was to investigate how current park visitors support Yellowstone and the reasons they choose to do so. Using three primary constructs, visitors were asked to rate their opinions on place attachment, autobiographical memory, and park support. Autobiographical memory is a form of long-term memory that focuses on the personal recollections of specific experiences. Place attachment is an emotional bond between a person and a place. Finally, park support is a new concept and is defined as direct and indirect actions that sustain the ecological and social functions of national parks. Visitors were stopped at the five exit gates of Yellowstone and asked if they wished to participate in this study. In total, 2,216 visitors were given mail-back surveys with 802 surveys returned to the researchers for a response rate of 36 percent.

It was hypothesized that autobiographical memory was significantly related to place attachment and that place attachment was significantly related to park support. Using confirmatory factor analysis, the scale used to measure autobiographical memory from psychology did not have the same structure as previously found. An alternative one-factor model of autobiographical memory salience was identified instead. Furthermore, autobiographical memory salience was found to be highly predictive of place attachment. Finally, the full structural equation model was found to be highly significant. Autobiographical memory directly predicted place attachment and indirect support. Place identity significantly predicted indirect support and place dependence significantly predicted direct support. Therefore, creating exceptional experiences leads to higher place attachment and higher support.

Future research should focus on identifying what types of experiences lead to high memory salience. Managers can use these results to further attempt to identify methods of improving park support by providing transformative visitor experiences and targeting visitors memory triggers to entice visitation. The goal of this study is to provide a transferable framework for park scholars and managers to use into the future and help sustain America's "best idea".

## Table of Contents

<b>ACKNOWLEDGEMENTS</b> .....	v
<b>CHAPTER 1</b> .....	1
INTRODUCTION.....	1
LITERATURE REVIEW .....	6
STUDY PURPOSE AND OBJECTIVES.....	35
LIMITATIONS AND BIASES.....	36
DISSERTATION STRUCTURE.....	39
<b>ARTICLE 1: Autobiographical Memories of Nature-based tourists: Integrating Psychology into Nature-based Tourism Research</b> .....	42
ABSTRACT .....	43
INTRODUCTION.....	44
LITERATURE REVIEW .....	47
METHODS.....	57
RESULTS.....	60
DISCUSSION .....	67
CONCLUSION .....	69
REFERENCES.....	71
<b>ARTICLE 2: Memory and Place Attachment: Testing Autobiographical Memory as the Antecedent for Place Attachment</b> .....	78
ABSTRACT .....	79
INTRODUCTION.....	80
LITERATURE REVIEW .....	81
METHODS.....	93
RESULTS.....	97
DISCUSSION .....	102
CONCLUSION .....	107
REFERENCES.....	108
<b>ARTICLE 3: Predicting Support for National Parks: How memory and place attachment lead to support for Yellowstone National Park</b> .....	113
ABSTRACT .....	114
INTRODUCTION.....	115
LITERATURE REVIEW .....	118

METHODS.....	132
RESULTS.....	137
DISCUSSION .....	144
CONCLUSION .....	148
REFERENCES.....	149
<b>CHAPTER 5 – Summary and Conclusions.....</b>	<b>154</b>
FORMING THE CONCEPTUAL MODEL.....	154
INTERPRETING THE RESULTS .....	158
MANGERIAL RECOMMENDATIONS .....	162
FUTURE RESEARCH .....	171
CONCLUSION.....	173
<b>REFERENCES.....</b>	<b>176</b>
<b>APPENDIX A .....</b>	<b>188</b>

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# CHAPTER 1

## INTRODUCTION

The National Park System (NPS) is highly praised and generously referred to as “America’s Best Idea” (Duncan & Burns, 2009). Through creation of Yellowstone National Park in 1872, the national park concept has since become a “singular achievement of the nation” (National Park System Advisory Board, 2012, p. 2). With the passing of the 1916 Organic Act and formation of a formal management agency, the mission of the NPS was defined as “[T]o conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (16 U.S.C. § 1)”; a dual mandate. In 2015 the NPS is expected to have catered to over 307 million visitors; a record number for visitation (NPS, 2015). Contextually, Yellowstone National Park recorded 4 million visitors during 2015; a number that had not yet been reached by the park. As visitation numbers increase on both national and individual park levels, comprehensive management in protected areas becomes critical in preserving for future generations (Manning, 2001).

In scientific research, the biophysical and ecological aspects of national parks are important for ensuring ecological preservation, but understanding social dynamics within protected areas is a critical element in protected area stewardship and a powerful compliment to natural science research (Endtner-Wada, Blahna, Krannich, & Brunson, 1988). In fact, “The issue is no longer whether or not humans are part of the ecosystem. The issue now is how we incorporate human community into ecosystem management and within management of resources (Field, Brown, and Burdge, 2004, p. 8).” Inherently, the phenomenon of tourism creates a

crossroads with protected area management as increased tourism may place resources in jeopardy (Eagles & McCool, 2002). Exposing more visitors to parks is important, but concerns linger whether managers can feasibly provide adequate resource protection while continuing to connect with up and coming socio-demographic subsets.

Balancing the original dual mandate requires suitable financing and detailed management. In recent years, budgetary cuts and financial constraints have placed pressure on the NPS to effectively manage both resources and people. In 2013 the United States government shut down all NPS sites across the country for two weeks. The Coalition for National Park Service Retirees reported a loss of \$750 million in revenue across both the parks and gateway communities during this time (Coalition, 2013). This situation brought the financial constraints to the forefront, stressing to the public that current budgets are proving difficult for operation. Popular media outlets provided commentary on increased budget cuts, calling for the need for increased public funding. Thus, a balance is required between providing enjoyable experiences and funding preservation for future generations.

Despite the now apparent funding issues, there are other long-term concerns the NPS is attempting to remedy. Precluding the shutdown, *Revisiting Leopold: Resource Stewardship in the National Parks* (2012, p. 4), a report by the National Park Service Advisory Board Science Committee, cited that “cultural and socioeconomic changes confronting the National Park Service are difficult to overstate. These include an increasingly diversified, urbanized, and aging population, a transforming US economy, and constrained public funding for parks.” Essentially, U.S. residents are migrating to urban areas, minority populations (who are historically less interested in parks) are becoming a larger share of the population, and the “baby-boom” generation is moving into retirement. Although visitation is increasing, developing long-term



relationships between parks and people becomes even more important than before. To foster these relationships, *Revisiting Leopold* (2012) stressed that parks should strive to provide a *transformative* visitor experience. These experiences are “considered to be those events, either planned or unplanned, that lead to a change in an individual, either behaviorally, psychologically, or emotionally (Ewert, Overholt, Voight, and Wang, 2011, p. 140). However, there is little research to suggest what types of experiences are transformative and how the experience affects the connection between people and the park itself. With that said, the overarching goal of this study was to better understand the visitor experience of one sample of NPS visitors and whether the experiences both 1) fosters a strong connection between the park and the person, and 2) influences visitors to partake in behaviors that support NPS sites. The selected sample of visitors to achieve this goal was Yellowstone National Park visitors. To investigate support, a conceptual model was developed that utilized researched constructs from psychology, tourism, and outdoor recreation. Little research currently exists that combines these constructs in such a manner.

A wide variety of psychological and behavioral constructs are currently used in research to understand tourists including travel motivations (Cha, Mcclary, and Uysal, 1995; Eagles, 1992), values (Li and Cai, 2012; Madrigal and Kahle, 1994), behavioral intentions (Baker and Crompton, 2000; Chen and Tsai, 2007), place attachment (Hwang, Lee, & Chen, 2005; Gu & Ryan, 2008; Lee, 2011), and one of the most common, satisfaction (Devesa, Laguna, & Palacios, 2010; Prayag, Hosany, & Odeh, 2013). Measurement of these constructs provide managers with an in-depth view of who their visitors are and perceptions of the experience. However, a recent turn in research suggests alternative approaches including exploring the visitor experience in novel ways (Cary, 2004; Tung & Ritchie, 2011) through the use of advanced psychological

frameworks to explore the visitor experience (Pearce and Packer, 2013). In fact, Tung and Ritchie (2011) state “more research must be done to uncover the specific elements, that is, the essence, of what exactly makes certain experiences special, spectacular, and fittingly, memorable (p. 1368).” Using an advanced psychological framework may be the most applicable method for exploring the transformative visitor experience.

To explore the national park experience, this study adopted an established construct from psychology, autobiographical memory. Autobiographical memory centers on recollections of the “self” (Conway, 2005; Conway and Pleydell-Pearce, 2000). These are memories of past events which can be recalled or used throughout the lifetime of an individual (Fivush, 2011). They allow the person to tell their subjective story and evaluate the significance of each memory amongst others in their life. Each experience builds a memory which can be pieced together to fully explain the self, offer insights for future decisions, and shape social bonds (Bluck, 2003; Kuwabara and Pillemer, 2010). Moreover, memory has been identified as a psychological construct that could be given more attention in tourism research (Pearce and Packer, 2013). Thus, autobiographical memory provides a new construct to help understand what the visitor experience means to an individual.

The second component of the conceptual model tests the relationship between the memory of an experience and its effect on attachment to place. The construct used to measure the connection to the park is place attachment. Place attachment is an emotional connection that forms between a person and a place (Hidalgo and Hernandez, 2001). Ultimately, people make locations meaningful through personal experiences (Tuan, 1975). Place attachment is commonly used in environmental social science to explain how people connect to areas they live, recreate, and travel (Jorgensen and Stedman, 2001; Kyle, Graefe, Manning, and Bacon, 2003; Williams,

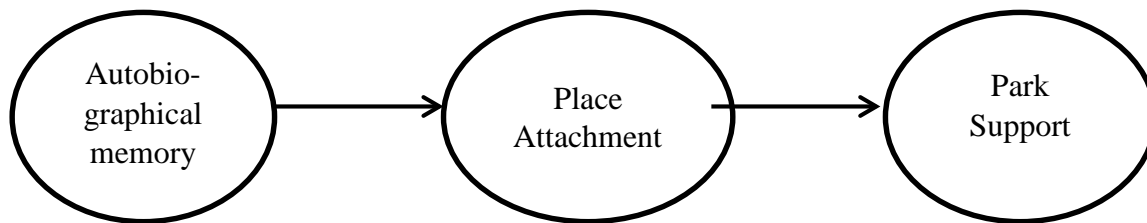
2008). Additionally, place attachment has been shown to predict behaviors and intentions (Lee, 2011; Ramkissoon, Smith, and Weiler, 2013). The relationship between place attachment and memory has yet to be researched, but there appears to be a linkage between past experiences and level of place attachment. Even further, autobiographical memory is hypothesized as having a significant, positive effect on place attachment.. If the memory is meaningful, there may be a stronger level of connection between the person and a place.

Finally, the third component of the conceptual model is the predictive ability of place attachment to behaviors that benefit the park itself, namely ‘park support’. Park support is defined as direct or indirect actions taken by people that assist in the preservation and livelihood of the ecological and social functions of national parks. Examples of hypothesized indirect support behaviors include sharing park experiences with others, visiting social media sites related to national parks, and taking individuals to a national park who has never been before. Examples of hypothesized direct support behaviors include donation to organizations and ‘friends’ groups associated with national parks, volunteering time at national parks, and visiting/spending nights at the park itself. This construct has not been developed before in the literature, but resembles conservation commitment (Lee, 2011), environmentally responsible behavior (Vaske and Kobrin, 2001), and geotourism (Boley, Nickerson, and Bosak, 2011).

The conceptual model below (Figure 1) displays the following hypothesized relationships: highly rated recollections of the visitor experience (autobiographical memory) leads to higher place attachment at the destination (emotional connection to place). Higher place attachment then leads to an increase in park support behaviors (indirect and direct support). This study takes place in Yellowstone National Park, which represents one of the most visited sites in the NPS. The following literature review discusses the three primary constructs used and

highlights previous studies that utilized each construct. Furthermore, the literature review builds the theoretical connections between the constructs.

**Figure 1: Conceptual Model**



## **LITERATURE REVIEW**

### **Space and Place**

Literature on space and place is a focal point in the realms of geography, psychology, sociology, outdoor recreation, and tourism. Space and place are used to describe the way that people conceptualize the natural or built world, the processes that form familiarity, and experience human interactions. Space can be described as a void, empty box, or, as Agnew (2011) states, “a dimension within which matter is located or a grid within which substantive items are contained (p. 1)”. To an individual, space is a location where one has not had any personal experiences or has little meaning to the person. Furthermore, Tuan (1975) states, “The study of space, from the humanistic perspective, is thus the study of people’s spatial feelings and ideas in the stream of experience (p. 388)”. Cresswell (2004) notes that “spaces have areas and volumes,” while Tuan (1979) acknowledges space and place in terms of movements and pauses.

When human interaction is introduced to a space, the transformation into a “place” begins. A common definition is one that finds place as a “center of meaning constructed through experience (Tuan, 1975, p.152)”. One can think of space as a set of coordinates on a map, but

when meanings are added it can become a place enriched with history and connotations.

Agnew's (1987) three-part definition of place is popular and contains: 1) location, 2) locale, and 3) 'sense of place'. Further, Cresswell (2004, p. 1) describes place as a set node in a system or a "meaningful site" that combines these three elements. Clarifying Agnew's (1987) original three-part definition, Cresswell (2004) defines location "an absolute point in space with a specific set of coordinates (p. 1)." The locale is defined as the materials that make up the place. Finally, sense of place refers to the meanings associated with the place. Sense of place is subjective to each individual as one has varied experiences in places. Hence, researchers in disciplines outside of geography are most interested in sense of place. Exploring a place's meaning to people can be useful to managers and marketers.

The approach to exploring peoples' personal relationship with a place depends on both view of the researcher and the research objective (Williams, 2008). Two primary, but not comprehensive, approaches to studying place have ascended throughout the years, specifically in outdoor recreation research: "place as an attitude object," and "place as relationships and meaning" (Williams, 2008, p. 16). Place examined "as an attitude object" is a cognitive approach to studying individuals' attitudes towards a place, typically defined as *place attachment* (Kyle, Absher, & Graefe, 2003; Jorgensen and Stedman, 2001; Williams and Vaske, 2003). Place as "relationships and meanings" adopts a more holistic approach and attempts to understand the underlying nuances, symbols, and significance of places in one's 'being-in-the-world', typically defined as *place meaning* or *sense of place* (Relph, 1976; Williams and Patterson, 1992). The researchers worldview or adopted philosophical commitments can drive the way in which place is examined. A post-positivist worldview would most likely see place as an attitude object whereas a social constructivist would see place as relationships and meanings (Williams, 2008).

The adopted worldview largely drives the methodology used to study place. In fact, a long standing debate still exists on the appropriateness of each perspective (Patterson and Williams, 2005). Those who treat place as relationships and meaning tend to prefer qualitative methods as subjective interpretations of place are of primary importance (Teddlie and Tashakkori, 1998). Treating place as meanings and relationships and studied with qualitative methods may best reflect the holistic properties of one's connection to a location. Conversely, the focus of many studies drive place research in a quantitative direction (Jorgensen and Stedman, 2001; Stedman, 2003). However, Williams (2008) stated that "people do not usually characterize their relationships to cherished objects, home, or family in terms of attitudes. To say that I have a favorable attitude toward my wife and children would seem to degrade the emotional intensity of these relationships (p. 16)." Instead of selecting a single worldview for this study, place is treated as an attitude object and measured with quantitative scales. This is because the research question relates to the intensity of place attachment, not specifically the subjective meanings.

### **Place Attachment**

Place attachment is a commonly used construct both in tourism and outdoor recreation literature (Kyle et al., 2003a, 2003b; Lee, 2011; Ramkisoon et al., 2013; Williams, 2008; Williams and Roggenbuck, 1989). Place attachment is defined as an "affective bond or link between people and specific places (Hidalgo and Hernandez, 2001, p. 274)." For natural resource managers, understanding the attachment to place by users has become useful as people develop "feelings of possession for the resource (Williams, 2008, p. 8)." Thus, finding the reasons why people self-identify or depend on a place for a specific experience it provides is important for the decision-making processes. Place attachment further serves a variety of purposes including

belonging and intrinsic spirituality (Prayag and Ryan, 2011). In fact, “understanding the meanings of place is a central aspect to understanding leisure (Kaltenborn, 1997, p. 176).” In this quote Kaltenborn (1997) reiterates the importance of place attachment to outdoor recreation research. Even further, Williams and Roggenbuck (1989) stated “that most people experience feelings of place attachment which go beyond the usefulness of a particular place or a setting for pursuing a particular activity (p. 1).” While these quotes generally are most applicable to outdoor recreation studies, one’s experience at a place and their connection to it is of importance to more than recreation managers. Tourism promotion and destination managers can benefit from understanding whether visitors are attached to the place. Those who are attached may be more likely to return to the destination, which improves revenue and indicates that the experience is important to the visitor.

Place attachment has shown to be a strong predictor of future choices such as destination selection or acceptance of managerial actions (Kyle, Absher, and Graefe, 2003; Prayag and Ryan, 2011). For instance, if land managers propose changes to fee structures (e.g. camping, backcountry, or entrance) and user attachment is high, those with high attachment may feel more committed to providing a retort (Lewicka, 2011). Kyle and Mowen (2005) found that users who were highly place attached were more likely to accept the fee program put into place by the NPS during the mid-1990s. Those who participate in certain activities can become dependent on the place for obtaining a specific experience, which leads them to return (Kyle et al., 2003a). Individuals may feel that no other location can substitute for that specific experience. Therefore if an action could restrict their experience, users with high attachment may be important to consider in the management decisions.

When studied as an attitude object place attachment is conceptualized primarily through two popular dimensions: ‘place dependence’ and ‘place identity’ (Stokols and Shumaker, 1981; Williams and Roggenbuck, 1989; Williams and Vaske, 2003). But, more dimensions have been hypothesized as contributing to a larger part of the conceptual framework (Jorgensen and Stedman, 2001; Stedman, 2003). Place dependence is defined as “when the occupants of a setting perceive that it supports their behavioral goals better than an alternative (Stokols and Shumaker, 1981).” Conceptually, a high degree of place dependence indicates that the location is not substitutable for the experience received. Place identity is defined as “the importance a person attaches to the place because of what the setting symbolizes or stands for (Williams and Roggenbuck, 1989, p.20).” Therefore, place identity relates to the degree of personal connectedness one has to a location. A person who has a strong attachment to a second home (e.g. a lake house) may self-identify with the place (Jorgensen and Stedman, 2001). For instance, one may find themselves being most “at home” at the place they connect the most. However, this dimension is less useful to managers because of its subjective nature. One cannot visualize the direct reasons why people self-identify with a place, but dependence may be quite visible as there may be no other location like it for that activity (e.g. Yosemite rock climbing).

Alternative scales have used supplementary constructs such as social ties and meanings (Bricker and Kerstetter, 2000; Jorgensen and Stedman, 2001; Lee, 2011). These additional constructs may capture information missed by using only two dimensions. For instance, one’s affective attachment to place is lost without adding items to measure emotions. Further, physical characteristics of the place have been found to have an effect on the attachment of second home owners (Stedman, 2003). Factors such as lake depth and shoreline development had mixed effects on level of place attachment. Stedman (2003) concluded that besides the experiences one



has at a place the actual physical features have some influence. With that said tourists are not purchasing property and are inherently different than second home owners. Instead, it can be argued that tourists are looking for the ideal experience which will drive their level of attachment. While physical characteristics may affect attachment, the experience received at a destination may drive both place identity and place dependence. If an experience is meaningful to an individual, the level of place attachment should be higher.

### **Measuring place attachment and associated relationships**

In this section a variety of common scales used to measure place attachment quantitatively are described. Most scales are situated in outdoor recreation research, but they have been applied in other disciplines such as environmental behavior and psychology as well. While the conceptual differences between some scales used are described, this section provides depth for these various studies.

Williams and Vaske (2003) sought to validate a scale to measure place attachment. Their main objective was to test a two-dimensional scale consisting of ‘place identity’ and ‘place dependence’ versus a one-dimensional attachment scale. Results found that the two-dimension model provided a better fit, using only four variables for each construct compared to a single dimension with all eight items. This scale provided researchers with a reliable and parsimonious tool to measure one’s place attachment to a nature-based destination. The items used are included in later chapters of this dissertation. While Williams and Vaske (2003) developed a reliable and parsimonious scale, other studies have successfully measured the construct using their own scales (Bricker and Kerstetter, 2000; Kyle et al., 2005; Kyle et al., 2003). Bricker and Kerstetter (2000) examined whitewater users’ level of place attachment and recreation

specialization on a specific river. They hypothesized that one's level of specialization and attachment to the river were positively related. Results indicated a positive, direct connection between involvement/specialization and place attachment, thus, higher involvement in whitewater activities lead to a higher degree of place attachment to the river. Similarly, Kyle et al. (2003a, 2005) found direct ties between recreation involvement and place attachment for hikers on the Appalachian Trail. These studies all adopted a quantitative approach to measure place and treated it as an attitude object. The linkage between recreation specialization/involvement appears to be significant across these leisure studies and have proven valid and reliable in their usages.

In regards to attachment to natural places, Scannell and Gifford (2010) measured natural and civic place attachment among community residents and its ability to predict pro-environmental behavior. Results of a regression analysis indicated that natural place attachment, but not civic, lead to an increased potential for pro-environmental behavior. Vaske and Kobrin (2001) and Clayton (2003) found similar results in that heightened place attachment in natural environments lead to a higher participation in environmentally-friendly behaviors. Place identity, or environmental identity, had the strongest relationship with pro-environmental behaviors among community residents. However, researching residents is different than those who are nonresidents of the region who possess high degrees of mobility, which suggests a need for additional research on nonresident visitors to natural areas.

More recently, Lee (2011) developed a structural equation model focusing on connecting place attachment, conservation commitment, and the constructs' effect on environmentally responsible behavior. Place attachment was measured using three dimensions similar to Bricker and Kerstetter (2000). Conservation commitment was represented by a number of variables

revolving around visitors' statements on their support for organizations or behavioral intentions to protect wetlands. Results indicated that place attachment and recreational involvement predicted conservation commitment which acted as a mediator for environmentally responsible behavior. Following a similar framework, Ramkissoon et al. (2013) researched a parallel model between place attachment, place satisfaction, and pro-environmental behaviors of national park visitors in Australia. Again, a different measurement scale of place attachment was utilized containing four dimensions. Significant, positive relationships were found between attachment, place satisfaction and their ability to predict pro-environmental behaviors. Hence, Lee (2011) and Ramkissoon et al.'s (2013) studies further validate place attachment as a useful construct in understanding both behaviors and intentions. The construct of conservation commitment is further discussed in a later section as it has direct relevance to the conceptual model suggested for this research

To conclude, place attachment has shown to be an important and popular construct in natural resource management. However, little research exists that suggests why people become attached to places and the processes that facilitate attachment formation. The above studies all have found significant relationships with place attachment in relation to other constructs, but their studies have assessed how attached someone is at that current moment. One cannot assume how those people became attached, just simply their current level of attachment. Tuan's (1975) influential work on place and experience may be one of the more telling ways to conceptualize the formation of attachment. That is, place forms through human experiences, thus, place attachment must form from particularly salient and meaningful experiences at a place. It's hypothesize throughout this dissertation that place attachment formation is best measured

through the evaluation of autobiographical memories. The following section outlines the approach towards measuring experience using personal memory.

## **Memory**

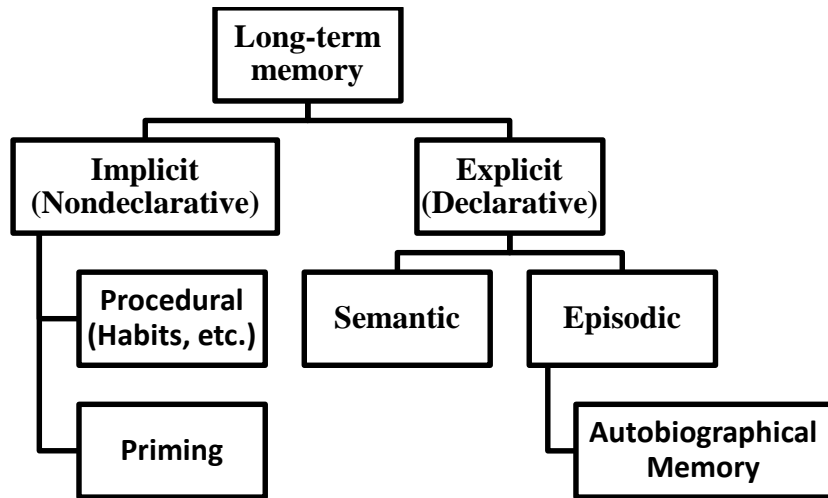
### **An introduction to memory**

Human memory is described as the “process of maintaining information over time (Matlin, 2005, p. 3).” Personal memory in particular is central to the way humans conceptualize their life. Information retention facilitates learning, sharing of knowledge, and decision-making. Exploring memories allows for a better understanding of how people use information from past experiences and a necessary component towards studying people (Sherry and Shacter, 1987; Sternberg, 1999). Memory is studied through two base classifications: personal or social memory (Hallbwachs, 1992; Shah, 2012). Social memory refers to the collective memories (e.g. storytelling, traditions) shared between cultures; however, personal memory is the primary interest for this study. Personal memory is commonly hypothesized through the Atkinson-Shiffrin (1968) model. Their model hypothesizes that personal memory follows an organizational structure where sensory memory, short-term memory, and long-term memory are used to categorize different memory classifications (Norman, 1969). Sensory memory is very short-term information obtained through subconscious stimuli which transfers into short-term memory through attention (Atkinson and Shiffrin, 1968). Short-term memory pertains to immediate information that can be used at the moment to make decisions or evaluate situations. Short-term memory generally lasts 5-30 seconds unless it translates into long-term memory through rehearsal. Finally, long-term memory does not have any known storage time limit and can be used to make decisions from remembrances of past experiences. Long-term memory is the most relevant typology for this study as it stores information from past experiences that was deemed useful.

## **Divisions of Long-term Memory: Implicit and Explicit**

Long-term memory is divided into two subsets which explain different forms of long-term memory: implicit (nondeclarative) and explicit (declarative) (Atkinson & Shiffrin, 1968). Both explicit and implicit long-term memory are divided into further sub divisions, which is discussed later. Implicit memory is discussed as long-term stores that are unconsciously retrieved and are used in procedural skills, whereas declarative memory is a conscious form of long-term memory (Tulving, 1972, 2002). Squire (2004, p. 173) states, “[Explicit memory] is the kind of memory that is meant when the term “memory” is used in everyday language.” When asked “what did you do today?” explicit memory is the type one recalls. Squire (2004) further discusses that both implicit and explicit memory can be affected by specific events and operate in parallel to support certain behaviors. For instance, “[A]n aversive childhood event involving being knocked down by a large dog can lead to a stable declarative memory for the event itself as well as a long-last fear of dogs (a phobia) that is experienced as a personality trait rather than as a memory (p. 174).” However, implicit memory is difficult to capture using traditional self-reporting techniques because the individual is unaware of its retention and uses. In contrast, explicit memory, or declarative memory, can be divided into episodic and semantic long-term memory and studied using traditional methods (Figure 2). Explicit memory is the specific form of long-term memory of importance to the model being presented for this study.

**Figure 2: Divisions of Long-term memory**



Tulving's *Episodic and Semantic Memory* (1972) significantly advanced the discussion by dividing explicit memory into two primary sub divisions. Tulving saw to further divide the conscious form of memory, explicit memory, into sub divisions that best represent uniquely different types of information. The historical variance in delineating memory types is vast; some of which create more issues than solutions. Choosing distinct delineations of memory was difficult to deal with because of this variance. Tulving (1972) notes "one can count references to some twenty-five or so categories of memory, if one is willing to assume that any unique combination of an adjectival modifier with the main term refers to something other than any of the referents of other such unique combinations (p. 382)." Among these adjectival modifiers arose "semantic" memory, which was then hypothesized as a form of long-term, declarative memory. Generally with the abundant number of modifiers cited there is an opposing form of memory which describes other information recall. In that light, "episodic" memory was found to be semantic memory's contrast. Semantic memory are facts one remembers, but does not recall the event where it occurred such as dates in history, names, languages, or cities in a region. An individual would have a difficult time in remembering the specific event this information was retained, but they are able to recall the information when needed. However, the specific event

tends to be lost in terms of its details. As Klein, German, Cosmides, and Gabriel (2004, p. 262) state, “It is remembered, but not re-lived.”

The more applicable and tangible form of explicit memory is episodic memory. Episodic memory, closely related to its given name, relates to information stored about an event *the person experienced* (Tulving, 2002). Tulving cites William James’ conception of memory as episodic where James states, “Memory requires more than mere dating of the fact in the past. It must be dated in *my* past (James, 1890, p. 650 cited by Tulving, 1972, p. 389).” Episodic memory develops through remembrances of specific events and is stored for use and can be discussed with others (Tulving, 2002). Tulving (1972, p.385) further states, “Episodic memory receives and stores information about temporal-spatial relations among these events.” For example, one may recall the exact details of September 11<sup>th</sup>, 2001 vividly as it’s an important part of many people’s recent memory. Situationally dependent, the person may be able to accurately recall the exact circumstances or perhaps only nonspecific, general details. When the time arises for the memory to be used, the individual utilizes their episodic memory to retrieve past experiences and can potentially convey them in a narrative. Contingent on the age of the memory and other factors (significance, state of mind, etc.), event vividness may vary.

Tulving (2002) describes episodic memory has having two components: “the what, where, and when of an experience”, and an *autonoetic consciousness*, or an awareness of the “self” having experienced a specific event (Fivush, 2011). Autonoetic consciousness is an important aspect of episodic memory as it is unique to that specific form. Each individual must self-identify themselves experiencing the event for it to be relevant in their life. Ultimately, awareness can lead to personal development and building of the self. Autonoetic consciousness is the aspect that separates semantic from episodic memory directly. Tulving (1985) reiterated

that episodic memories are recognized and recalled by the individual while semantic memories are simply believed.

### **Autobiographical Memory**

Since the initial divisions of explicit memory, researchers have now uncovered a new form of episodic memory that is even more subjective to each individual. For practical purposes, separating out long-term memory into these sub dimensions, and then even further, can be confusing, however, as research evolved it became more obvious that there are differences in the information and processes. This new form of long-term explicit memory is called *autobiographical memory* (AM) (Conway, 2005; Conway and Pleydell-Pearce, 2000; Fitzgerald and Broadbridge, 2013; Fivush, Haberman, Waters, and Zaman, 2011; Klein et al., 2004; Pillemer, 1992, 2003). “Autobiographical memory is the memory of the self interacting with others in the service of both short-term and long-term goals that define our being and our purpose in the world (Fivush, 2011, p. 560).” Essentially, autobiographical memory is similar to episodic memory, but there is much more detail and it is placed within a subjective context. Episodic memory does not stress the event meanings where autobiographical memory requires the remembrance be placed in a much larger frame of reference (i.e. one’s life history). Autobiographical memory includes a memory of the self being part of the event, links past events together into a “personal history”, and “goes beyond the episodic memory function of guiding future behavior to serve social and emotional functions (p. 560-561).” Autobiographical memory includes how the event occurred, its importance, and meanings (Fivush, Habermas, Waters, and Zaman, 2011).

Further, autobiographical memory is used to identify “self-defining moments” (Fivush et al., 2011). Self-defining moments are “typically unique, onetime events, which become



personally significant and integral to individuals' understanding of who they are (Fivush et al. 2011; p. 333).” These moments can be significantly impactful to the entire life story of an individual. Self-defining moments take place at a variety of times in one's life, but many occur during adolescence or childhood. Their valence is not static as both positive and negative memories can be self-defining. Positive events and negative events can have profound effects on one's development of self. As it relates to my dissertation, self-defining moments closely resemble the “transformative experiences” that *Revisiting Leopold* (2012) called for the NPS to provide. If researchers can assess whether national park experiences are “self-defining”, then those events may be considered transformative.

Conway and Pleydell-Pearce's (2000) “self-memory system” model of autobiographical memory provides a baseline for understanding its role within an individual. Autobiographical memories contain knowledge at different levels of specificity throughout time. They highlight three types of autobiographical knowledge: life-time periods, general events, and event specific knowledge (ESK). *Lifetime periods* are event timelines such as, “when I was at college...” or “when I lived with...” These periods are temporally situated and can be thematically described by the individual. *General events* are “more specific and, at the same time, more heterogeneous than lifetime periods (Conway and Pleydell-Pearce, 2000, p. 262).” For instance, general events can be a single vacation or repeated event. Upon recall of one memory, a second or third memory can be further cued to become an *event cluster*. Finally, *event specific knowledge (ESK)* is the most explicit type of autobiographical knowledge where the person remembers highly detailed information about an event or time. Highly traumatic, exciting, or emotional events may spark ESK. Furthermore, ESK is quickly lost and is transformed into a general event or a lifetime period, depending on the time passed since occurrence and its intensity. ESK has been linked to

being highly associated with whether the person believes their memories to be true (Conway and Plyedell-Pearce, 2000).

Fivush et al. (2011) further found autobiographical memory mediated by social and cultural narratives. In other words, shared storytelling through social interactions allows autobiographical memory to develop and emerge. An important part of autobiographical memory is the telling and retelling of specific events to others. Relating to a tourism context, the ability for travelers to share experiences with others is a key for understanding the role of the event and building the desire for others to visit. Moreover, Fivush et al. (2011) describe autobiographical memory as specifically being a socially mediated skill in that people are taught to build a life story through memory. Today's sociocultural norms demand that telling one's story is necessary for the success and understanding of the self. However, there are additional functions that autobiographical memory utilizes. Thus, the below section discusses the three functions and their purposes.

### **Three Functions of Autobiographical Memory**

Once the role and formation of autobiographical memory were uncovered, researchers began to see how people use autobiographical memories in their daily lives (Bluck, Alea, Habermas, and Rubin, 2005; Kuwabara and Pillemer, 2010; Pezdek and Salim, 2011; Pillemer, 1992, 2003). Three functions were hypothesized to exist within AMs: The 'Directive' Function, The 'Self' Function, and The 'Social' Function. Pillemer (1992) originally proposed AM as "having directive (planning for present and future behaviors), self (continuity, psychodynamic integrity), and communicative (social bonding) functions (Bluck et al., 2005, p .93)." This study was important because "memory research in general, and research on AM in particular, has

focused on how, how much, and how accurately, people remember their past (Bluck et al., 2005, p. 91).” Thus, exploring these functions, I argue, are of particular interest to researchers in separate disciplines. Tourism research can make use of all three functions as they give feedback to managers on the importance of specific events and how the visitor experience is interpreted.

The “directive function” guides the person in making decisions based on their past experiences. Past experiences can be recalled to provide information relevant for decision-making processes. For instance, one may recall a past success and why it was successful to guide their decisions later in life. The “self function”, as described by Bluck et al. (2005), promotes continuity in the “self”. Past memories build a personal life history that is subjective to each individual. This function is important in times of individual change as it allows one to reflect on those experiences and progress. Even from a young age, people use the “self function” as a way to distinguish who they are as a person (Fivush, 2011). The third function is the “social function”. Recollection allow for social bonding between those who are included in the event or if one is being told another’s autobiographical memory. Bluck et al. (2005) even describes that the “most basic social function AM serves is to provide material for conversation, thus facilitating social interaction (p. 94).” People develop empathy through sharing of experiences and memories, especially if those who are listening reply with a similar experience (Cohen, 1998; Pillemer, 1992).

The functions have been investigated through a variety of quantitative testing and qualitative inquiry (Kuwabara and Pillemer, 2010; Pillemer, 2003). Hyman and Faries (1992) studied the formulation of autobiographical memories from past events in the past 6 months and their respective function through qualitative interviews. They concluded that the social and self-functions were most evident as people shared their experiences with others and personally

reflected on them, however, the directive function was not present. Until recently, the directive function was unfounded in many studies. Bluck et al. (2005) tested each of the three functions using the “Thinking About Life Experience (TALE)” questionnaire; one of the many quantitative measurement tool of AMs. Results identified four factors labeled: “Directive”, “Self-continuity”, “Nurturing relationships”, and “Developing relationships”, closely resembling the widely accepted three-function hypothesis. Thus, Bluck et al.’s (2005) study accurately found the directive function within one’s life experiences. Since, the directive function of autobiographical memory has received more attention in academic literature as it is practically relevant to many industries (Biondolillo and Pillemer, 2014; Kuwabara and Pillemer, 2010; Philippe, Koestner, and Lokes, 2012; Pillemer, 2003).

Relevant to the proposed model, Kuwabara and Pillemer (2010) conducted an experimental study to test whether University alumni were more likely to donate to the institution. In addition, the researchers wanted to test whether eliciting autobiographical memories would influence donation likelihood. Three experimental groups based on memory elicitation were formed: positive memory, negative memory, and no memory elicited. Philanthropy provides a viable real-world context for examining the role played by autobiographical memories in decision-making, but previous studies have focused primarily on other potential influences (p. 366).” Hypotheses were formed that activation of a memory can affect future and present behavior in regards to philanthropy. After respondents were asked to share a memory of their university experience, a donation was solicited to either the university (alumni foundation) or an outside organization. Simply activating an AM about when one was at college, either positive or negative, had a significant increase on willingness to donate and the donation amount over those who did not state any memory. Further, “surprisingly, the odds of

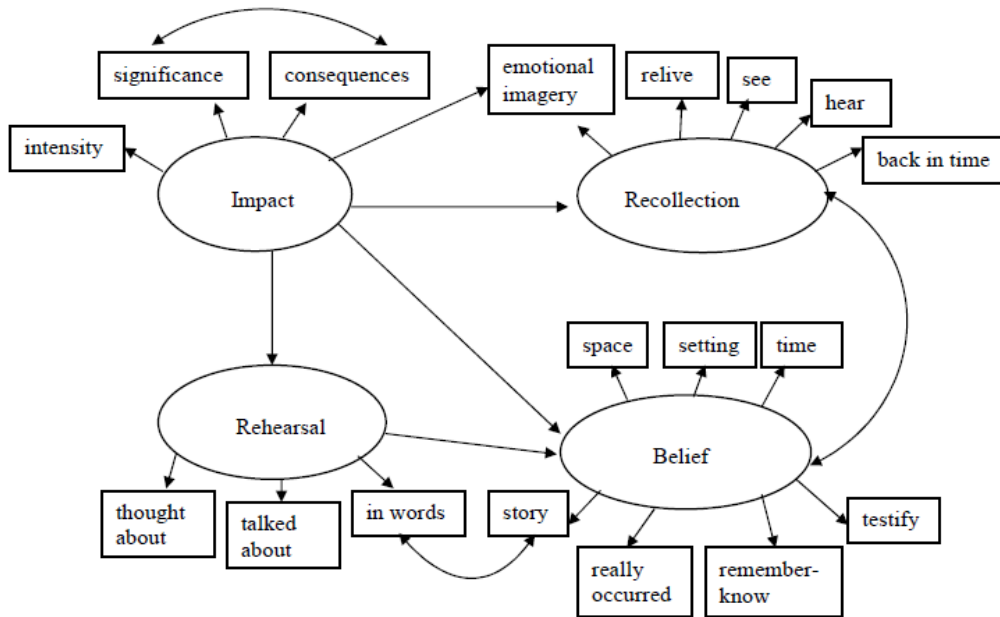
choosing to donate to the university were higher for participants who provided negative memories than those in the control condition, although this difference only approached statistical significance and a parallel effect was not observed for students' ratings of future intentions to donate (p. 372).” Essentially, activating a memory has a significant increase in behavior despite the valence. Thus, marketers may see this as an opportunity. Eliciting a thought about a particular memory can influence behaviors.

Kuwabara and Pillemer's (2010) study indicated “real-world” application for AMs and understanding behavior. For this study, AM is used in a similar fashion to explore its relationship to the emotional connection of a person to place and their behaviors. Besides the directive function, the social and self functions are intertwined in the notion of place attachment and one's connection to Yellowstone. To date, a scarce number of visitor-related studies have focused attention on memory (Braasch, 2008; Kim, Ritchie, & McCormick, 2012; Kim, 2013; Tung & Ritchie, 2011), and the existing research does not specifically use a psychological lens to investigate the construct. Recent undertakings by Tung & Ritchie (2011), Kim, Ritchie and McCormick (2012), and Kim & Ritchie (2013) studied aspects of personal memory in a tourism context, which lead to the development of the “Memorable Tourism Experiences Scale”. While this tool is useful for understanding the memorable aspects of a trip, a more robust investigation into personal memories of travelers is warranted. Despite the focus on understanding the memorable aspects of a trip, little has been done to investigate the roles that memory plays in the tourists' lives and how experiences may influence behavior. The following section introduces a recent study by Fitzgerald and Broadbridge (2013) who developed a quantitative questionnaire to test the structural relationships of AM's constructs. This study outlines the tool subsequently used to measure recollections of Yellowstone National Park visitor experiences.

## **Autobiographical Memory Questionnaire**

Fitzgerald and Broadbridge (2013) provide foundational backing for the measurement of autobiographical memories, specifically the rehearsal and impact of those memories. Their research aimed to explore the latent constructs that exist in autobiographical memory and their relationships. The constructs of rehearsal, or how often a person replays their memory, and impact, or the meaningfulness of the memory in the individual's life, were deemed as exogenous variables that link to additional constructs of recollection and belief of memories. Two hypotheses stemmed from previous literature (p. 232): 1) recollection and belief are two distinct but correlated constructs defined by different scales and 2) impact and rehearsal are key predictors of recollection and belief. Their conceptual model was hypothesized to explain how people remember events and what effects a memory can have on one's recollection and belief of the experience (Figure 3). The constructs analyzed in this study are impact and rehearsal. Their relationship with recollection and belief are described briefly below.

**Figure 3: Fitzgerald and Broadbridge's (2013) Conceptual Model**



In the Fitzgerald and Broadbridge (2013) study, participants were given a mixed-method questionnaire which asked them to state five different types of memories: 1) earliest memories (childhood), 2) vivid memories, 3) most stressful/traumatic memories, and 4) cue-word memories (elicited memories based on a given word). Participants were asked to rate their memories on an 18-item scale named the Autobiographical Memory Questionnaire (AMQ). Each construct had a variety of measurement items with impact and rehearsal having eight combined variables. Results indicated that all types of memories followed similar pathways, but with varying construct means. Stressful/traumatic memories had the highest mean in all constructs, but were very similar to vivid memories. Earliest memories were found to have the lowest mean ratings in all constructs, but still followed the same pathway. Therefore, the hypothesized model provided a reliable and appropriate measure for understanding autobiographical memory's structure and formation.

While still in its early stages, Fitzgerald and Broadbridge's (2013) model and the AMQ provide the most relevant approach towards measuring AMs in a tourism context. The constructs of impact and rehearsal appear to be related with place attachment as it is theorized as forming from experience. Recollection or belief constructs are not used in this study for a number of key reasons: 1) the accuracy of the recollection is not necessary to build the foundation of this model, 2) fabricated or false memories are not of a concern, and 3) the constructs of impact and rehearsal are most saliently related to place attachment and park support behavior. Furthermore, the AMQ goes beyond Kim et al's (2012) MTES and measures the exact memories of visitors.

The following section discusses the topical areas most closely related to the third construct used in this study; park support. The literature that is included rests in philanthropy and environmental behavior. Thus, both philanthropy and a construct known as conservation commitment are reviewed.

### **Public Support for National Parks**

The third construct used in the conceptual model is park support, which is defined as direct or indirect actions taken by people that assist in the preservation and livelihood of the ecological and social functions of national parks. This topic has not been explored in the literature and research on the subject only tangentially exists. The closest likeness rests in philanthropy or charitable giving, environmental behavior (e.g. conservation commitment and environmentally responsible behavior), and marketing. Park support includes both aspects of donations to park-affiliated organizations, monetary spending within the park, and behaviors that support the park indirectly (e.g. sharing experiences with others and introducing new visitors to the area). Tourism research has yet to fully investigate donation behaviors as most destinations



drive primary revenue through visitor spending or entry fees. However, NPS budget shortcomings have prompted questions outside the realm of traditional research paradigms and forced managers to consider private giving as a form of supplementing congressional allocations.

### **Philanthropy and Charitable Giving**

Philanthropy is defined as “the private giving of time or valuables (money, security, property) for public purposes (Salamon, 1992, p. 10).” Individuals gift or donate goods as a way to support specific organizations or causes. Philanthropy is discussed in various terms such as gift giving, donations, or charity. For many non-profit organizations, private giving is critical to operation. In fact, Brooks (2004) found that philanthropy contributes to 20 percent of all revenue in the non-profit sector and as high as 84 percent in religious organizations. Philanthropic donations in the United States have “stagnated over the last 30 years (Merchant and Ford, 2008).” Because of the decline in giving, organizations look to new methods to entice donations and explore the best methods to increase responses. As of now, “much of the information produced by practitioners and academics to enhance the effectiveness of fund-raising is descriptive (Van Slyke and Brooks, 2005, p. 200).” The primary outcome of many research studies are descriptive in nature and only link demographics to giving or a focus on wealthy contributors. Recent research has aimed to identify donation drivers.

Two viewpoints have emerged on donation mechanisms: ‘pure’ and ‘impure’ altruism (Andreoni, 1990; Bekkers and Wiepking, 2010). ‘Pure altruism’ is supporting public goods through private contribution because it benefits the cause and all people should participate in giving (Bergstrom, Blume, & Varian, 1986; Menges, Schroeder, & Traub, 2005). Pure altruism is simply supporting a cause or organization as a function of humanity. Countering, Andreoni

(1990) identified 'impure altruism', or 'warm-glow giving', as a competing reason for giving. Warm-glow giving refers to the feeling that people feel when giving to an organization or cause. Individuals feel positive emotions about themselves upon giving to a cause or organization. Crumpler and Grossman (2008) state that "a pure altruist's welfare is a function of the level of the public good provided not how it is funded...At the other extreme, donors may not receive utility from the fact that other people benefit from the public good, but rather receive utility from the act of giving itself (p. 1011)." Both pure and impure altruism have evidence of existence with each showing impact on some types of donation behavior (Crumpler and Grossman, 2008; Eckel, Grossman, and Johnston, 2005; Konow, 2010). Although most research has focused on impure altruism as it has been found to have the most impact on donation behavior (Bekkers and Wiepking, 2011). Other characteristics and motives predict or increase donations to some degree besides the overarching classifications of pure and impure altruism.

Through interviews of non-profit managers and data from their organizations, Van Slyke and Brooks (2005) identified that people who volunteered were more likely to give, whereas males and high-income individuals were less likely as they did not participate in volunteering as often. Furthermore, individuals who knew a beneficiary of the charity had a higher likelihood of giving in the future. Wheeler, DeMarree, and Petty (2007) found a significant increase in donation likelihood when one was asked by a family member or if the solicitation occurred in their home. A comprehensive literature review of the mechanisms for giving identified eight primary drivers: 1) awareness of need, 2) solicitation, 3) costs and benefits, 4) altruism, 5) reputation, 6) psychological benefits, 7) values, and 8) efficacy (Bekkers and Wiepking, 2010). Throughout this review, a large variety of studies are presented as to their results on donation

behavior and their influences. Out of the eight mechanisms, psychological benefits (i.e. warm-glow giving) were the most important mechanism for predicting donation behavior.

Bekkers and Wiepking (2010) identified many primary mechanisms for predicting donation behavior, but forms of personal identity have been found to most likely effect cause donation (Aaker & Akutsu, 2009; Reed and Aquino, 2003; Reed, Aquino, and Levy, 2007). Aaker and Akutsu, (2009) found personal identity as important for charitable giving likelihood. For example, a person may identify themselves as a 'giver' or 'volunteer' which increases the likelihood of carrying out that behavior. An additional form of identity, moral identity, was found to influence donation to an organization that threatened the social group (Reed and Aquino, 2003). Moral identity is "a self-conception organized around a set of moral traits (p. 1272)". One tends to classify themselves socially into an "in-group", such as those living in the United States may identify as an "American". An "out-group" contains people who do not belong in the same social group. At times, individuals may feel that an out-group threatens the personal social identity, or in-group. Moral identity allows one to distinguish between the group as a whole and the individuals, who may need assistance. For example, Americans with high moral identity were more likely to donate to Middle Eastern organizations after September 11<sup>th</sup>, 2001 (Reed and Aquino, 2003). Those with high moral identity were able to disassociate Middle Eastern individuals from the threat of the event. Moral identity may also influence donation behavior when there is not a direct threat to the social group. If one can recognize the need to give to an organization, their moral identity may be high.

In addition to identity, nostalgia has been hypothesized as a potentially significant marketing tool in soliciting donation behavior (Merchant and Ford, 2008). Defining nostalgia has suffered the same issues amongst many academic constructs without proper research. Merchant

and Ford (2008) cite four varying definitions; 1) “A positive feeling for the past, with a negative feeling for the present or future (things were better than now) (Davis, 1979),” 2) “A wistful mood that may be prompted by an object, a scene, a smell or a strain of music (Belk, 1990, p. 60),” 3) “A preference toward objects that were more common when one was younger (Holbrook and Schindler, 1991),” and 4) “A longing for the past or a fondness for possessions and activities associated with the days of past. (Holbrook, 1993, p. 245).” Despite varied conceptualizations, nostalgia is directly tied to past personal experiences. Although nostalgic recollections are typically favorable, memories can be fabricated to allow for a more positive remembrance. This gives credence that positive memories can influence donation behavior, albeit nostalgia is inflated and exaggerated feelings about past events or products.

Literature on philanthropic behavior and charitable giving is vast, but much is focused on consumer research and non-profit behavior, generally because of the nature of the topic. Natural resource management and protected area research have shown interest in exploring this topic (Alpizar, Carlsson, & Johansson-Stenman, 2008; Baral, Stern, & Bhattarai, 2008; Fortwangler, 2007), but has yet to garner a large amount of research. Most studies have occurred outside the United States as the fee price structure is much different in other countries. Parks managed by the NPS do not solicit donations. Entry fees are the only necessary transaction that takes place. With that said, partnering organizations, such as ‘friends’ groups, solicit donations which in large part support park projects. The NPS relies on these organizations, especially in times where budgets are constrained. Since budgets continue to decrease across parks, there may be more reliance on affiliated organizations. Therefore, exploring the likelihood of an individual becoming a supporter of these organizations or contributing larger amounts is of importance.

## **Conservation Commitment**

‘Conservation commitment’ is used in a sparse number of natural resource management studies and shares some similarities with hypothesized construct of park support (Lee, 2011; Geller & Lehman, 1991). Conservation commitment is defined generally as a promise to participate in practices that help conserve a specific area. Commitments are generally attitudes toward issues or conservation-minded behaviors. As of yet there is no consensus point of measurement, but Lee (2011) cited studies such as Ballantyne, Packer, & Hughes (2009), Kyle & Mowen (2005), and Kyle, Mowen, Absher, & Havitz (2006) who have utilized a form of the construct. The context of the commitment varies across each study. In fact, commitment, as a whole, spans a number of disciplines which complicates the definition (Kyle and Mowen, 2005).

One study measured commitment towards a specific leisure agency or service provider (Kyle & Mowen, 2005). In leisure research, commitment is often thought of as certain mechanisms that connect to a pattern of leisure behavior. As Kyle and Mowen (2005) state, one commitment scale was developed by Gahwiler and Havitz (1998), but it was used to measure commitment towards a ‘for-profit’ organization. The authors deemed that a new approach should be adopted as commitment for-profit and non-profit organizations may vary. Kyle and Mowen (2005) assumed a traditional attitudinal methodology containing three commitment components: 1) affect (emotional response), 2) cognitive (beliefs and knowledge), and 3) conative (behavioral intentions and commitments). Besides these three components, place attachment was used to form the holistic commitment construct. Thus, a model was developed that involved five dimensions of agency commitment: 1) place dependence, 2) affective attachment, 3) place identity, 4) value congruence, and 5) social bonding. To test their model, they hypothesized that recreation involvement was a predictor of one’s agency commitment. Recreation involvement is

the centrality of an outdoor recreation activity to one's life. Therefore, if one was deeply involved in a recreational activity then their agency commitment should be high. Results indicated a user's involvement in a recreational activity had a significant, but small, overall effect on their commitment to a leisure agency. While promising, this research was focused on commitment to a service provider, not the place itself. The measurement of commitment is more closely related to brand loyalty rather than conservation commitment.

In a study more relevant to this dissertation, Ballantyne et al. (2009) explored tourists' support for conservation messages and sustainable management practices in wildlife experiences. This study examined commitment to conservation through interpretative messaging during an experience. Messaging was delivered to visitors during wildlife experiences through signage, talks, and employee interaction (e.g. rangers). Visitors were asked their commitment in participating in conservation-oriented actions and attitudes and their acceptance of conservation messaging during their wildlife experience. Results showed that tourists were willing to accept conservation messaging even if their experience was affected in some way with the majority possessing at least low-level commitment. Visitors were more apt to receiving "practical information about what they could do to help protect the wildlife, rather than general information about conservation issues (p. 663)." Similar to Ballantyne et al's (2009) study, Lee (2011) considered the mediating role of conservation commitment from place attachment and recreation involvement to environmentally responsible behavior. Lee (2011) used three behavioral intention statements to comprise conservation commitment related to wetland areas. The structural equation model hypothesized that higher place attachment and recreation involvement lead to a higher commitment to conservation. If conservation commitment was high, then it was hypothesized that environmentally-responsible behavior was high as well. Results indicated that

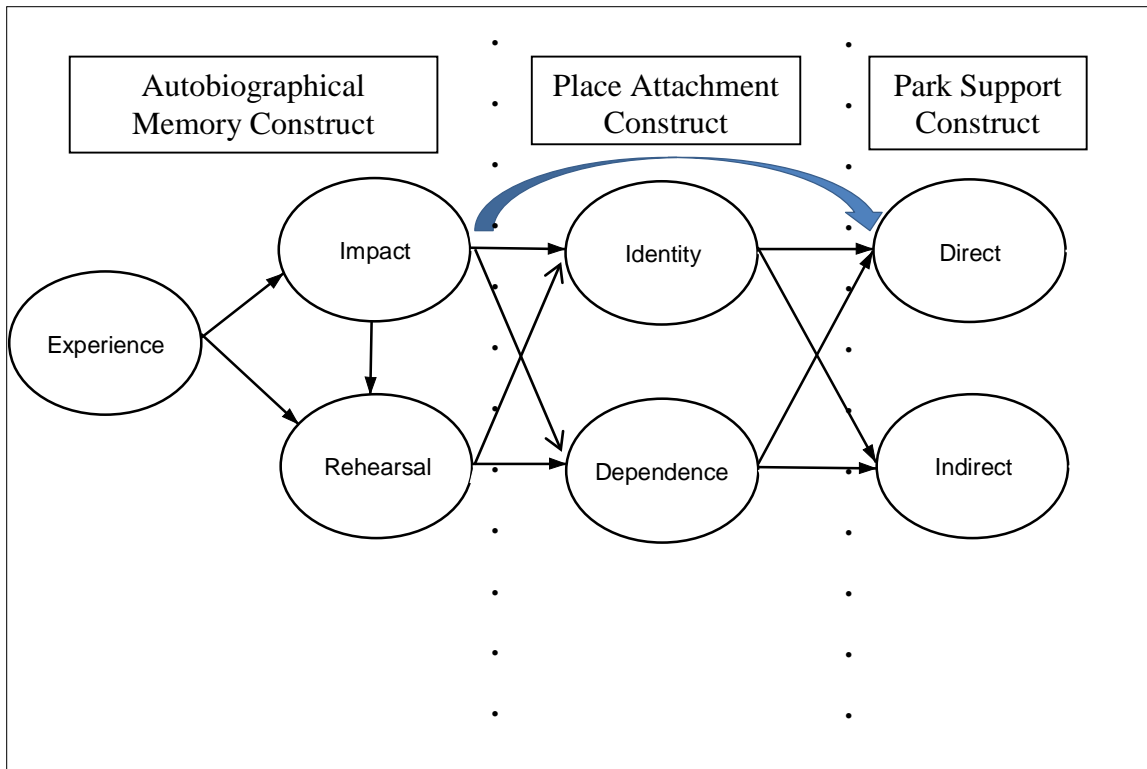
place attachment was significantly moderated by conservation commitment which then had a significant impact on environmentally responsible behavior. Therefore, attaching a person to a place leads to a promise to conserve and, finally, actual behaviors that support the area. Lee's (2011) study is directly relevant to this study as it provides the impetus that place attachment is relevant in predicting conservation-minded behaviors. However, research is still lacking in regards to why people become place attached.

### **Construct Justification**

Through the above literature presented, the case has been made to suggest that autobiographical memory is linked to place attachment and that attachment leads to a higher likelihood of participating in conservation-minded behavior, which is defined as park support in this study. This study tests the relationship of these three overarching latent constructs to further explore how people become attached to places and the influence that attachment has on behavior. The critical link that has remained unknown as of yet is how place attachment forms. Through the use of autobiographical memory the types of experiences that lead to attachment and the strength of that hypothesized relationship can be identified. Furthermore, the construct of park support may help inform managers on how likely visitors are to contribute to a national park, specifically Yellowstone. If we understand the likelihood of whether visitors will support the park, there may be answers to some of the problems listed in *Revisiting Leopold* (2012) such as alleviating constraints from budget cuts or getting new visitors interested in the park. As mentioned, these constructs have not been used together in a tourism/visitor context, but prior research has suggested new frameworks to finding novel information are needed. Therefore, this study adopts a psychological approach towards studying experience to build the literature in tourism, outdoor recreation, and natural resource management. The proposed conceptual model

(Figure 4) incorporates these three constructs into a recursive model that is tested with nature-based tourists in Yellowstone National Park. The scales used are Williams and Vaske's (2003) place attachment scale (2-dimensions: place identity, place dependence), and Fitzgerald and Broadbridge's (2013) constructs of impact and rehearsal of the Autobiographical Memory Questionnaire. Each scale uses 8-items (four in each dimension) to measure their respective topics. To identify the relationship of these constructs, a structural equation model (SEM) was developed based on Figure 4. This model is presented and tested throughout the study.

**Figure 4: Conceptual Model of Park Support\***



\*This model represents the conceptual framework of memory, attachment, and support. The dotted lines separate where each construct ends. The blue arrow connecting memory and support represents the direction of the relationship. This is a recursive model with memory predicting attachment and attachment predicting support.



## STUDY PURPOSE AND OBJECTIVES

The purpose of this study is to investigate the connection of visitors to a national park, attachment formation, and if attachment predicts park support behavior. This investigation is carried out using three key constructs: autobiographical memory, place attachment, and park support. Contextually, the purpose is to investigate Yellowstone National Park experiences through autobiographical memory, level of place attachment to the park, and park support behaviors. An additional hypothesis was developed to test whether attachment to the place was necessary to lead to support or if autobiographical memory predicted support by itself. Thus, the structural equation model was developed based on the following hypotheses.

### Hypotheses

A number of research hypotheses are proposed based on findings from previous literature including Fitzgerald and Broadbridge (2013), Kuwabara and Pillemer (2010), Pearce and Packer (2013), Pillemer (2003), among many others. The primary hypotheses are as follows:

- Hypothesis 1: There is a positive relationship between autobiographical memory impact and place identity.
- Hypothesis 2: There is a positive relationship between autobiographical memory impact and place dependence.
- Hypothesis 3: There is a positive relationship between autobiographical memory impact and autobiographical rehearsal.
- Hypothesis 4: There is a positive relationship between autobiographical memory rehearsal and place identity.

- Hypothesis 5: There is a positive relationship between place identity and direct park support.
- Hypothesis 6: There is a positive relationship between place identity and indirect park support.
- Hypothesis 7: There is a positive relationship between place dependence and direct park support.
- Hypothesis 8: There is a positive relationship between place dependence and indirect park support.
- Hypothesis 9: There is a positive relationship between autobiographical memory impact and both indirect and direct park support.

#### **LIMITATIONS AND BIASES**

Inherently, there are limitations and biases that need to be addressed concerning their impact on the interpretation of results. These biases and limitations are both subjective to the researcher and a product of the methodology. First, this is cross-sectional data at a single point in time at a specific destination, which has an effect on the recollection of an autobiographical memory. Visitors are only being asked to state a memory of an experience at one point of their Yellowstone experience. Thus, results are not representative of the entire park experience, but rather a ‘snapshot’ of a singular event. Further, autobiographical memories may not have matured enough to become behavior changing or impactful when surveyed. Therefore, there may be a bias to report the most recent event and to exclude past experiences. This limitation may lead to an over representation of the most recent experience and underrepresent past experiences.

Second, the conceptual model presented is linear (recursive) and does not take into account possible reciprocal effects that endogenous variables may have on exogenous variables.

For instance, someone who supports the park may derive more favorable experiences because they are emotionally invested into the park. There may be evidence to suggest that place attachment may affect the remembrance of the event, but that is not tested in this study. Although these additional pathways are not accounted for, they are recognized and taken into consideration for future research. Additional studies should examine the reciprocal relationship between attachment and autobiographical memory as well as support on attachment.

Further, the influence of previous events on the recalled experience cannot be tested in this study. For instance, a visitor may have had an experience in Yellowstone that was made more meaningful because they had a traumatic experience before they arrived. It is recognized that past experiences are likely to have an effect on memory impact and rehearsal. However, there is no accurate way to understand the size of this effect and if it actually takes place. Moreover, the survey respondent may not accurately recall their experience from Yellowstone National Park. This is known as a false memory or imagination inflation. Imagining an event can lead to untrue remembrances, altering autobiographical belief (Mazzoni and Memon, 2003). Thus, the content validity of a specific autobiographical memory is unknown. The researchers will not know whether the individual is accurately describing their event; however, false or inflated memories are unimportant in this case. The memory may not be accurate, but results of the impact and rehearsal are unaffected. Only the perception and evaluation of a specific memory is of interest, apart from accuracy. Each memory is subjective to the individual and determining whether the content is valid is not needed. Essentially, if a Yellowstone visitor perceives their experience as positive or impactful, that is all that matters.

I adopt a post-positivist approach, which carries an expectation of causality between the constructs (Teddlie and Tashakkori, 1998). Therefore, I must assume that there is a causal

relationship between autobiographical memory, place attachment, and park support. This assumption does not take into account the subjective perspectives that each individual may have regarding the event. Autobiographical memory is inherently subjective and is placed within the larger life story of each individual. Recent research has identified the usefulness of quantitative scales when measuring certain portions of memory, but memory is inherently subjective. Because of the philosophical commitments I adopt, the subjective information visitors share about their Yellowstone experience is not accounted for or given appropriate attention. Therefore, the context of the relationships may not be truly representative or directly generalizable from person-to-person. An additional study should make use of qualitative methods to further explore the relationships found and the context of the memories.

Finally, autobiographical memory is novel to the tourism and recreation field. Previous studies of autobiographical memory have generally taken place in laboratory settings within psychology or neurology. Because of the novelty, there is no past research to validate the use of previously used scales in our context. However, the theoretical foundations of autobiographical memory lend themselves to interdisciplinary use. I accept that there is potential for other, significant drivers of park support behavior as identified by Bekkers and Wiepking's (2010) review of charitable giving. For instance, personal values may be a significant predictor of park support that is not included in this current study. I argue that autobiographical memory is most important to investigate first because of its usefulness in holistically understanding tourism and visitors. Through measurement of autobiographical memory, the door is opened to investigate other potential influences besides experience that increases likelihood of park support. Using either personal values or value orientations may be a more appropriate option given the research

on attitudes towards national park fees or managers. This is a limitation that will be present in the current study.

Despite all of the above limitations and biases mentioned, the conceptual model presented is appropriate for this dissertation. Developing these new theoretical linkages has the ability to advance place attachment research while also cementing autobiographical memory as a useful construct in visitor research. This study is only one of many that are needed to test the significance in which autobiographical memory plays in visitor attachment, support and other unknown relationships.

## **DISSERTATION STRUCTURE**

The following chapters of this dissertation are structured in a three-article format. Essentially, each chapter is split up as a standalone academic article that follows a traditional format. Therefore, each “chapter” contains its own study purpose, introduction, methods, results, and discussion/conclusion. Upon conclusion of the three articles, a summary chapter is presented to discuss results in an aggregate format and to provide recommendations to managers based on data and anecdotal evidence throughout the process. The articles are presented as follows.

### **Article One (Chapter 2):**

#### **Autobiographical Memories of Nature-based Tourists: Integrating Psychology Into Nature-based Tourism Research**

**Description:** Article one uses Confirmatory Factor Analysis to test the structure of autobiographical memory in a tourism context. Using the Autobiographical Memory Questionnaire from Fitzgerald and Broadbridge (2013), nature-based tourists at Yellowstone

National Park are asked to recall the first memory that comes to mind about their Yellowstone experience and to rate it on a scale based initially on impact and rehearsal.

### **Article Two (Chapter 3):**

#### **Memory and Place Attachment: Testing Autobiographical Memory as an Antecedent for Place Attachment.**

**Description:** Article two uses structural equation modeling to test the relationship between autobiographical memory salience (found in article one) with place attachment using place identity and place dependence as latent constructs. This article uses the autobiographical memory salience scale found in article one and the 8-item place attachment scale in Williams and Vaske (2003).

### **Article Three (Chapter 4):**

#### **Predicting Support for National Parks: How Memory and Place Attachment Lead to Support for Yellowstone National Park**

**Description:** A culmination of the above chapter's hypotheses, article three presents the full structural equation model of autobiographical memory, place attachment, and park support. Using structural equation modeling, article three tests the hypotheses between the proposed latent constructs.

### **Chapter Five:**

#### **Summary, Conclusion, and Recommendations**

**Description:** This final chapter summarizes and discusses the results found in each article as well as the realistic need to formulate the conceptual framework. Recommendations are

suggested to managers who are attempting to garner support for their park and as to the future going forward to the National Park Service revolving around the visitor experience.

Recommendations and conclusions are developed based on data from each article and first-hand experiences the researchers obtained throughout the process of this study.

# **ARTICLE 1: Autobiographical Memories of Nature-based tourists: Integrating Psychology into Nature-based Tourism Research**

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## **ABSTRACT**

Recent calls for advancement in tourism research identified psychological concepts to progress the field. This study utilizes autobiographical memory as a method to explain deep-seated meanings of touristic experiences. Prior studies have identified autobiographical memory as a method of exploring specific events in an individual's life that can be evaluated and integrated into a life history. However autobiographical memory has not been used to evaluate the experiences travelers have at destinations. Yellowstone National Park visitors were asked to describe a memory from Yellowstone. Initially hypothesized as a two-factor model, results indicated that an alternative model may be necessary as goodness of fit statistics were originally poor. A one-factor model of autobiographical memory was developed which provided a strong fit. This factor was defined as autobiographical memory salience. Future research should continue to identify concepts for use in tourism research from outside disciplines. Adaptations may need to be made because of varying settings and methodologies.

## INTRODUCTION

In tourism and outdoor recreation literature the “visitor experience” has become a well-researched topic. In fact, the visitor experience has been evaluated using a number of modifiers including “quality,” “value”, “satisfaction”, among others (Jennings and Nickerson, 2006; Kim, Ritchie, and McCormick, 2012). But exploring how to provide the optimal visitor experience is not a new phenomenon. The purpose of this study was not to understand the visitor experience at through common constructs such as “quality” or “satisfaction” but rather through evaluations of personal memory. One major nature-based tourism agency, the US National Park Service, has called for park managers to provide experiences that are “transformative” in visitors lives (National Park Service Science Advisory Committee, 2012). Moreover, *Revisiting Leopold* (2012) states that transformative experiences “are based on interactions with natural and cultural resources (p. 12)” and that “this experience should engage and inspire (p. 12)”. Such an experience is hoped to develop a sense of loyalty and appreciation for similar lands. The US Forest Service has additionally been exploring the benefits of “transformative wilderness experiences” in order to provide life-changing experiences (Ewert, Overholt, Voight, and Wang, 2011). By exploring complementary disciplines to tourism and recreation, perhaps these complex human behaviors can be explained and understood. We argue that through personal memory, and more specifically autobiographical memory (AM), exploring these “transformative experiences” is possible and will not only benefit the US public land agencies, but all public and private DMO’s.

For years outdoor recreation and tourism scholars have been studying visitor experiences through a wide variety of varying concepts such as Recreation Experience Preferences (REP), motivations, and satisfaction (Borrie and Birzell, 2001; Crompton and McKay, 1997; Kim and Prideaux, 2005; Manfreda, Driver, and Tarrant, 1996). Ideal visitor experiences may have the

ability to affect travelers' behavioral intentions and improve their likelihood to revisit or seek out similar places. Recent research has pressed the tourism field to look beyond traditional, well-studied concepts and adopt new approaches from outside disciplines to explore facets of tourism (Pearce and Packer, 2013). Social psychology, in particular, has developed innovative approaches to help explain human behavior and the conceptualization of personal events. Constructs such as Elaboration Likelihood Model (Petty and Cacioppo, 1986), social identity theory (Tajfel and Turner, 1986), and moral identity (Aquino and Reed, 2002) are but a few examples with cross-discipline potential. Out of all psychological concepts described by Pearce and Packer (2013), personal memory appears most relevant for the visitor experience as it delves deep into the cognition of visitors. In tourism, memory is a scarcely used concept. Select recent research has touched on or been influenced by some autobiographical memory research. Kim, Ritchie, and McCormick (2010) developed the "Memorable Tourism Experience Scale (MTES)" to assess how memorable an experience was perceived to be by visitors. Furthermore, Tung and Ritchie (2010) directly integrated autobiographical memory in a qualitative manner to identify why certain experiences were memorable for visitors. A sparse number of additional examples exist (Braasch, 2008); however, in-depth integration between many innovative psychological concepts and tourism is under researched.

Memory research is a well-studied concept with roots in the medical field as well as the sub-fields of psychology including cognitive, social, and experimental. Multiple memory typologies exist, yet one specific form, autobiographical memory, has been shown to predict changes in behavioral intentions, provide continuity of the self, and strengthen social bonds (Conway, 2005; Kuwabarra and Pillemer, 2010). Throughout this article, we present memory as a tool for exploring the tourism experience and justify its use in a tourism context. In addition to

its usefulness in understanding recollections of visitor experiences, autobiographical memory may predict other relevant constructs in tourism and outdoor recreation such as place attachment and loyalty. Aside from the National Park Service and the US Forest Service, tourism destinations across the globe may find benefits in understanding how to provide transformative experiences to visitors. If visitors are provided with experiences that influence their lives, loyalty to the destination and positive word-of-mouth may increase. Furthermore, destination managers can facilitate similar experiences for visitors based on understanding the types of experiences that lead to transformations.

Thus, the purpose of this study was to validate the conceptual frameworks and methodologies in psychology for studying autobiographical memory in a tourism context. The researchers adopted a framework from Fitzgerald and Broadbridge's (2013) study of autobiographical memories of specific life events. This framework gauges the impact and level of rehearsal of a memory an individual has of a specific event followed by an evaluation of the event. This study took place in the first designated US national park: Yellowstone. Yellowstone visitors are assumed to have a variety of wants, needs, and desired experiences, but it is unknown how visitors perceive their park experience. This study attempted to answer those questions, but also to validate autobiographical memory using a quantitative survey instrument developed by Fitzgerald and Broadbridge (2013). Since originally developed for use in a laboratory, a rigorous examination was necessary to validate its use in future tourism research.

## **LITERATURE REVIEW**

### **Personal Memory**

Human memory is described as the “process of maintaining information over time (Matlin, 2005, p. 3).” Throughout recent history, memory has been an intriguing concept in both academic and popular media. Memory is generally studied through two base classifications: personal or social memory (Hallbwachs, 1992; Shah, 2012). Social memory refers to the collective memories (e.g. storytelling, traditions) shared between cultures; however, personal memory is essentially what is described in casual conversations. Personal memory, in particular, is central to the way life is conceptualized by individuals, and thus is the focus of this study.

Personal memory stretches temporal limits from information stored for merely seconds (sensory memory) to information storage that is said to have no known limit (long-term/very long-term) storage ( Craik and Lockhart, 1972). Conceptual frameworks revolving around personal memory are split between two approaches: 1) structured and hierarchical (Atkinson and Shiffrin, 1968) and 2) unstructured and fluid (Craik and Lockhart, 1972). Atkinson and Shiffrin’s (1968) structured model continues to be the most accepted conceptualization of personal memory and is thus adopted for purposes of this study. Atkinson and Shiffrin’s (1968) model hypothesizes that personal memory follows an organizational structure where sensory memory, short-term memory, and long-term memory are uniquely different typologies of information recall and storage (Norman, 1969). Sensory memory is defined as very short-term information obtained through subconscious stimuli which may transfer into short-term memory through attention by the individual (Atkinson and Shiffrin, 1968). Short-term memory is immediate information that can be used on-demand to make decisions or evaluate situations. However, to evaluate specific events in a person’s life, long-term memory is where such information is stored. Long-term memory does not have any known storage time limit and is

used for making decisions among other behaviors ( Craik and Lockhart, 1972). Within long-term memory are multiple sub-dimensions that even further differentiate the form of information recall.

### **Implicit and Explicit Memory**

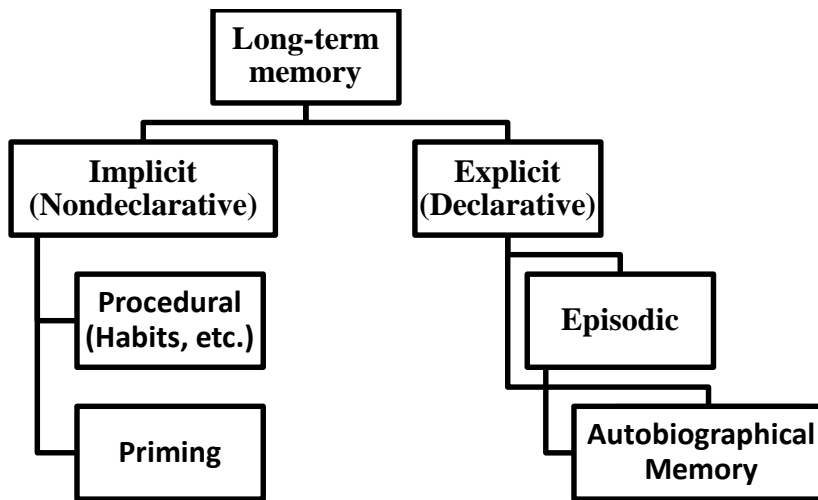
The sub-dimensions of long-term memory are divided into two realms: implicit and explicit memory (Tulving, 1972). These two primary typologies represent the main sub-dimensions of long-term information recall. Within memory literature, alternative names have also been given to each sub-dimension: declarative (explicit) and nondeclarative (implicit). Implicit memory is unconsciously stored information such as procedures and habits (Tulving, 1972). Although implicit information is beneficial to conceptualizing memory, it is generally difficult to research because of its difficulty in accessing by the individual (Tulving, 1972, 2002). While there may be a place for implicit memory to be explored in tourism literature (such as marketing or experimental designs), this study does not seek to investigate such forms of recall.

The second sub-dimension of long-term is explicit or declarative memory. Declarative memory derives from humans' conscious mind and can be tracked and measured in an easier manner. As Squire (2004, p. 173) states, "[Explicit memory] is the kind of memory that is meant when the term "memory" is used in everyday language." Facts and information from our personal lives are classified under explicit memory. Within explicit memory, additional sub-dimensions exist based on the type of information and method of recall of these conscious events. The two sub-dimensions of explicit memory are semantic and episodic memory. Semantic is information such as facts (names, cities, etc.) of which the person generally cannot recall the event or details surrounding when they retained the information (Tulving, 1972). As Klein, German, Cosmides, and Gabriel (2004, p. 262) state, "[Semantic memory] is remembered,

but not re-lived.” This is not to say that semantic memory occurs in our subconscious mind, but rather we cannot place the settings and specific event where the information was processed. Episodic memory, on the other hand, is information where the event is recalled including specific details, settings, and emotions (Tulving, 2002). To put it in the current context, a traveler may remember a backcountry hiking trip in a national park including the emotions they felt, the people they were with, and the settings of the trail at the time. Tulving (1972, p.385) further states, “Episodic memory receives and stores information about temporal-spatial relations among these events.” The primary difference between semantic and episodic memory is *autonoetic consciousness* or an awareness of the “self” having experienced an event (Fivush, 2011). Autonoetic consciousness represents the primary difference between information that is stored as semantic or episodic memory. However, there is an even more specific form of episodic memory that provides the basis for our current study which is autobiographical memory.

Autobiographical memory not only relates to specific events remembered by an individual, but they are evaluated amongst the whole of a person’s life (Conway, 2005). These memories are placed in a context of an individual’s life story and can be what is defined as “self defining (Fivus, 2011)”. This specific form of memory is where we see the most potential for understanding the touristic experience and more specifically “transformative experiences” as pushed by US public land agencies. Figure 1 displays a visual model of the dimensions and sub-dimensions of long-term memory to provide a streamlined view of where autobiographical memory fits in the larger picture.

**Figure 5: Structure of Long-term Memory**



### **Autobiographical memory**

In broad terms, autobiographical memories (AM) are specific recollections of past experiences or events which are evaluated amongst all other memories in a person's life (Conway and Pleydell-Pearce, 2000). Autobiographical memory is defined as memory of the “self” interacting with others in the service of both short-term and long-term goals that define our being and our purpose in the world (Fivush, 2011, p. 560).” The main differentiation between episodic and autobiographical memory is that episodic recollections do not stress event meanings where autobiographical memory requires the recollection to be placed in a much larger frame of reference (i.e. one's life history). For instance, episodic memories could be simply recollections of going to a restaurant. An autobiographical memory contains events that generally hold meaning or importance such as meeting your spouse or taking your first vacation as a new family. These memories help tell the “biography” of the individual. Autobiographical memory includes a memory of the self being part of the event, links past events together into a “personal history”, and “goes beyond the episodic memory function of guiding future behavior to serve social and emotional functions (p. 560-561).” Autobiographical memories contain



knowledge at different levels of specificity throughout time. Conway and Plydell-Pearce (2000) highlight three types of autobiographical knowledge: life-time periods, general events, and event specific knowledge (ESK). *Lifetime periods* are event timelines such as, “when I was at college...” or “when I lived with...” These periods are temporally situated and can be thematically described by the individual. *General events* are “more specific and, at the same time, more heterogeneous than lifetime periods (Conway and Plyedell-Pearce, 2000, p. 262).” General events could be a single vacation in a tourism context. Upon recall of a singular memory, a second or third memory can be further cued to become an *event cluster*. Finally, *event specific knowledge (ESK)* is the most explicit type of autobiographical knowledge where the person remembers highly detailed information about an event or time. More importantly, these memories can be profound times of a person’s life that become a cornerstone in their personal history (Fivush, 2011).

When a memory is highly impactful and even “life-changing”, such events can be considered “self-defining” (Fivush, Habermas, Waters, and Zaman, 2011). Self-defining moments are “typically unique, onetime events, which become personally significant and integral to individuals’ understanding of who they are (Fivush et al. 2011; p. 333).” Adolescence or early adulthood are common life periods where self-defining moments occur in an individual’s life. Memory valence is not static as both positive and negative memories can have similar impacts. Self-defining moments closely resemble the “transformative experiences” that *Revisiting Leopold* (2012) stresses to provide for visitors. Difficulties lie in understanding whether or not these experiences can be facilitated and how to identify whether an experience is transformative. With that said, autobiographical memory research has shown to be predictive of a number of concepts due to primary functions it inherently possesses. Thus, Fivush et. al (2011)

provide more justification for autobiographical memory's use for exploring the importance of touristic experiences.

### **Predicting decisions and exploring experiences**

Not only does autobiographical memory provide information about specific event recollection, but it can also be used to predict behavior and other processes (Bluck, Alea, Habermas, and Rubin, 2005; Kuwabara and Pillemer, 2010; Pezdek and Salim, 2011; Pillemer, 1992, 2003). Autobiographical memories have been found to contain three primary functions in our daily life: The 'Directive' Function, 'Self' Function, and 'Social' Function. However some researchers may define these functions with varying conceptualizations. Pillemer (1992) originally proposed AM as "having directive (planning for present and future behaviors), self (continuity, psychodynamic integrity), and communicative (social bonding) functions (Bluck et al., 2005, p .93)." This important study was necessary because "memory research in general, and research on AM in particular, has focused on how, how much, and how accurately, people remember their past (Bluck et al., 2005, p. 91)." Since this discovery, autobiographical memory researchers have attempted to uncover the presence and use of each function.

Bluck et al. (2005) describe how these functions serve different purposes depending on the individual and the event. The "Directive function" guides the person in making decisions based on their past experiences. Past experiences can be recalled to provide information relevant for current decision-making processes. Kuwabarra and Pillemer (2010) found that eliciting autobiographical memories of university alumni, either positive or negative memories, lead to a higher likelihood of donating to the respective foundation. Furthermore, eliciting negative memories still lead to higher likelihoods of donating than the control group who were not asked

to discuss a memory while they were at the university. The “Self function”, as described by Bluck et al. (2005), promotes continuity in the “self”. Past memories build a personal life history that is subjective to each individual. This function is important in times of individual change as it allows one to reflect on those experiences and progress. Even from a young age, people use the “self function” as a way to distinguish who they are as a person (Fivush, 2011). For instance, an event where a person receives acclaim might build their identity as excelling at that specific activity. The third function is the “Social function”. Recollection allow for social bonding between those who are included in the event or if the memory is shared with another individual. Bluck et al. (2005) even describes that the “most basic social function AM serves is to provide material for conversation, thus facilitating social interaction (p. 94).” People develop empathy through sharing of experiences and memories, especially if those who are listening reply with a similar experience (Cohen, 1998; Pillemer, 1992).

Both qualitatively and quantitatively, these functions have been identified and assessed through a variety of studies (Kuwabara and Pillemer, 2010; Pillemer, 2003). Until recently, the directive function lacked sufficient evidence. Bluck et al. (2005) tested each of the three functions using the “Thinking About Life Experience (TALE)” questionnaire; one example of a measurement tool to study autobiographical memory. Results identified four factors labeled: “Directive”, “Self-continuity”, “Nurturing relationships”, and “Developing relationships”, closely resembling the widely accepted three-function hypothesis. Thus, Bluck et al.’s (2005) study accurately found the directive function within recalled memories. Since, the directive function of autobiographical memory has received more attention in academic literature as it is practically relevant to many industries (Biondolillo and Pillemer, 2014; Kuwabara and Pillemer, 2010; Philippe, Koestner, and Lekes, 2012; Pillemer, 2003). Kuwabara and Pillemer’s (2010)

study is a prime example of the practical uses that understanding autobiographical memories can have for practitioners and scholars alike as it uses the directive function of autobiographical memory in a philanthropic, business-oriented setting. For these scholars, autobiographical memories were elicited to see if donation intention was affected. It was found that donations were positively influenced by memory elicitation.

In terms of measuring autobiographical memory, one such recent study provides the basis for how our conceptualization was formed. Other survey instruments exist (including the TALE from Bluck et al.), but many are very long questionnaires that were not appropriate for our study. Fitzgerald and Broadbridge (2013) explored the structure of autobiographical memory, but used latent constructs to measure their recollections of experiences. The primary constructs used, and as were adopted in this study, are autobiographical memory impact and rehearsal. Memory impact is defined as the “properties of significance, emotional intensity, and consequences” whereas rehearsal is the “frequency with which an event is recalled, either personally or interpersonally, whether voluntarily or involuntarily (Fitzgerald and Broadbridge, p. 232-233).” Essentially, autobiographical memories hold a degree of significance that differs between people. The frequency of rehearsal may indicate how meaningful that specific memory is for the individual. With this framework, memories can be tested and evaluated through these latent constructs using only four observed variables for each construct. Measuring the impact and rehearsal of specific event recollections can provide insight into peak experiences for travelers.

### **Connecting Memory Research with Tourism**

Tourism scholars have been calling for innovation and advancement of both methods and approaches for years (Dann, Nash, and Pearce, 1988; Pearce and Black, 1996; Pearce and Packer, 2013). As mentioned, only a sparse number of tourism researchers have utilized memory

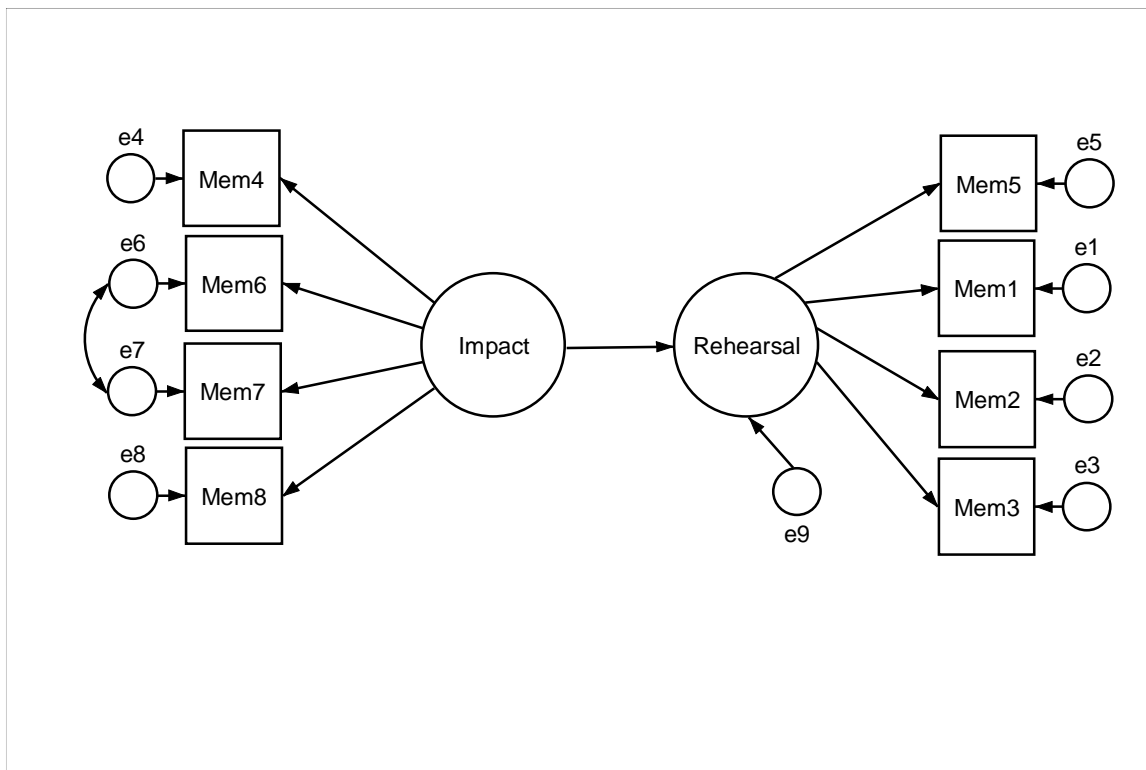
within their research frameworks (Braasch, 2008; Kim, Ritchie, and McCormick, 2012; Tung and Ritchie, 2011). Even then, the studies range in methodological approaches (qualitative and quantitative), conceptualizations, and vary in destination choices. One body of research that uses memory as a form of methodology is “memory-work” (Small, 1999). Memory-work adopts a social constructivist perspective based in feminist theory where “individuals construct themselves into existing social relations (Haug, 1987, p. 33).” Memory-work is conducted in a qualitative manner where the researcher becomes part of a group of “co-researchers (Small, 1999)” and elicits the group to describe a memory about a vacation. This process invited participants of the discussion group to interact and share ideas between one another. Its potential uses are vast and provides beneficial information about travel, tourism, and identity, yet it is not generalizable and cannot be tested amongst a large population.

Kim, Ritchie, and McCormick’s (2010) study developing the “Memorable Tourism Experience Scale” represents one of the most recent examples that uses memory as a form for evaluating the tourism experience. As stated, marketing literature has identified that memory mediates behavioral intentions, and should be brought into the discussion around the customer experience (Kim et al., 2010; Lehto, O’Leary, and Morrison, 2004). Moreover, as cited in Kim et al. (2010), Hoch and Deighton (1989) state that remembered purchase experiences are important because past experiences draw a high degree of motivation and involvement, individuals feel their remembered experiences are accurate and believable, and future behavior is influenced through remembered experiences. The “customer” experience is very similar to what we define as the “tourist” experience. However, there may be deeper-level meanings that are not being captured if we only examine the tourism experience in a marketing lens. These experiences have the ability to form emotional connections, or an attachment to the place through tourism (Pryang

and Ryan, 2012; Williams and Vaske, 2003). Using autobiographical memory as a form of studying the visitor experience in a new lens provides the ability for scholars to better understand the effect these experiences have on individuals. Therefore, this study was conducted to validate Fitzgerald and Broadbridge's (2013) autobiographical memory model in a tourism context.

Figure 2 displays the hypothesized relationship between the eight variables measuring autobiographical memories. Each latent construct (impact and rehearsal) contains four observed variables tested using confirmatory factor analysis. If each construct is accurately measured by the observed variables from Fitzgerald and Broadbridge (2013), then we can conclude that these results are directly translatable from prior research.

**Figure 6: Two-factor model of visitors' autobiographical memories of Yellowstone National Park**



### Research Hypotheses:

R1: The four observed variables of “Autobiographical Memory Impact” significantly predict their respective latent construct.

R2: The four observed variables of “Autobiographical Memory Rehearsal” significantly predict their respective latent construct.

R3: There is a positive, significant relationship between “Autobiographical Memory Impact” and “Autobiographical Memory Rehearsal”.

## **METHODS**

### **Study Site and Design**

The target population for this study was Yellowstone National Park visitors. Yellowstone National Park, situated in northwest Wyoming, was founded in 1872 and is the world’s first national park. In 2015, an all-time record of 4 million people visited the park (NPS, 2015). The park is known for its unique geological features, abundant wildlife, scenic vistas and its historical relevance. Visitors partake in a variety of outdoor recreational activities including wildlife watching, hiking, scenic driving, and viewing geysers and geothermal areas. Because Yellowstone National Park is the US’s first designated national park site, the park is widely recognized across the globe, and thus has a diverse demographic distribution.

Park visitors were surveyed on-site during the summer season with a stratified sample schedule at the park exit gates using an on-site and mail-back survey methodological approach. Thirty sampling days took place from May through September. In order to capture a representative sample of summer season visitors, the sampling schedule contained equal representation of weekend/weekday distribution and of visitor counts at each exit gate. For

example, the West entrance receives nearly 40 percent of traffic during the summer season, thus, 40 percent of sampling days were allocated to this entrance. The exit survey contained two primary questionnaires: a front-end intercept survey and mail-back survey. As visitors exited the park during daytime hours, researchers flagged their vehicle to the side of the road to answer approximately 10 questions. The front-end questionnaire contained demographics and limited trip characteristics. Three questions were used as a non-response bias check and were included in the mail-back survey as well. Upon completion of the on-site questionnaire, a mail-back survey was distributed to willing groups. Postage paid envelopes were included with the mail-back survey to increase the likelihood of response.

During the sample period, 2,373 visitors were stopped and asked if they would be willing to participate in the study. Of those visitors, 2,216 visitors agreed and were given a mail-back survey upon completion of the on-site questionnaire. Therefore, the response rate for the on-site survey was 93 percent. After handing out the mail-back surveys, 802 completed questionnaires were returned to the researchers for a mail-back response rate of 36 percent. Response rates that are above 30 percent have been considered acceptable for surveys with similar methodologies (Látková and Vogt, 2012). No follow-up techniques were used as the researchers had limited time to collect personal contact information due to administrative barriers.

### **Scale Development**

Past psychology and tourism memory scales were analyzed for use in this study. Scales such as the one by Kim, Ritchie, and McCormick (2010) were considered for this study, but these scales did not fully encapsulate the breadth and depth of autobiographical memory from a psychological perspective. Qualitative inquiry such as Memory-work would not allow us to generalize the visitor experience at a larger scale. Therefore the most applicable scale, developed



in the psychology literature, was found in Fitzgerald and Broadbridge's (2013) examination of autobiographical memories surrounding varied events in a person's life; although, the scale needed to be adapted to define its use in a field-based context. Because of these adaptations, some limitations may exist and are discussed in a later section.

After being asked to recall, think, and write about a memorable experience in Yellowstone National Park, the respondent selected their level of agreement with four observed impact variables and four rehearsal variables on a scale from 1 = "strongly disagree" to 7 = "strongly agree". The four observed variables for the rehearsal scale have differing value labels where 1 = "very infrequently" to 7 = "very frequently". Furthermore, one variable assesses the emotional intensity of the memory which is scaled from 1 = "extremely negative" to 7 = "extremely positive". The observed variables for memory impact are: "As I remember the event, I can feel now the emotions I felt then (I1)", "As I recall them now, I would rate the emotions I experienced during the event as... (I2)", "This memory is significant in my life because it imparts an important message for me or represents an anchor, critical juncture, or turning point (I3)," "This memory has consequences for my life because it influenced my behavior, thoughts, or feelings in noticeable ways (I4)". The observed variables for memory rehearsal are: "Since it happened, I have talked about this event (R1)", "Since it happened, I have thought about this event (R2)", "Since it happened, I have written about this event to others (e.g. email, Facebook, blog, letter, text) (R3)", "As I remember the event, it comes to me in words or in pictures as a coherent story or episode and not as an isolated fact, observation, or scene (R4)".

## RESULTS

This section contains the results from testing the model of autobiographical memory of visitors in Yellowstone National Park. Furthermore, mean scores from each variable are displayed alongside the factor loadings from the confirmatory factor analysis. A CFA was developed and tested in Stata version 13.1 for analysis purposes. The eight observed variables were arranged and tested in their two respective factors: impact and rehearsal. Furthermore, the latent construct of “impact” was hypothesized as predicting “rehearsal”, which was found significant in previous research.

Table 1 displays factor loadings, reliabilities, and means of the two-factor model of autobiographical memory. “Autobiographical Memory Impact” has a Cronbach’s alpha reliability of .797, which is an acceptable value for reliability. Furthermore, “Autobiographical Memory Rehearsal” has an acceptable Cronbach’s alpha reliability of .754. All indicators possess loadings above .5 on their respective construct as found by Fitzgerald and Broadbridge (2013). Each observed variable as well as the covariance between “significance” (mem6) and “consequences” (mem7) are all significant at the  $p < 0.001$  level. In addition, the predictive path between “impact” and “rehearsal” is significant at the .001 level. Thus at first, it appears that there is a significant relationship between the observed variables and the latent constructs and between both latent constructs. Although the indicators and paths are highly significant, the goodness of fit statistics performed on the model are poor (Table 2). While the CFI is above .9, the RMSEA is an unacceptable .132. Modification indices were examined to identify potential covariances that were not hypothesized; however, some variables are highly covaried on the other respective latent variable and, when tested, had high loadings on the other distinct construct. For instance, ‘mem4’ and ‘mem5’ appeared to load significantly on both factors,

which indicates less distinction between the constructs than previously thought. After examining the modification indices, too many assumptions need to be made in order to justify covarying additional variables. Despite significant loadings, covariances, and path from impact and rehearsal, the poor fit statistics leads us to conclude that the two-factor model is inappropriate to use for further analysis. These statistics are not in line with Fitzgerald and Broadbridge (2013). Because of these findings, an alternative model was sought to explain the relationship between these variables in a tourism context.

**Table 1: Confirmatory Factor Analysis of the Two-Factor Model of Autobiographical Memory**

<b>Constructs and indicators (n=704)</b>	<b>Factor loadings</b>	<b>Mean</b>
<b>Autobiographical Memory Impact (<math>\alpha=.797</math>)</b>		
Emotional imagery (mem4)	0.84	5.52
Significance (mem6)	0.63	4.54
Consequences (mem7)	0.54	4.08
Emotional intensity (mem8)	0.64	2.15
<b>Autobiographical Memory Rehearsal (<math>\alpha=.754</math>)</b>		
Talked about the event (mem1)	0.61	5.36
Thought about the event (mem2)	0.81	5.52
Written about the event (mem3)	0.87	3.63
Comes to me in words (mem5)	0.52	5.30
Covariance Significance and Consequences	0.66	

<sup>1</sup>All indicators significant at the  $p < .001$  level.

**Table 2: Goodness of Fit Statistics (Two-factor Model of Autobiographical Memory)**

<b>Model</b>	<b><math>\chi^2</math></b>	<b>CFI</b>	<b>SRMR</b>	<b>RMSEA</b>
Two-Factor (Impact and rehearsal)	(18) 238.722 ( $p < .001$ )	0.919	0.061	0.132

## **Developing an alternative model**

Fitzgerald and Broadbridge's (2013) model did not produce a strong fit for our study, but there were many adaptations that occurred during the process that may have affected the results. These changes warranted enough justification for us to take a more in-depth look as to the construction of an alternative model. A number of changes occurred on the survey instrument to raise some concerns. First, one variable (mem8) needed to be rescaled as it did not fit a requirement of balanced scales for approval from OMB (Office of Management and Budget who approves social science research for the National Park Service). The variable "As I recall them now, I would rate the emotions I felt then..." was recoded as an absolute value of emotional intensity instead of on a 7-point Likert scale due to instrument changes. The original variable was scaled from 1 = "extremely negative" to 7 = "extremely positive". During the analysis process, we could not make the assumption an extremely negative emotion could have less of an impact than an extremely positive emotion. More specifically, if respondents rated the emotion to be negative, then it would have a negative correlation to a highly rated response on impact, which should not be the case. To account for this problem, the question on the emotions experienced were recoded from the 7-point scale where 1 = "very negative and 7 = "very positive" to a 3-point absolute measure scale. Thus, we aggregated the intensity of the emotion and did not use the valence. The 3-point scale then measured from 0 = "no intensity emotion" to 3 = "high intensity emotion."

In addition, our study made adaptations to the memory elicitation process. Our study asked respondents "to think about an experience or event that first comes to mind about an experience or event at Yellowstone National Park." In Fitzgerald and Broadbridge (2013), the researchers asked the subjects to recall four specific types of memories prior to completing the

questionnaire. These memory typologies were: earliest memories (childhood), vivid memories, most stressful/traumatic memories, and cue word memories. This method of eliciting autobiographical memories appears to narrow in on a very specific event that may already have a valence, which ours did not. Thus, the respondent may not be thinking of an experience that has a specific valence, and it may vary in terms of importance to the individual.

Furthermore, the cross-loadings of variables onto their non-hypothesized latent construct gives concern to the uniqueness of each construct. Fitzgerald and Broadbridge (2013) argued that the constructs of “impact” and “rehearsal” do appear to be distinct; however, statistically this was not the case in our study. Upon these findings, we went back into the literature to uncover whether there are inherent theoretical differences between these two latent constructs. Certain variables that were hypothesized as loading onto one variable had an equal, or improved, fit on the other latent construct when tested. We argue that these variables may not be as distinct as once thought. Fitzgerald and Broadbridge (2013) describe the two latent constructs as appearing to be theoretically distinct, but there are no other studies that have tested these two constructs independently. Therefore, Fitzgerald and Broadbridge’s (2013) study represents the only testing of the independence of these two constructs. Instead, these eight observed variables may be measuring one construct instead of two distinct constructs. Based on the findings of the results and evaluation of the theoretical concepts, an alternative one-factor model of autobiographical memory salience was developed. Furthermore, the significant changes made to the survey instrument pre-collection may have had an effect on the interpretation of the results. Since the value labels, context, and specific questions needed to be adapted, the constructs may not fit together as they did in previous studies.

The alternative model developed for this study still uses the eight observed variables from Fitzgerald and Broadbridge's (2013) study, but in a one-factor model (Figure 3). Covariances are carried over to the one-factor model and CFA is still utilized as there is a theoretical basis that the observed variables are significantly related. Convergent and discriminant validity tests were conducted upon estimation of the model and it provided mixed results. The AVE provided from the one-factor model was .475, which is below a commonly held threshold of .50 in order not to trigger issues with convergence. However, convergent validity is only one of the many types of validity tests that can be conducted to test models. The Goodness of Fit Statistics, face validity checks, and lack of theoretical development for two distinct constructs give relevance to the fact that the two-factor model is not sufficient for this study. Additional research needs to be conducted using autobiographical memory in a tourism context to completely validate this claim, but the one-factor model provides a much more robust and strong fit for measuring autobiographical memory intensity or salience in this realm. Autobiographical memory salience is defined by the researchers as the overall impact an experience has on an individual coupled with the amount the event is recalled. High salience memories would be those experiences that have a high level of influence on the individual's behavior or perspective that is recalled often through thought, stories, or written text. Therefore, the researchers believe that this significant change to the model is warranted and necessary.

**Figure 7: Alternative Model of Autobiographical Memory Salience (Conceptual)**

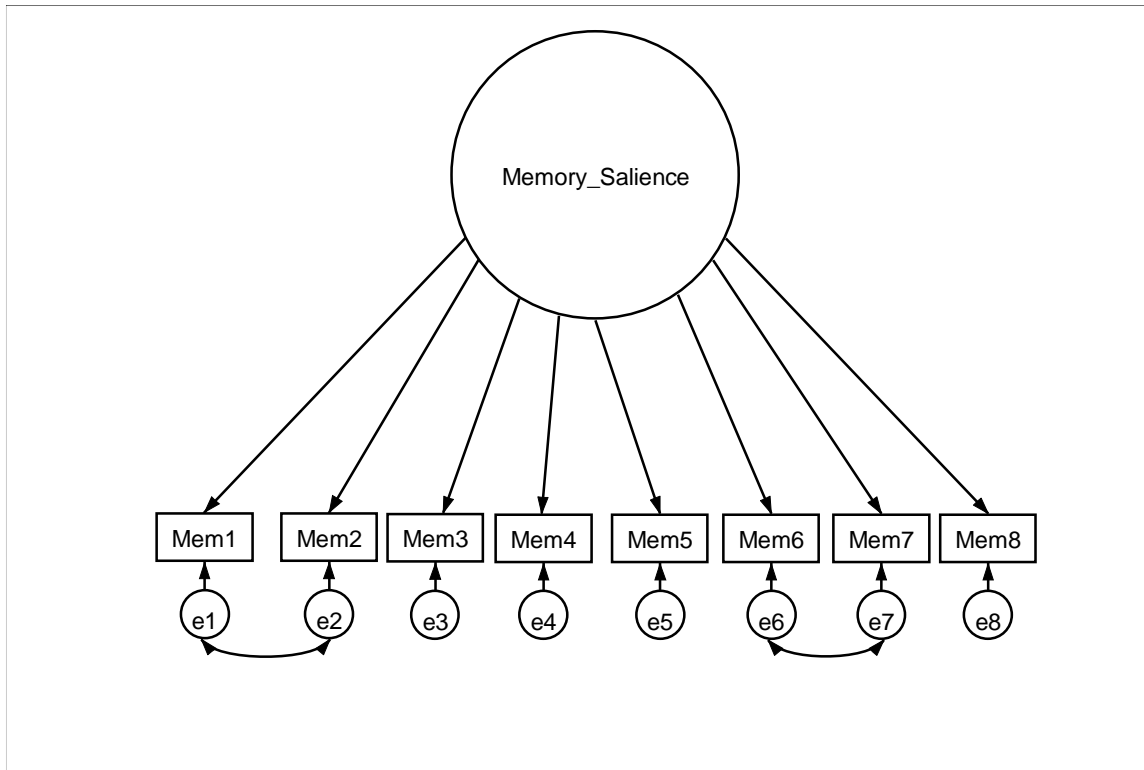


Table 3 displays the results of the confirmatory factor analysis of the one-factor model of autobiographical memory salience. This construct is less about separating out the impact and the rehearsal, but rather combining them to treat them as measuring one concept in memory salience. One variable (write about the event) was eliminated from the model because of its low loading (mem3). This variable had been added to Fitzgerald and Broadbridge's (2013) original study by the researchers as it appeared to be a form of rehearsal but obviously didn't fit the model. All additional indicators had an acceptable factor loading above 0.5 and were significant at the  $p < 0.001$  level. The seven observed variables have a better fit in the alternative, single-factor construct than the adapted two-factor model. Table 4 displays the Goodness of Fit Statistics from the one-factor model, which appear to be very strong. Results show a CFI of .988, SRMR of .021, and an RMSEA of .059. These fit statistics represent a large improvement over the two-

factor model and validate the one-factor model as an appropriate fit. Therefore, as mentioned above, the one-factor model is a good fit for measuring autobiographical memory salience; the confluence of importance and rehearsal. In addition to the original covariance between significance and consequences, modification indices indicated that the observed variables of “mem1” and “mem2” (talking and thinking about the event) should be covaried. Modification indices do not indicate any additional covariances that need to be taken into account.

**Table 3: Confirmatory Factor Analysis of the One-factor Model of Autobiographical Memory**

<b>Constructs and Indicators (n=704)</b>	<b>Construct Loading</b>	<b>Mean</b>
<b>Autobiographical Memory Salience</b>		
<b>(<math>\alpha=.859</math>)</b>		
Talk about the memory (Mem1)	0.59	5.36
Think about the memory (Mem2)	0.68	5.52
Comes to me in words (Mem4)	0.85	5.3
Emotional imagery (Mem5)	0.75	5.52
Significance (Mem6)	0.65	4.54
Consequences (Mem7)	0.55	4.08
Emotional intensity (Mem8)	0.62	2.15
Factor Score of Memory Salience		4.63

<sup>1</sup>All indicators significant at the  $p < 0.001$  level.

<sup>2</sup>Indicator three (“Since it happened, I have written about this event (e.g. Facebook, email, blogs, etc.)” had a low factor loading (.47) and was removed from the model.

**Table 4: Goodness of Fit Statistics (One-Factor Model of Autobiographical Memory)**

<b>Model</b>	<b><math>\chi^2</math></b>	<b>CFI</b>	<b>SRMR</b>	<b>RMSEA</b>
One-Factor (Memory Salience)	(12)41.430 ( $p < .001$ )	0.988	0.021	0.059

In conclusion, results indicated the two-factor model adapted from Fitzgerald and Broadbridge (2013) is a poor fit for use in measuring the touristic experience of visitors at Yellowstone National Park. Due to theoretical and methodological adaptations, an alternative model was justified for data analysis. This alternative model proves to be a better fit and a highly



reliable measure of the autobiographical memories of an experience at a touristic destination. The measurement of the items changed, but the interpretation of the concept does not. The discussion section describes how utilizing cross-discipline methods can enhance the tourism field, but researchers need to validate these models prior to adoption.

## **DISCUSSION**

The purpose of this study was to introduce a new approach towards measuring the visitor experience using the psychological construct, autobiographical memory. The conceptual framework described represents a newfound method for understanding these deeper level meanings of the visitor experience. As the results demonstrate, there appears to be evidence that validates autobiographical memory's use for measuring recollections of the touristic experience. However, some adaptations need to be made from previous findings. Taking initiative from Packer and Pearce's (2013) call for advanced psychological constructs in tourism research, our study sought to become a step in that progression. Upon a rigorous review of the autobiographical memory literature, Fitzgerald and Broadbridge's (2013) model appeared to address both theoretical and real-world questions. However, direct adaption of their model to measure autobiographical memory did not provide a strong fit. Poor fit statistics and some observed variables loading onto constructs that were not hypothesized led us to the conclusion to reject the two-factor model. Despite this realization, altering the model to incorporate less specificity in defining the factors led to a valid and useful single factor model of autobiographical memory. Adopting new approaches from outside disciplines for use in a tourism context is possible, but validation is necessary.

We argue there is less distinction between autobiographical memory impact and rehearsal than found in Fitzgerald and Broadbridge (2013) and, in fact, this realization provides a more reliable and adequate measurement for exploring the touristic experience. We define the single factor that is measured by the seven observed variables to be *autobiographical memory salience*. Each variable measures a piece of what makes a memory important in the minds of visitors. Salience is a combination of how often an individual thinks about, talks about, and the impact of an event on an individual's life. Furthermore, there appears to be an inherent relationship to how often an individual rehearses a memory and level of impact. Statistically, the justification is appropriate for continued research using the one-factor model as a baseline. On a conceptual level, there is little prior research to base the claims that impact and rehearsal are inherently distinct from one another. Fitzgerald and Broadbridge (2013) found them to be valid as independent constructs in a laboratory setting, but our field-based study simply did not show such a distinction. On the surface, rehearsal and impact should go hand-in-hand with one another. If an experience has an affect on an individual that changes their behavior, has consequences for their life, or is highly emotional, then it inherently should be rehearsed more by the individual. These types of experiences are more likely to be thought about, talked about, and written about if it had that much of a substantial affect. Thus, combining both constructs into a single factor appears to be a valid measure of the overall salience of the recollection of the experience.

Other results in this study identify intriguing outcomes from investigating visitors' autobiographical memories. Overall, the majority of visitors talked about, thought about, and had moderate to intense emotions revolving around their experience. The emotional intensity of memories had a mean score of 2.15 (on a scale of 0 = no intensity to 3 = high intensity), which

indicates a large amount of visitors who had moderate to high intensity emotions. An overall factor score of the combined one-factor variable provided a mean memory salience of 4.63 out of 7.00. Only 28.7 percent of visitors had a mean score below the 4.00 threshold, which would indicate a lower memory salience. In fact, 9.5 percent of visitors had a mean memory salience score of 6.00 or above, which appears to be a very high memory salience. Memories that possess ratings at such a level may be considered “transformative” as defined by the National Park System. Thus, results show that some visitors are experiencing events that could be behavior and life-changing. However, identifying the types of experiences that are highly rated needs in-depth research. If the elicited memories can be tied to their memory salience rating, then destination managers can facilitate experiences that are more likely to be transformative. Furthermore, memory salience can be used to predict other concepts that are of interest to managers such as place attachment.

## **CONCLUSION**

This study aimed to bring a new concept from psychology into the tourism realm to advance tourism research. As Pearce and Packer (2013) mentioned, there is still a dearth of concepts and theories within psychology alone that can benefit tourism research as a whole. The expanse of work conducted on autobiographical memory in particular is large and continually growing; however, very few studies in tourism have attempted to integrate its use in a tourism framework (Kim et al. 2012; Tung and Ritchie, 2011). The results of the study are intriguing as the original conceptualization of the model provided mixed results. Based on face validity and Goodness of Fit statistics, the two-factor model originally proposed in Fitzgerald and Broadbridge (2013) is not an appropriate model to use for this population. However, additional

research on the subject is needed as the convergent validity and Average Variance Explained is lower than the preconceived notion of .50.

With that said, this study does provide a useful method for examining the visitor experience using autobiographical memory in a psychological context. Future research should look towards the relationships that traditional tourism concepts such as satisfaction, place attachment, and destination loyalty have with autobiographical memory salience. If visitors have exceptional experiences that highly impact their lives, then it may be likely they are predisposed to revisit the destination or at the least form an emotional connection to a place. Furthermore, future research could investigate more fully the directive function of autobiographical memories and how it affects decision-making processes. A study similar to Kuwabara and Pillemer's (2010) on donation intention could be adapted to fit willingness to pay for activities at tourism destinations or a wide variety of other concepts. However, additional research needs to be conducted on autobiographical memory in general using a tourist population. In order to validate this study, replication is necessary and would benefit the scale and concept as a whole. Since most psychological studies are conducted in laboratories, multiple field tests are necessary for translation of concepts.

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## **ARTICLE 2: Memory and Place Attachment: Testing Autobiographical Memory as the Antecedent for Place Attachment**

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## **ABSTRACT**

The purpose of this study was to identify the role that a psychological concept, autobiographical memory, plays in influencing place attachment in nature-based tourists. Autobiographical memory is emotional recollections of past experiences or events that individuals hold. Prior research has identified a number of antecedents to place attachment, but there has not yet been a strong understanding on how place attachment forms within an individual. A structural equation model was developed that links autobiographical memory salience to place attachment using place identity and place dependence. Visitors were surveyed as they were exiting Yellowstone National Park during the summer season. After separating first-time visitors from repeat visitors, structural equation model results indicated a significant relationship between autobiographical memory salience with place identity and place dependence. Thus, exceptional experiences that lead to highly salient memories are more likely to lead to higher levels of place attachment and place dependence. Future research should further investigate this relationship with other sub dimensions of place attachment to identify memories full influence.

## **INTRODUCTION**

The ways in which people experience places has become of interest in multiple fields including geography, environmental psychology, outdoor recreation, and tourism. Originally, humanistic geographers such as Yi-Fu Tuan began exploring how spaces turn into places and our relationship with place (Agnew, 2011; Cresswell 2004; Tuan, 1977). Researchers from various fields took this line of research to begin exploring the types of attachments people have to these places, now commonly known as place attachment (Hidalgo and Hernandez, 2001; Lee, 2011; Williams and Vaske, 2003). Studying place and place attachment are not only important for expanding the knowledge of the human condition, but there are real world benefits (predicting support for management actions) and consequences (potential for positive and negative recognition of feelings people have towards the place) to exploring the connection to place. Apart from the previously mentioned studies on place attachment, how people form place attachment is understudied. Nevertheless, potential to contribute to these unknown questions is found within a concept in social and cognitive psychology; personal memory. Studying memories of people at places allows for an evaluation of the experiences they have at the most applicable level, which is their own recollection of the events that transpired and whether those events lead to an attachment to the place. More specifically, this study aimed to investigate the relationship between autobiographical memory and place attachment.

Autobiographical memory is a form of long-term memory in which events or experiences are remembered and evaluated amongst all other memories (Fivush, 2011). These memories hold a unique valence depending on the context of the situation, emotions of the individual, and time period in a person's life (Pillemer, 2003). Autobiographical memory has typically been studied in psychological framework, but has gained some traction in the tourism and outdoor recreation field as a way to explore the touristic experience (Kim, Ritchie, and McCormick, 2010; Tung and

Ritchie, 2011). Its usefulness expands beyond simply exploring what people remember about experiences or events. Three primary functions have been found in autobiographical memory: Social, Self, and Directive functions (Kuwabara and Pillemer, 2010). These functions facilitate social bonding, continuity of the self, and direct behavior.

The primary purpose of this study is to investigate to what degree autobiographical memory predicts place attachment. This study used an adapted model from Fitzgerald and Broadbridge (2013) to measure autobiographical memory and Williams and Vaske's (2003) two-construct place attachment scale. Visitors were surveyed at an iconic nature-based tourism destination: Yellowstone National Park. Of primary interest were the memories they had of past experiences in the park as well as their perceived level of place attachment. Through this framework, this article tests two primary hypotheses presented in a later section.

## **LITERATURE REVIEW**

### **Space and Place**

Prior to delving into place attachment, introducing the roots of the concept within the larger field of space and place is important. Beginning in the mid-1990s, humanistic geographers began exploring how people conceptualize the world. Leading scholars such as Yi-Fu Tuan, John Agnew, and David Harvey had their own unique descriptions on how people perceived the notions of space and place, yet with different perspectives. Since this influential time, the field has progressed largely in-part to new researchers going deeper into the topic to flesh out nuances within and utilizing innovative ideas applied to space and place.

Space can be described as an empty void or an area without meaning (Agnew, 2011). Human interaction has not yet occurred and meaning has not yet been applied to space. However, spaces may have meanings associated to the location once human interaction takes

place. The primary driver that turns a space into a place revolves around human interaction. Spaces can be thought of simply as coordinates on a map whereas places have names and a history.

Because space does not include human interactions or meaning, less of an emphasis is given in research to exploring its uses. Place, on the other hand, has become a widely studied construct as its uses go beyond simply explaining the way that people think and experience specific locations. Conceptually, place is defined in numerous ways and has continued to evolve to this day. Tuan (1975, p. 152) defines place as a “center of meaning constructed through experience.” Cresswell (2004) describes it in terms of a set node in a system or a “meaningful site that combines location, locale, and sense of place (p. 1)”. Cresswell’s (2004) definition stems from Agnew’s (1987) model of place containing three primary elements: location, locale, and sense of place. These elements are described by Cresswell (2004, p. 1) in a meaningful manner. Location “refers to an absolute point in space with specific coordinates and measurable distances” from other areas. Locale is thought of as the “tangible aspects of a place”, including the trees, houses, and automobiles within it. Finally, sense of place is the meanings assigned to the place by people. These meanings may be “individual and based on personal biography or they can be shared (p. 1).”

Tuan (1975) states, “The study of place, from the humanistic perspective, is thus the study of people’s spatial feelings and ideas in the stream of experience (p. 388)”. Early in the discussion on place and people’s perceptions there is a strong emphasis on personal experience being intricate to the formation of place. Tuan’s (1975) article on place and experience draws out many ideas from early researchers such as Dewey’s (1925) *Experience and Nature*. Tuan (1975, p. 151) states, “Experience is a cover-all term for the various modes through which a person



knows his world.” Experience presents an easy avenue in which to associate place-making. In most cases, the modalities of senses through which experiences occur in places arrive in different intensities and in varying ways. If experience is the most critical part for people to conceptualize a space and turn it into place, then this may be the most necessary element to study in order to enhance our knowledge on place attachment formation.

### **Sense of place and place attachment**

In order to study place and its many dimensions, researchers aimed to narrow in on the most applicable dimension for use in our world. Two primary, but not comprehensive, approaches to studying place have ascended throughout the years among academic disciplines: “place as an attitude object,” and “place as relationships and meaning” (Williams, 2008, p. 16). Place examined “as an attitude object” is a cognitive approach to studying individual’s attitudes towards a place, typically defined as *place attachment* (Kyle, Absher, & Graefe, 2003; Jorgensen and Stedman, 2001; Williams and Vaske, 2003). Place as “relationships and meanings” considers a more holistic approach and attempts to understand the underlying nuances, symbols, and significance of places in one’s ‘being-in-the-world’, typically defined as *place meaning* or *sense of place* (Relph, 1976; Williams and Patterson, 1992). Despite their subtle differences, the fields of tourism and outdoor recreation have gravitated towards the use of place attachment over sense of place (Williams and Roggenbuck, 1989). In environmental psychology, sense of place is used more frequently than place attachment, but both are generally measured using similar techniques. Recent studies have redefined ‘sense of place’ as being a more holistic conceptualization of the dimension. Place attachment generally is focused more on the intensity of the connection to the location rather than the meanings from the experience. Lewicka’s (2011) extensive review of place attachment’s progress brought to the forefront the conceptual differences noted by various

scholars, observing the differing ways of thinking have caused a delay in a theory of place attachment. Despite their differences, the primary focus of this article is to link a highly salient memory to a high intensity of connection between a person and a place. Thus, place attachment is the construct that is used instead of sense of place. The researchers believe that sense of place may have linkages to autobiographical memory as well, but other methodologies may be more appropriate to tackle that connection.

In tourism and outdoor recreation literature, place attachment is more commonly used as researchers want to measure the strength of an individual's connection to a certain destination. Place attachment is defined as the "positive connection or bond between a person and a particular place (Williams and Vaske, 2003, p. 831)." Using a post-positivist lens, place attachment has shown significant uses in the outdoor recreation and tourism literature, measured with primarily quantitative methods (Bricker and Kerstetter, 2000; Kyle et al., 2003; Vaske and Kobrin, 2001). These studies assess the degree to which visitors to specific sites are attached to destination or place. Hence, a psychological connection can be formed between a person and a place with varying intensities and consequences. Empirical research has found that place attachment does have long-lasting effects and may influence future behavioral decisions pertaining to destination choice and more (Prayag and Ryan, 2012). In outdoor recreation research, those who participate in certain activities at specific destinations can become dependent on the place, which leads them to return to have similar future experiences (Kyle, Graefe, Manning, & Bacon, 2005). The connection formed between person and place can have effects on management decisions in that certain actions may lead to more intensive responses by users. For instance, if land managers propose changes to fee structures where place attachment is high, users may feel more committed to providing a retort (Lewicka, 2011).

These connections serve a variety of purposes including belonging and spiritual influences intrinsically important (Prayag and Ryan, 2012). In leisure research, the concept resonates more prominently, “The understanding to the meanings of place is a central aspect to understanding leisure (Kaltenborn, 1997, p. 176).” Williams and Roggenbuck (1989) stated, “Research in environment and behavior, however, suggests that most people experience feelings of place attachment which go beyond the usefulness of a particular place or a setting for pursuing a particular activity (p. 1).” These statements suggest multiple purposes and approaches towards understanding the place attachment process, but there is little mention as to whether we understand how that connection forms.

Two common dimensions have been identified within place attachment: place dependence and place identity (Stokols and Shumaker, 1981; Williams and Roggenbuck, 1989; Williams and Vaske, 2003). But, more dimensions are hypothesized as being part of the conceptual framework. In work since, place attachment has been conceptualized as containing dimensions such as social ties and meanings (Bricker and Kerstetter, 2000). Place dependence is defined as “when the occupants of a setting perceive that it supports their behavioral goals better than an alternative (Stokols and Shumaker, 1981).” Place identity is defined as “the importance a person attaches to the place because of what the setting symbolizes or stands for (Williams and Roggenbuck, 1989, p.20).”

Williams and Vaske (2003) developed the commonly accepted two-construct model of place attachment. Using place identity and place dependence as the complimentary constructs, each latent construct contained four observed variables. This two-construct model was compared against a single-factor model of place attachment using eight observed variables. Results identified place attachment as best measured using the two-factor construct with only four

observed variables each. This parsimonious scale provided accurate measurement of place attachment through the two distinct constructs of identity and dependence. A number of recreation and tourism studies have employed their own version of place attachment scales (Bricker and Kerstetter, 2000; Kyle, Graefe, and Manning; 2005; Kyle, Graefe, Manning, & Bacon, 2005). Various other place attachment studies have utilized additional scales to measure place attachment (Lee, 2011; Ramkissoon et al., 2013), however, even after years of study, Williams and Vaske's (2003) scale still represents a valid measurement of the strength of attachment between a person and a place. Thus, the current study adopted the two-construct model of place attachment developed by Williams and Vaske (2003).

Among review of a number of place attachment concepts and studies, it is evident that attachment to a location can be a significant influence in terms of how actions are perceived and how behaviors change. To build this connection, certain experiences that elicit emotional responses are expected. Following the formation of place and its relationship with experience (Tuan, 1975), the researchers hypothesized a potential undiscovered relationship between the memory of the experience and attachment. With that said, tourism experience research has not adopted innovative concepts from outside disciplines that have shown strong potential (Pearce and Packer, 2013). The following section describes a newly recognized concept from psychology, autobiographical memory, which measures the importance of specific experiences on an individual's life. This construct has been identified as being able to explain whether an experience is highly salient in a visitor's mind, which may influence the likelihood of forming an attachment to place.

## **Autobiographical memory**

Autobiographical memories (AM) are specific recollections of past experiences or events which are evaluated amongst all other memories in a person's life (Conway and Pleydell-Pearce, 2000). Fivush (2011) defines autobiographical memory as "the 'self' interacting with others in the service of both short-term and long-term goals that define our being and our purpose in the world (Fivush, 2011, p. 560)." Autobiographical memory is a form of long-term memory that is a sub-dimension of what is called "episodic memory." Tulving (1972) delineated long-term memory into two sub-dimensions: episodic and semantic memory. Semantic memory are those which are subconsciously recalled by an individual. These memories tend to be habits, procedures, or other difficult to elicit memories. Episodic memory is recollections individuals have of specific events or experiences that are consciously remembered (Tulving, 1972).

More specifically, autobiographical memory is a sub-dimension of episodic memory as it stresses the individual to evaluate the memory within the context of their life history and includes the emotions an individual experiences. AM "goes beyond the episodic memory function of guiding future behavior to serve social and emotional functions (Fivush, 2011, p. 560-561)." Thus, the social and emotional functions are critical towards delineating between autobiographical memory and episodic memory. Autobiographical memories contain knowledge at different levels of specificity throughout time. Furthermore, AMs contain multiple from of what Conway and Plydell-Pearce (2000) define as "autobiographical knowledge": life-time periods, general events, and event specific knowledge (ESK). Lifetime periods are intervals in an individual's life that are recollected. General events contain more detail than lifetime periods as the scope is narrowed onto singular events. In a tourism context, general events may be a single vacation or trip. General events may be grouped together in an individual's mind through recall

which creates what is defined as an *event cluster*. Finally, event specific knowledge (*ESK*) is the most explicit type of autobiographical information where the individual remembers details about a specific event or experience.

When a memory is highly impactful and even “life-changing”, such events can be considered as “self-defining” (Fivush, Habermas, Waters, and Zaman, 2011). Self-defining moments are defined as “typically unique, onetime events, which become personally significant and integral to individuals’ understanding of who they are (Fivush et al. 2011; p. 333).” This time period is generally when a person forms their attitudes and beliefs towards topics and concepts, which can be influenced by experiences. Both positive and negative memories can have “self-defining” qualities as they are emotionally charged events and can have long lasting effects.

### **Functions of Autobiographical Memory**

Social cognition researchers have focused on explaining what people remember or the details within a specific memory. However, a separate set of researchers set their sights on a narrower question: “What functions does it serve for people to remember, reflect on, and share the experiences of their life (Bluck, Alea, Habermas, and Rubin 2005, p. 92).” Because of this shift in research, autobiographical memory has been identified as having multiple functions for each individual person (Bluck, Alea, Habermas, and Rubin, 2005; Pillemer, 1992, 2003).

Autobiographical memories drive our behavior, facilitate the development of our own self-image, and build social bonds between people within the memory and those who are hearing it through storytelling (Bluck et al., 2005). These functions are referred to as the direct, self, and

social functions of autobiographical memory (Pillemer, 1992). As Bluck et al. (2005) states, “what do individuals *use* the memories of their life for? (p. 92)”

Each function serves a different purpose in a person’s life based on the context and meaning of each experience. The “directive function” guides the person in making decisions based on their past experiences. Cohen (1998) stated that autobiographical memories help solve problems and may influence our attitudes. Furthermore, autobiographical memories have been found to direct behaviors such as donation intentions. Kuwabarra and Pillemer (2010) identified autobiographical memories as influencing university alumni’s intentions to donate to a fundraising organization for the school. Simply eliciting a memory from a past student lead to a higher likelihood for donating to the organizations; be it a positive or negative elicited memory. The second function is known as the “self function”, which promotes continuity in the “self” (Bluck et al., 2005). Experiences in our past are remembered and recalled to “preserve a sense of being a coherent person over time (Bluck et al., 2005, p. 93). Fivush (2011) describes how autobiographical memories may be self-defining in an individual’s life; changing their perspectives and attitudes into the future. Finally, autobiographical memories provide a social benefit to not only those who are in the memory, but also those hearing retellings from the individual. The “social function” facilitates bonds between individuals who share the memories or just in casual conversation. Thus, sharing memories may lead to stronger social bonds between people.

Once identified, examining the presence of each function within data became a focal point for researchers. Specifically, the directive function lacked sufficient findings within empirical data despite being hypothesized as a present function. Prior to this study, the authors note that “only three projects, have examined the functions of AM empirically. Using the

“Thinking About Life Experiences” Questionnaire (TALE), Bluck et al. (2005) aimed to identify the hypothesized functions within memories of undergraduate students. Findings revealed four functions within the empirically-driven study: “directive”, “self-continuity”, “nurturing relationships”, and “developing relationships”, all of which are very similar to the previously hypothesized functions. The most telling result was the identification of the directive function, further solidifying its place within the function of autobiographical memory. Once the functions were accurately found within real quantitative data, it was stressed that more studies attempt to identify the presence and uses of the functions within additional studies.

A more recent study looked to validate a framework which tested a quantitative measure of autobiographical memories across a variety of different types of autobiographical memories (Fitzgerald and Broadbridge, 2013). Fitzgerald and Broadbridge (2013) explored four types of autobiographical memories (early childhood, cue-word, highly vivid, and traumatic) using four primary constructs; impact, rehearsal, belief, and recollection. Memory impact is defined as the memory’s “significance, emotional intensity, and consequences” of the experience. Rehearsal is defined as the “frequency with which an event is recalled, either personally or interpersonally, whether voluntarily or involuntarily (Fitzgerald and Broadbridge, p. 232-233).” Upon review of their framework, belief and recollection did not appear to be useful for purposes of exploring the importance of touristic experiences of travelers. Belief and recollection explain more of the accuracy and ability to recall information, which may be of use in future studies. While the researchers found the structure of autobiographical experiences to be consistent across the four types of memories, the impact and rehearsal components appeared to be the most applicable for use in the tourism field.



Jorgenson et al. (2016a) tested the autobiographical memory questionnaire developed by Fitzgerald and Broadbridge (2013) in a tourism context. Visitors were surveyed and asked to recall specific autobiographical memories about their tourism experience. This study used the impact and rehearsal constructs to explore how important their memory of the experience was to visitors. After using confirmatory factor analysis, replication of the structure found in Fitzgerald and Broadbridge (2013) was not successful. However, a single-factor model emerged which was named “autobiographical memory salience”. This one-factor model appeared to be a much stronger fit than using two-factors to measure memories of the tourism experience. Thus, an adapted version of Fitzgerald and Broadbridge’s (2013) framework was suggested for use in the tourism field.

### **Research questions:**

The purpose of this study was to test the relationship between autobiographical memory and place attachment. Visitors to Yellowstone National Park served as the sample population and were split into two distinct visitor typologies: first-time and repeat visitors. This distinction occurred as it was assumed that surveying visitors while on their first visit to the destination may affect the level of attachment they have for the place. Repeat visitors may have already created some form of place attachment and needed to be compared separately from those who had not visited prior to the current trip. Thus, a structural equation model was developed and tested on two distinct populations of travelers. This model tested autobiographical memory’s influence: 1) a repeat visitor model and 2) a first-time visitor model. The hypotheses are presented below.

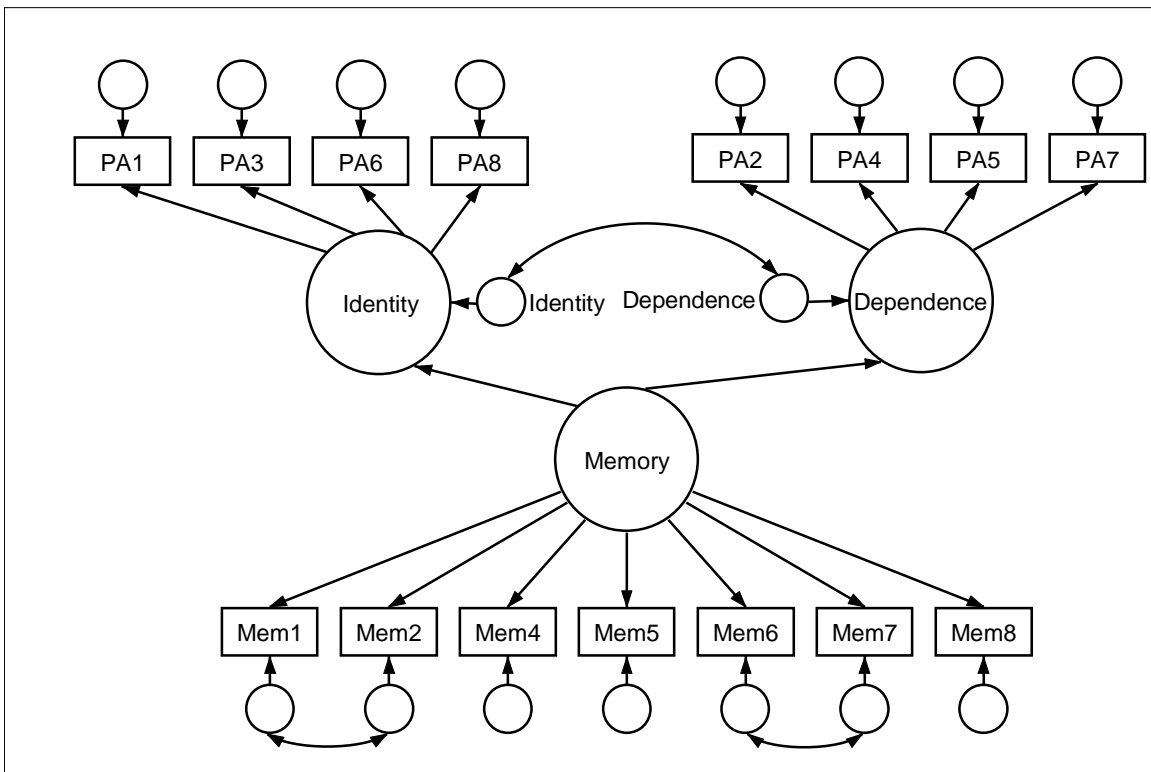
**H1:** Autobiographical memory has a direct, positive relationship with place identity for first-time visitors.

**H2:** Autobiographical memory has a direct, positive relationship with place dependence for first-time visitors.

**H3:** Autobiographical memory has a direct, positive relationship with place identity for repeat visitors.

**H4:** Autobiographical memory has a direct, positive relationship with place dependence for repeat visitors.

**Figure 6: Structural Equation Model of Autobiographical Memory and Place Attachment**



\*Covariances between memory 1 and memory 2 and memory 6 and memory 7 previously identified in Jorgenson et al. (2016a).

## **METHODS**

### **Study Site and Design**

This study was conducted in Yellowstone National Park which is located in northwest Wyoming, south-central Montana, and eastern Idaho. Yellowstone National Park is one of the most visited national parks within the United States and hosted 4 million visitors during 2015 (NPS, 2015). Yellowstone National Park caters to visitors participating in a variety of activities including wildlife watching, viewing geysers and geothermal areas, and day hiking. Yellowstone is most known for its unique geothermal features such as Old Faithful Geyser and its abundant wildlife including grizzly bears, grey wolves, and elk.

Visitors were surveyed as they exited Yellowstone National Park during the summer season. Visitors were stopped at each of the five exit gates on 30 sample days from May to September. These five exit gates exist on the north, east, west, south, and northeast areas of the park. On both weekends and weekdays, visitors were flagged over to the side of the road as they were leaving the park to complete an on-site and mail-back survey about their experience in Yellowstone. The intercept questionnaire contained limited demographics and trip characteristic questions. A mail-back survey was given out to voluntary respondents upon completion of the intercept survey to return to researchers after the trip. Over the duration of the study, 2,373 visitors were asked to participate in the on-site questionnaire. Upon completion, visitors were then asked to participate in the mail-back portion as well. Of all visitors initially intercepted, 2,216 visitors completed the on-site study and were given a mail-back questionnaire. This equates to a response rate of 93 percent for the on-site portion. In total, 802 mail-back surveys were returned to the researchers for a response rate of 36 percent. Other studies with similar methodologies have found response rates above 30 percent to be acceptable (Látková and Vogt,

2012). Due to limitations in time and barriers to collecting private data, the researchers were unable to send follow-up notifications to increase the mail-back response rate.

Non-response bias questions were included on the on-site and mail-back survey to account for this limitation. Four questions were used to test for non-response bias, but only one showed a bias between the on-site and mail-back survey. More respondents on the mail-back survey stated that they were a part of the Yellowstone Association than those who answered the on-site survey. The reason why membership or involvement with these two organizations was considered to be a bias is because they are supportive organizations of the park. Visitors who are involved with either organization represent individuals who may have an investment and, likely, a higher level of place attachment already with Yellowstone. The mail-back data was weighted such that YA members equaled the same percent of the population of intercept visitors. Yellowstone Association members received a weight of .35 compared to all other respondents.

### **Scale Development**

Williams and Vaske's (2003) two-dimensional scale of place attachment was used to measure the strength of the attachment between visitors and Yellowstone National Park. Place identity and place dependence each contain four primary variables used to measure the construct. Place identity variables are: 1) "Yellowstone National Park means a lot to me.", 2) "I identify strongly with Yellowstone National Park.", 3) "I have a special connection with Yellowstone National Park.", and 4) "I am very attached to Yellowstone National Park." Place dependence variables are: 1) "I get more satisfaction out of visiting Yellowstone National Park than any other place.", 2) "I am not able to substitute other places for the type of experience I get at Yellowstone National Park.", 3) "I enjoy visiting Yellowstone National Park more than any other place.", 4) "Visiting Yellowstone National Park is more important than visiting any other place."

Autobiographical memory was measured using an adapted version of Fitzgerald and Broadbridge's (2013) "Autobiographical Memory Questionnaire". Jorgenson et al.'s (2016) study tested Fitzgerald and Broadbridge's (2013) model and found some adaptations were required to use in a tourism context. In particular, Fitzgerald and Broadbridge (2013) used two constructs to measure autobiographical memory: impact and rehearsal. Jorgenson et al. (2016) identified only one construct of memory salience after testing data collected on visitor's autobiographical memories of the tourism experience. Thus, the model utilizes an adapted scale from Jorgenson et al.'s (2016) study of autobiographical memory of tourists. To elicit memories, Yellowstone visitors were asked to think about an experience or event that first comes to mind about Yellowstone National Park. This memory was not limited to the most recent trip and could encompass all prior experiences. After describing the memory, respondents rated salience components of the memory on seven observed variables. Variables for memory were assessed from 1 = "low memory salience" to 7 = "high memory salience" with value labels changing. Finally, this model was validated through confirmatory factor analysis, thus, these analyses are not present in this study (see Jorgenson et.al, 2016). The variables contained in autobiographical memory salience are: "Since it happened, I have talked about this event (Mem1)", "Since it happened, I have thought about this event (Mem2)", "As I remember the event, it comes to me in words or in pictures as a coherent story or episode and not as an isolated fact, observation, or scene (Mem3)", "As I remember the event, I can feel now the emotions I felt then (Mem4)", "This memory is significant in my life because it imparts an important message for me or represents an anchor, critical juncture, or turning point (Mem5)", "This memory has consequences for my life because it influenced my behavior, thoughts, or feelings in noticeable ways (Mem6)". "As I recall them now, I would rate the emotions I experienced during the event as... (Mem7)".

## **Study Population – Separating First-time and Repeat visitors**

This study surveyed visitors at Yellowstone as they were leaving the exit gates, but one specific characteristic, prior visits to Yellowstone, was identified as having a potential effect on the structural equation model results. The researchers made a decision to separate and test the SEM between first-time and repeat visitors. Visitors who stated they had not been to Yellowstone National Park prior to their current trip were considered “first-time visitors”. The purpose of separating out first-time visitors and repeat visitors was due to the fact that both autobiographical memory and place attachment are hypothesized as requiring direct experience at a destination. First-time visitors have had less experience at the destination and were forming their first memories of the place right before responding to the questionnaire. In addition, they may not have the same perception of attachment compared to visitors who have been to the park previously. It was unknown whether the results would come out the same, thus, testing the model between these two visitor samples would flesh out if there are differences in the relationship between memory and attachment based on the prior visits.

Previous place attachment literature (Kyle, Graefe, and Manning, 2005; Kyle, Mowen, and Tarrant, 2004; Williams and Vaske, 2003) have sampled visitors on their place attachment and did not take into account whether it was their first visit to the place or not, however, the combination of autobiographical memory which may be influenced by time raised enough concern to use two separate populations. At the least, it would give a more complete picture as to whether there were differences in the ways that a first-time visitor relates to a place compared to a repeat visitor.

## RESULTS

### Demographics and trip characteristics

Before displaying results of the structural equation model between place attachment and autobiographical memory, demographic and limited trip characteristic information are displayed in Table 1 and Table 2. Table 1 displays the breakdown of first-time and repeat visitors. As results indicate repeat visitors comprised of nearly two-thirds of the sample (63.5%) while first-time visitors represent roughly one-third (36.5%). Thus, Yellowstone tends to have a diverse range of visitors with varying degrees of prior visitation. The sample size of both first-time and repeat visitors were adequate to split the sample into two visitor classification groups.

**Table 2: Distribution of First-time Visitors and Repeat Visitors**

<b>Prior visits</b>	<b>Frequency</b>	<b>Percentage</b>
First-time Visitors	238	36.5
Repeat Visitors	372	63.5

\*Repeat visitors are any respondents who had been to Yellowstone prior to initial contact at the park.

Table 2 displays additional demographic information regarding first-time and repeat visitors who visited Yellowstone National Park during the summer season. Generally, first-time visitors tend to be younger with a mean age of 50.81 years old. On the other hand, repeat visitors tend to be somewhat older with a mean age of 57.44 years old. In regards to gender, 62 percent of first-time respondents were female whereas it was an exact split in gender for repeat visitor respondents. Finally, repeat visitors have a higher number of U.S. residents (92.9%) and first-time visitors are made up of 75.8 percent U.S. residents. International visitors may only visit Yellowstone one time and are less likely to revisit the destination.

**Table 3: Demographic information of First-time vs. Repeat visitors**

<b>Visitor Classification</b>	<b>Age</b>	<b>Gender</b>	<b>US Residence</b>
First-time visitors (n=238)	50.81 years old	62.2% Female 37.8% Male	75.8% U.S. Residence
Repeat visitors (n=372)	57.44 years old	50.0% Male 50.0% Female	92.9% U.S. Residence

### **Structural Equation Model – First Time Visitor Results**

Figure 2 displays the structural equation model test results between autobiographical memory and place attachment for first-time visitors. The model follows an exact structure with autobiographical memory salience predicting both place identity and place dependence. Place identity and place dependence are covaried as they represent the larger construct of place attachment. Finally, two variables within autobiographical memory salience were covaried as modification indices indicated potential relationships.

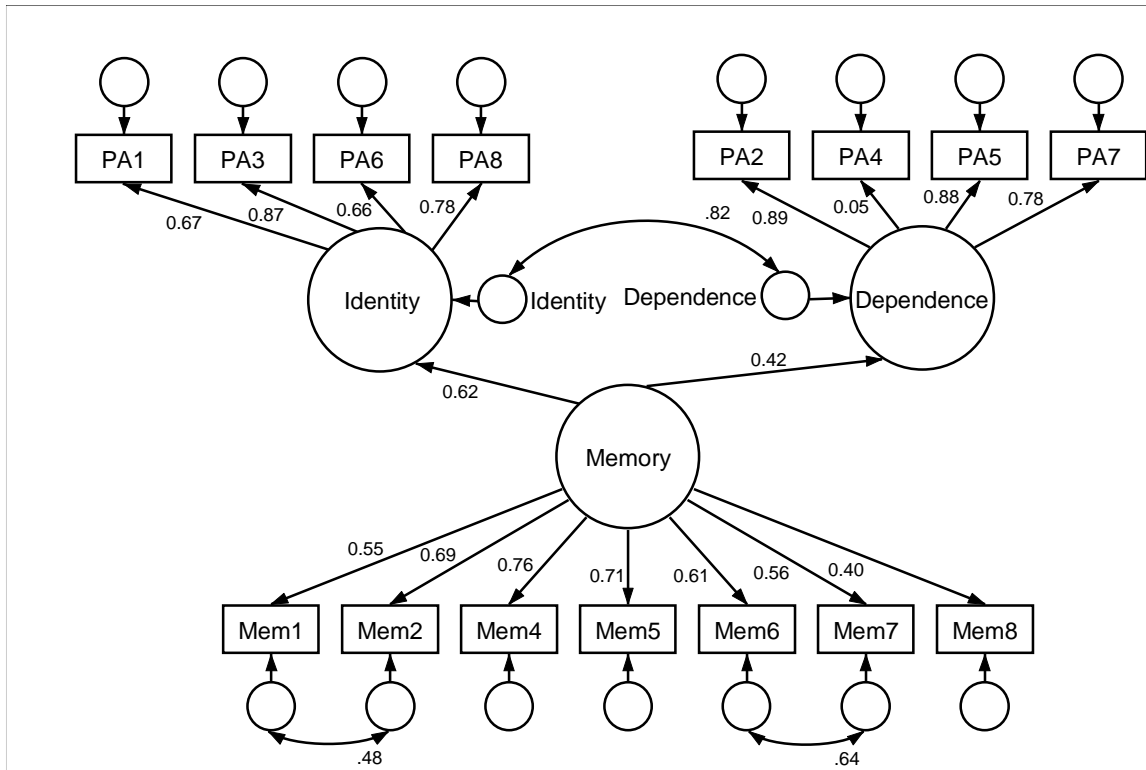
The first-time visitor test in Figure 2 includes seven variables for autobiographical memory salience as Jorgenson et al. (2016) identified a one-factor model of autobiographical memory salience. All observed variables of Autobiographical Memory Salience have factor loadings above .4, an accepted threshold for confirmatory factor analysis loadings (Mem1 = .55, Mem2 = .69, Mem3 = .76, Mem4 = .71, Mem5 = .61, Mem6 = .56, Mem7 = .40). Both place identity and place dependence showed significant relationships between their observed variables. Place identity had consistent and strong loadings across the dimension with all factor loadings greater than .60 (PA 1 = .67, PA3 = .87, PA6 = .66, PA8 = .78). Place dependence had similar results with three observed variables that loaded above .70 (PA2 = .89, PA5 = .88, PA7 = .78). One variable within place dependence (“I am not able to substitute other places for the type of experience I get in Yellowstone National Park” = .05) had a very low, insignificant loading.



However, when the variable was removed, the Goodness of Fit Statistics was found to be unaffected. Since past studies have validated its inclusion into the construct (Williams and Vaske, 2003), the researchers made the decision to include PA4 in the measurement of place dependence.

Both paths from autobiographical memory and place identity/dependence were significant at the  $p < .001$  level. The standardized loading from memory to place identity is found to be .62 while place dependence is .42. This indicates that autobiographical memory has a stronger relationship with place identity than with place dependence; however, both relationships are significant and positive. Therefore, it is assumed that as memory salience increases so does place attachment. Furthermore, the Goodness of Fit Statistics indicated a good fit for the model (Table 3). Model fit statistics indicate a CFI = .957, an SRMR of .057 and an RMSEA of .066. All fit statistics were above commonly accepted thresholds and appear to be strong for first-time visitors to Yellowstone (CFI > .95, RMSEA < .08). It should be noted that because of the differences in the meanings of the concept between first-time and repeat visitors, these values may continue to become larger as time goes on. Respondents may not have had enough time to consider the effects of the experience on their lives and may need more time to form an attachment to the place. However, it appears that the model provided an adequate fit for the proposed hypotheses.

**Figure 8: SEM of Autobiographical Memory and Place Attachment of First-Time Visitors**



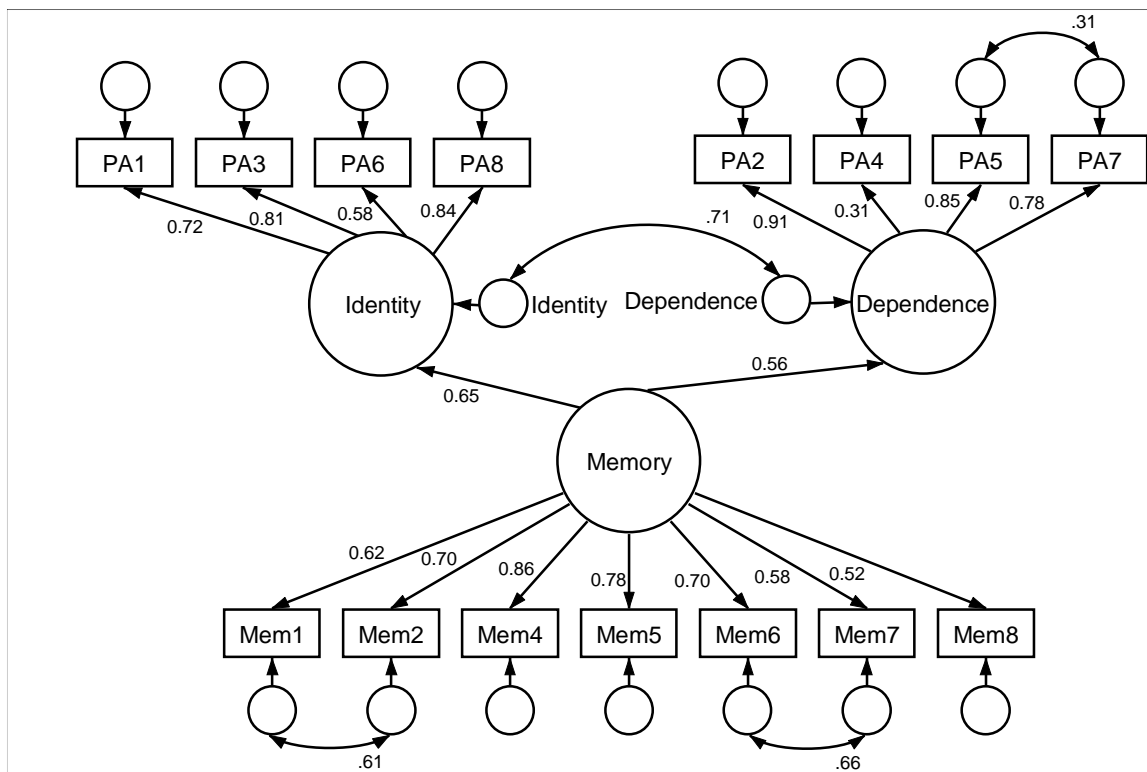
\*All factor loadings besides PA4 significant at the  $p < .001$  level

### Structural Equation Model - Repeat Visitor Results

Similar to the SEM of first-time visitors, Figure 3 displays the results of the SEM between autobiographical memory and place attachment of repeat visitors. The factor loadings on the observed variables of autobiographical memory salience appear at the acceptable level of .4 and are significant at the  $p < .001$  level (Mem1 = .62, Mem2 = .70, Mem4 = .86, Mem5 = .78, Mem6 = .70, Mem7 = .58, Mem8 = .52). Furthermore, the observed variables for place identity were significant the  $p < .001$  level (PA1 = .72, PA3 = .81, PA6 = .56, PA8 = .84). Place dependence had one variable (“I am not able to substitute other places for the type of experience I get in Yellowstone National Park” = .05) which had a lower loading than acceptable (greater

than .40), however, the relationship between variables and goodness of fit statistics were not affected from its removal. Since Williams and Vaske's (2003) rigorous testing identified the model to be robust and the variable is deemed to be a part of place dependence, the researchers determined the variable would still be a part of place dependence. All additional observed variables for place dependence possessed high loadings and were significant at the  $p < .001$  level (PA2 = .71, PA5 = .85, PA7 = .78).

**Figure 3: SEM of Autobiographical Memory and Place Attachment for Repeat Visitors**



\*All factor loadings besides PA4 significant at the  $p < .001$  level.

**Table 4: Goodness of Fit Statistics for Both First-time and Repeat Visitor Models**

Goodness of Fit Statistics	CFI	SRMR	RMSEA
First-Time Visitor	0.957	0.057	0.066
Repeat Visitor	0.962	0.047	0.063

Path loadings between memory and place identity and dependence were significant at the  $p < .001$  level. The loading between autobiographical memory and identity was .65 whereas the path between memory and dependence was .56. The loading between memory and dependence is found to be .56 and significant at the  $p < .001$  level. Thus, the relationship between memory and place identity is stronger than place dependence, however, autobiographical memory significantly predicts both dimensions within the place attachment construct. Goodness of Fit Statistics indicate a better model fit for the SEM for repeat visitors. Results found a CFI = .962, SRMR = .047 and RMSEA = .063. The observed fit statistics are appropriate to conclude there is enough evidence to confirm our hypotheses. Autobiographical memory has a direct, positive relationship with both place identity and place dependence in the first-time visitor model as well as the repeat visitor model.

## **DISCUSSION**

As displayed, visitor's autobiographical memory of an experience in Yellowstone National Park has a significant, positive relationship with their level of place attachment to the destination. In this case, visitors who have highly salient memories of their experiences at Yellowstone National Park leads both first-time and repeat visitors to have a high levels of attachment to the park. This study not only provides us with a new way of thinking about place attachment formation, but also stresses autobiographical memory's potential role within the greater context of tourism and outdoor recreation. The valence of the memory is not necessarily important, but the level of salience is what makes the difference. People may have very emotional, and even negative at the time, memories that lead to attachment. As a park manager, it may be an uncontrollable factor that leads to these types of experiences. Things such as the period of life the person is currently in may affect the type of emotions it brings to light (Conway

and Pleydell-Pearce, 2005). Williams and Vaske (2003) state, “place attachment is associated with past experience and familiarity”, thus, exploring the memories of that experience are as close to reconstructing it as possible. People’s direct memories of their experience are the best source of material we have to understand how they perceive their activities at a destination. Besides direct observation, asking people to recall their experiences through their memory is as good as it can get. Although there were initial concerns about the fit of memory for first-time visitors, results did not show any problems. First-time visitors were found to have a similar relationship between autobiographical memory and place attachment, yet they had only been to the park one time. The length it takes to form place attachment is unknown, but the relationship with between autobiographical memory and place attachment is still significant with only one prior visit. However, it is still intriguing that first-time visitors share similar emotional connections despite not having long-term exposure to the place. Using autobiographical memory as a way to explore the overall impact of a visitor experience can now allow us to predict the likelihood in which a person will become attached to the place. For destination managers, this represents a significant step forward in explaining how to provide what the National Park Service Advisory Board Science Committee (2012) calls “transformative experiences”. Transformative experiences are visitor experiences that aim to educate and inspire visitors to appreciate national parks and public lands. These types of experiences hopefully will lead to positive outcomes including support for parks and revisitation over time. Therefore, highly salient memories that lead to place attachment may be the closest representation of a transformative visitor experience.

An additional construct found to have significant implications for place attachment is involvement (Gross and Brown, 2008; Kyle, Graefe, Manning, and Bacon, 2004). In these studies, recreation, or activity, involvement was found to significantly predict the degree to

which an individual will be attached to a specific place. Recreation involvement is the importance a certain activity has in an individual's life. Autobiographical memory salience goes beyond thinking of the activity as being the primary driver of a person's attachment to place and places the importance on specific experiences. It may not be simply an activity that drives a person to become emotionally connected with a particular place, but rather the *experiences* they have while participating in such an activity. If we take this approach, a visitor who may not be actively involved in a particular activity can still form an attachment to place because of a highly salient experience they received. Therefore, we bring the discussion back to the formation of space and place that is described by Tuan's (1975) work on place and experience. Measuring the memory of an experience at the place may more accurately reflect what directly lead to the formation of the attachment.

Both populations between autobiographical memory and place attachment provide intriguing results. The relationship between autobiographical memory and place identity is stronger than place dependence. This suggests the memory of an experience has a higher likelihood to increase the emotional connection between a person and a place. In the case of Yellowstone, visitors appear to be less dependent on the park to receive the type of experience they desire. However, the memory of the experience still significantly explains the level of dependence. Prior research (Proshanky, Fabian, and Kaminoff, 1983; Guiliani and Feldman, 1993) has suggested that place identity "is not necessarily a direct result of any particular experience with the place, though it generally involves a psychological investment with the place that tends to develop over time (Williams and Vaske, 2003, p. 831)." However, the first-time visitor results are contradictory to that statement. The memory of a direct experience with the place appears to have a relationship with the level of place attachment. Essentially, these visitors

had not had a chance to build any psychological investment with the place throughout time, but rather they may have had an exceptional experience which propelled their attachment to the place. This may be due to the fact that Yellowstone is an iconic destination which is internationally known. Visitors may have had awareness of what Yellowstone holds and an idea of the experience they may be receiving once they arrive. Yellowstone is a “bucket-list” style destination for many visitors. Essentially, many visitors have planned and thought about coming to the park for an extended time. Therefore, they may be more aware of what Yellowstone offers than first-time visitors to other less-known destinations. It doesn’t necessarily explain the entirety of first-time visitors being place attached through memories, but it is one way of viewing the concept.

An additional way to view the findings is that the sample of first-time visitors had a slightly better experience than first-time visitors who did not complete the questionnaire. If the respondents had a positive experience at Yellowstone then they may have been more likely to put time and effort into describing their experience. However, the adverse of this statement is that there was a large distribution of responses which indicates that this bias does not exist. It very well may be that the relationship quantitatively is the same, yet the context behind the relationships differs. For instance, the type of experience that the visitor had may differ between first-time and repeat visitors that are not evident through Likert scale results.

Autobiographical memory’s role in predicting place attachment can be extended to include other constructs as well. As mentioned, recreation involvement has been shown as having a significant relationship with place attachment. Thus, the relationship between autobiographical memory and recreation involvement should translate as well. The degree to which an activity is central to an individual may have an effect on the memory of an experience.

If an individual is more involved in a specific activity, the experience may need to be extraordinary to become “highly salient”. Testing this relationship would benefit the body of building literature on both autobiographical memory and place attachment.

Practically speaking, this study provided destination managers with a way to facilitate experiences that lead to place attachment. Prior studies have identified place attachment as driving behavior such as environmentally responsible behaviors (Lee, 2012; Ramkissoon, Smith, and Weiler, 2013). Furthermore, place attachment has been found to lead to influencing individual’s willingness to protect important places (Ramkissoon et al., 2013). With this information now known, destination managers, especially those who manage nature-based destinations, should continue to look towards place attachment as a critical element to foster within their visitors. Except now, those same managers can explore what types of experiences lead to highly salient memories as it appears to lead to higher levels of place attachment.

The purpose of this study was to initially link autobiographical memory to place attachment. Now that this has proven successful, attention should be given to the richness of the memories themselves. In Fitzgerald and Broadbridge (2013) as well as many other autobiographical memory studies (Kuwabarra and Pillemer, 2010; Pillemer, 2003), respondents were asked to fully describe the experience or event they were thinking about. In this study’s data collection period, respondents were asked to write about the experiences they were thinking of in Yellowstone National Park, but a qualitative analysis is incomplete at this writing. Future research and analysis of written descriptions of visitors’ memories could provide a deeper understanding of what specific experiences lead to attachment.



## CONCLUSION

The results of this study stretch beyond nature-based tourism destinations. Although Yellowstone is a very unique destination that contains attractions that are not found in most other places, the implications of connecting autobiographical memory to place attachment go beyond national parks. Future research may validate these results by examining the experiences visitors have in more traditional or urban destinations to fully link memory and attachment. Conceptually experience leads to the formation of place (Tuan, 1975). Therefore, if we measure the recollection of the experience, it allows us to explore what lead that attachment to the place. If the experience is exceptional, then it is more likely that an attachment will form. This study provides destination managers and researchers with an innovative method to investigate meanings and relationships between people and place. Moreover, it now can be said that singular experiences may lead to place attachment as long as the memory is highly salient in the individual's mind. Therefore, facilitating similar experiences as those that are rated as highly salient is important. Memories are the most applicable and tangible element of an experience and deserve more attention in both the recreation and tourism fields.

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## **ARTICLE 3: Predicting Support for National Parks: How memory and place attachment lead to support for Yellowstone National Park**

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## **ABSTRACT**

The National Park Service has identified a number of long term concerns revolving around constraint for public funding and loss of interest from younger generations. Yellowstone National Park managers were interested in addressing many of these concerns by investigating ways in which visitors currently support the park and possible relationships for their level of support. Thus, the purpose of this study was to examine the current level of public support for one large-scale site within the National Park Service. After developing a scale to measure park support in Yellowstone National Park, two antecedents, place attachment and autobiographical memory, were identified as being potential predictors of the concept. Data was collected of visitors exiting Yellowstone National Park during the summer season. Using structural equation modeling, results indicate significant, direct relationships between memory, attachment, and park support. Park managers can use these results to tailor experiences that are more likely to lead to support from both current and future visitors. Future research can adapt this model to measure support in a variety of locations across the U.S.



## INTRODUCTION

In 2016, the U.S. National Park Service (NPS) celebrates its 100<sup>th</sup> anniversary as a formal land managing agency. With the Organic Act of 1916, the mission of the NPS balanced managing and preserving lands for the enjoyment of the public and protection of the resources. As the NPS moves into its 2<sup>nd</sup> century of management in 2016, challenges have emerged as to the functions and perception of the agency in the modern age. In particular, the National Park Service Advisory Board Science Committee's *Revisiting Leopold* (2012) highlighted the direction of the agency as well as concerns to be taken into consideration in preparation for a new generation of management. These concerns are discussed as such:

“Cultural and socioeconomic changes confronting the NPS are difficult to overstate. These include an increasingly diversified, urbanized, and aging population, a transforming US economy, and constrained public funding for parks...The cultural values and interests held by the American people have greatly broadened, generating pressing demands for diversity in the NPS and for relevancy of the NPS to new generations of citizens (*Revisiting Leopold*, 2012, p. 5).”

The above concerns are large in scale and potentially daunting for park managers. Adapting to societal changes and constraints on resources to monitor and implement new experiences may hinder progress and the ability to maintain typical standards. In 2013, the National Park Service saw an agency-wide 5 percent budget reduction from Congressional allocation. However, this figure was slightly raised by a presidential request in 2015 to prepare for the 2016 Centennial event (NPS, 2015). Despite this slight raise, the NPS remains modestly funded while continuing to deal with a growing backlog in maintenance and staffing deficits. Furthermore, it is unknown whether this slight increase in budget allocation will continue into the future. Park funding may prove to be a critical issue for both providing exceptional visitor experiences and protection of the resources into the 2<sup>nd</sup> century of NPS management. One

potential method in which to supplement funding concerns while advocating for increased budget allocations is through support by the general public for parks.

In addition to these cited concerns, *Revisiting Leopold* (2012) brought forward a call to provide “transformative visitor experiences” to park visitors. These experiences are “based on interaction with natural and cultural resources (p. 13)” and “should educate and inspire (p. 13).” As of now, there is little research to define what constitutes a transformative visitor experience or how to measure whether visitors receive such an experience. Ewert, Overholt, Voight, and Wang (2011) explored the transformative aspects of wilderness and protected land experiences and stated that “transformative experiences are often accompanied by feelings of freedom, sense of harmony or union with some higher power, absorption in the moment, or a sense of overcoming limits or barriers associated with an individual’s life (p. 140).” Essentially these experiences are powerful, emotional, and subjective to the individual. Exploring methods in order to identify measurement of the importance and potential impact the visitor experience has on a person’s life may allow for managers to provide these experiences.

In a more holistic sense, the researchers identified the notion that providing these types of experiences may lead to support from the general public for parks. A rigorous literature review further identified potential theoretical and conceptual antecedents for the behaviors considered to be supportive for parks including Manning (2012), Lee (2011), and Ramkissoon, Smith, and Weiler (2013). Place attachment quickly emerged as being predictive of constructs similar to park support, in particular pro-environmental behavior and conservation commitment. Lee (2011) and Ramkissoon et al. (2013) found that place attachment had a significant effect on pro-environmental behavior at two natural sites. In addition, a deep examination of original space and place literature in humanistic geography found that personal experience may be highly

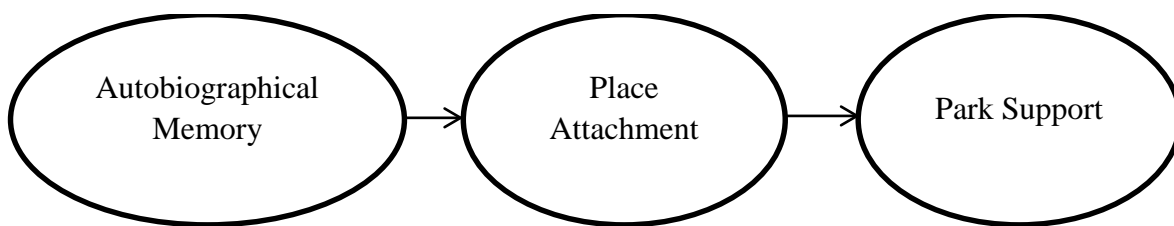
predictive of the place attachment formation (Tuan, 1975). Thus, exploring whether visitors receive exceptional experiences, or transformative, while at a national park may be the most appropriate way to measure place attachment and park support. Place attachment then serves as a moderator between the experience and support. If a visitor experiences a transformative experience, it is assumed that they would have some form of emotional connection to the place. Thus, place attachment was deemed as a vital piece to test as an antecedent for support. However, the next step was identifying how to measure transformative visitor experiences.

During this time, Pearce and Packer (2013) called upon tourism research to adopt innovative psychological concepts to study multiple aspects of the tourism experience, including autobiographical memory which has not been widely used in tourism or outdoor recreation research. Autobiographical memory is personal, emotional recollections of past experience or events in a person's life (Fivush, 2011). Through quantitative scales, the importance of individual's memories of past events can be measured, which can be identified as "self-defining moments" if the memory is strong enough to affect perspective and behavior. Therefore, autobiographical memory appears to be an innovative way to quantitatively measure direct personal experiences at a place, which is necessary for the formation of place. Thus, the conceptual model for this study emerged as exceptional experiences studied through autobiographical memory leads to place attachment which in turn predicts park support (Figure 1).

One large-scale iconic national park, Yellowstone, identified the need to address many of the issues described in *Revisiting Leopold* (2012). More specifically, park staff saw a need to explore additional non-traditional methods for building a base of public support into the future. The purpose of this study was two-fold: 1) to explore visitor support to Yellowstone National

Park, 2) to test the relationship between autobiographical memory, place attachment, and park support. A combination of philanthropy and behavioral intentions, park support is defined as “direct and indirect actions taken by people that assist in the preservation and livelihood of the ecological and social functions of national parks” (Jorgenson and Nickerson, 2014). Therefore, behaviors that fit this definition were developed and were used to identify visitors’ level of participation in those behaviors. Furthermore, this study aimed to identify how park managers, and destination managers outside of the NPS, could measure the importance of their visitor experience using autobiographical memory. Conceptually, measuring autobiographical memory as a proxy towards transformative visitor experiences is hypothesized to predict place attachment which moderates the relationship to park support. This was found to be the case in Jorgenson et al. (2016b) as autobiographical memory salience was found to be significantly related to place identity and place dependence among nature-based tourists.

**Figure 7: Conceptual Model of Park Support**



## **LITERATURE REVIEW**

### **Autobiographical memory**

Pearce and Packer’s (2013) call to researchers to include psychological concepts and theories into tourism research brought to light the potential for autobiographical memory’s use in the discipline. However within psychology, autobiographical memory has a significant amount

of prior research. Autobiographical memory is personal, emotional recollections of past experiences or events and can be evaluated amongst one another (Conway and Plyedell-Pearce, 2000; Fivush, 2011). Conway and Plyedell-Pearce (2000) state that “autobiographical memory is of fundamental significance for the self, for emotions, and for the experience of personhood, that is, for the experience of enduring as an individual, in a culture, over time (p. 261).” Essentially, autobiographical memory is a critical element for our own sense of self and has been identified as key for exploring our perception of experiences. Autobiographical memory is further defined by Nelson and Fivush (2004) as “declarative, explicit memory for specific points in the past, recalled from the unique perspective of the self in relation to others (p.488).” Autobiographical memory differs from other forms of memory (i.e. implicit memory that is focused on subconscious recollections) through the notion of the “self” being in the moment and remembering specific details about past experiences with unique valences. The notion of the “self” being in the moment is defined as “autonoetic consciousness” (Tulving, 1972).

Autobiographical memory is a sub-dimension of episodic memory within the overarching concept of long-term memory. It follows a line of delineations from long-term memory which includes explicit memory, episodic memory, then autobiographical memory (Tulving, 1972; 2002). Episodic memory, which precedes autobiographical memory in specificity, is defined as “a recently evolved, late-developing, and early-deteriorating past-oriented memory system, more vulnerable than other memory systems to neuronal dysfunction, and probably unique to humans (Tulving, 2002, p.5).” Most other forms of memory do not associate with past experiences whereas episodic memory is an outlier in the world of memory (Nelson and Fivush, 2004). Autobiographical memory narrows even more than simply remembering past experiences, but includes personal meaning and specific details surrounding the recollection of the event.

Conway and Rubin (1993) separate autobiographical memory from other forms of memory through the following statement: “Autobiographical memory is memory for the events of one’s life. It constitutes a major crossroads in human cognition where considerations relating to the self, emotion, goals, and personal meanings all intersect (p. 103).” In an essence, autobiographical memory is a very personal form of memory that relies on the individual to be consciously in the moment of the experience. Furthermore, autobiographical memory extends past the notion of remembering past events, but also serving emotional and social functions that are not present within episodic memory (Fivush, 2011). Even more, specific recollections of events or experiences can potentially be vital to an individual’s life history and being in the world. These types of experiences may guide the way person thinks or their behaviors over time. Such a memory is said to be “self-defining” autobiographical memories (Fivush, Habermas, Waters, and Zaman, 2011). Fivush et al. (2011) define this self-defining quality as “typically unique, onetime events, which become personally significant and integral to individuals’ understanding of who they are (p. 333).” Due to these experiences being extremely important to the development of an individual, larger ramifications may lead from such an experience.

Many researchers in the memory field originally were concerned with *what*, *where*, and *how* experiences were remembered by the individual. Primarily through qualitative inquiry, scholars were able to explore the types of experiences and how strong of a recollection people remembered upon a number of scenarios. With a shift in both methodology and conceptualization, autobiographical memory has been found to serve three primary functions: directive, self, and social (Bluck, 2003). These functions guide behavior (directive), provide a continuity of the “self” (self), and create bonds between individuals through storytelling and recollection (social). Bluck et al. (2005) progressed the field further by exploring why people

remember certain experiences through quantitative means and specifically focusing on identifying various functions of autobiographical memory. Using the Telling About Life Experiences (TALE) questionnaire, the researchers sought out to identify the presence of the three primary functions of autobiographical memory in quantitative data. Previous research had difficulties in fully identifying the “directive” function of autobiographical memory within real data. This was not the case in Bluck et al. (2005) as they accurately identified the directive function within quantitative data, further solidifying prior identification of the primary functions of autobiographical memory. Since then, it has been said that there needs to be an increased objective to fully explore the directive function within studies.

Most recently, Fitzgerald and Broadbridge (2013) measured autobiographical memory through four primary components using the “Autobiographical Memory Questionnaire.” The four latent constructs used to measure autobiographical memory were: impact, rehearsal, belief, and recollection. The authors stated that “many researchers employ single-item scales of subjective experiences such as imagery and confidence to assess autobiographical memory (p. 230)”, thus, their aim was to utilize multiple constructs to measure the concept. Results indicated four latent constructs may be used to measure autobiographical memory. With that said, this structure was not found to be the same within a tourism and outdoor recreation context. Jorgenson et al. (2016a) used an adapted version of the Autobiographical Memory Questionnaire from Fitzgerald and Broadbridge (2013). Utilizing variables from the impact and rehearsal constructs, Jorgenson et al. (2016a) identified only one primary latent construct in light of the originally found two-construct model. Within a new context in a field setting instead of a laboratory, Jorgenson et al. (2016a) found the two-construct model to be inappropriate and poorly fitting. Thus, a single-factor scale of “autobiographical memory salience” was identified

as measuring the strength and frequency of rehearsal for travelers' memories. Furthermore, Jorgenson et al. (2016b) identified a direct, positive relationship between autobiographical memory and place attachment. The following section outlines the theoretical conceptualization of place attachment and its potential relationship with park support and behavioral intentions.

### **Place attachment**

Place attachment is defined by Hidalgo and Hernandez (2001, p. 274) as “an affective bond or link between people and specific places.” Rising out of humanistic geography’s focus on space and place, researchers identified that people can become emotionally connected with specific places. Research on place attachment is not a new phenomenon. It has been used in a variety of fields such as outdoor recreation, tourism, and environmental behavior to name a few (Jorgensen and Stedman, 2001; Stedman, 2006; Williams and Vaske, 2003). Preceding place attachment, the concept of “place” revolves around specific locations that are imbued with meaning formulated through social interactions (Agnew, 2011; Cresswell, 2004). These areas hold meanings but only when people give the place meaning. Scholars in the geography field paved the way for exploring place attachment by identifying three primary constructs that make up place: location, locale, and sense of place (Agnew, 2011). Out of these conceptualizations, sense of place became the most dominant construct with uses outside of geography as it relates to people and society. More specifically, sense of place relates to the relationships people have with specific places in an affective sense (Williams, 2008).

While sense of place is the original construct of place, place attachment resembles a similar concept. The difference between place attachment and sense of place is primarily through the way we conceptualize place as stated by Williams (2008). Place attachment is conducted



with place being viewed as an “attitude object” whereas sense of place can be viewed though place as “relationships and meaning”. Therefore, the approach to take towards measuring the emotional connection relies on the researcher’s way in which they consider the most appropriate. Place attachment can be seen as measuring the intensity of the bond between the person and the place, but this may miss the meanings and affective components of the connection. On the other hand, sense of place may not measure the strength of the connection, but rather the meanings behind the connection. Place attachment in this study has been chosen since the intensity of the connection is the primary focus. It is hypothesized that the strength of this connection will predict their support behavior.

Lewicka (2011) provided a comprehensive review on the differing frameworks and measurement of place attachment throughout the past 40 years. Throughout this holistic review of place attachment, Lewicka (2011) outlined many predictors and consequences of place attachment. As they note “in most studies place attachment is assumed to be a good thing, and some evidence supports this claim (p. 218).” In this sense, place attachment has been found to have significant relationships with many positive outcomes. Place attachment’s positive consequences in a community setting include social bonding, higher satisfaction in life, local social capital, among others (Lewicka, 2011). In tourism and recreation, place attachment has been shown to lead to higher levels of pro-environmental behavior (Lee, 2011; Vaske and Kobrin, 2001), conservation commitment (Kato, 2006; Lee, 2011), and support for management actions at natural sites (Warzecha and Lime, 2001). Warzecha and Lime (2001) surveyed recreationists on the Colorado and Green Rivers within Canyonlands National Park on their level of place attachment, the way they identify themselves with natural settings, and what these results mean for managers. The authors found that visitors with higher levels of place attachment

sought different experiences than those who were less place attached, more specifically they typically preferred seeing less people on the river. Furthermore, visitors who were place attached were more likely to support management actions that limited the amount of people on the river. In another study, Kyle, Absher, and Graefe (2003) explored place attachment, attitudes towards paying fees, and preferences for how fee revenue was spent of recreationists in a national scenic area. The researchers hypothesized that higher levels of place-attached visitors would lead to a stronger relationship between attitudes for the fee program and support for spending specifically on environmental protection, education (for place identity), and facility development (for place dependence). Results indicated that only “place identity” (a sub-dimension of place attachment explained below) had an effect on the attitudes towards the fee program, specifically on supporting environmental protection and environmental education.

Within place attachment literature, scholars have identified a number of sub-dimensions that help characterize and define forms of attachment people can have for a place. Place identity and place dependence are two of the most common sub-dimensions used in outdoor recreation and tourism literature. In fact, “many scholars argue that place attachment consists of [these] two components (Lee, 2011, p. 898).” Place identity is defined as “dimensions of the self that define the individual’s personal identity in relation to the physical environment by means of a complex pattern of conscious and unconscious ideas, beliefs, preferences, feelings, values, goals, and behavioral tendencies and skills relevant to this environment (Proshansky, 1978, p. 155).” This form of attachment is more of an emotional or symbolism people have with a place. Place dependence is conceptualized as the functional attachment people have for a place. Williams and Vakse (2003, p. 831) state that “place dependence reflects the importance of a place in providing features and conditions that support specific goals or desired activities.” Place dependence is

thought more of a functional attachment as it provides a place for a specific type of experience for the individual. Some examples of this form of attachment may be a hiker who relies on a specific trail to get a certain experience. Therefore with place dependence and place identity, two specific forms of attachment are defined and can be combined to form place attachment.

Halpenny (2010, p. 410) notes, “Extensive interaction with a place due to place dependence may lead to place identity.” Researchers have argued that there are other sub-dimensions that are a part of place attachment and that place identity/dependence are only two forms. Some other sub-dimensions and conceptualizations include single-factor place attachment models (Stedman, 2006), place affect (Halpenny, 2010), and social ties and meanings (Bricker and Kerstetter, 2000).

The choice for which constructs to measure place attachment by varies by discipline. Williams and Vaske’s (2003) comprehensive analysis of measuring place attachment using place identity and place dependence provided validation for an eight-item scale to parsimoniously measure the concept. Furthermore, place identity and place dependence are two of the most commonly accepted constructs to use to measure place attachment. Adopting only two constructs to measure place attachment may lead to a loss in capturing relevant information. The additional constructs that have been presented above may provide more information as to the types of ways people can become attached to places. With that said, there is still no consensus as to which other constructs are consistently valid besides identity and dependence. In contrast, Williams and Vaske’s (2003) scale is parsimonious and contains two valid constructs to measure place attachment and has been used in a variety of contexts with some contextual adjustments (Kouthouris and Meligids, 2006; Kyle et al., 2003; Kyle, Graefe, Manning, and Bacon, 2004). The previous studies have utilized Williams and Vaske’s (2003) scale and found similar results.

Furthermore, Williams and Vaske's (2003) place attachment scale is one of the most cited works for place attachment measurement in an outdoor recreation context. Therefore, there is proven validity for using this 8-item scale. For this study, the researchers concluded that parsimony and consistency were more important than potentially losing information due to lack of additional observed variables. However, it is noted that the relationship could be tested with additional constructs in future studies.

### **Park Support, Pro-environmental Behavior, and Conservation Commitment**

Because the purpose of this study aimed to measure visitor support for a national park, a rigorous examination of previous research was undertaken and no other similar studies were found. Comparable concepts were found that share similarities with park support including pro-environmental behavior, conservation commitment, and philanthropy. Pro-environmental behavior and conservation commitment share some of the core components with the authors' definition of park support and have been found to be significantly influenced by place attachment (Lee, 2011). A number of studies in the outdoor recreation and tourism field have examined pro-environmental behaviors of park visitors, tourists, recreationists, or during daily life (Halpenny, 2010; Lee, 2011; Ramkissoon et al., 2013; Vaske and Korbin, 2001). Pro-environmental behaviors are defined as "an action by an individual or group that promotes or results in the sustainable use of natural resources (Halpenny, 2010, p. 410)." These behaviors have been shown to be influenced by place attachment in a positive way. Thus, people who are highly attached to a place will partake in actions that help sustain natural resources, specifically among those who are visiting natural areas.

Research on pro-environmental behavior has seen a rise in interests among researchers since sustainable tourism initiatives have gained steam (Lee, 2011). In order to protect natural

areas for future generations, individuals and groups are encouraged to participate in actions that will sustain the destination's resources; many of which are necessary to provide the experience for those who are dependent on that specific place. Vaske and Kobrin (2003) defined pro-environmental behavior through four overarching actions of 1) learning how to solve environmental problems, 2) talking with others about environmental issues, 3) talking with parents about environmental issues, and 4) trying to convince friends to act responsibly. Furthermore, they included three more detailed actions that people can participate in including 1) joining community cleanup efforts, 2) sorting recyclable materials out of the trash, and 3) conserving water by turning off the tap while washing dishes. These actions all are done within the home setting. In a study revolving around tourists and their pro-environmental behaviors, Lee (2011) utilized a variety of constructs to assess pro-environmental behavior among travelers including: 1) civic action, 2) education, 3) recycling, 4) persuasive action, and 5) green consumerism. As shown there are a multitude of differing constructs which can be used to measure pro-environmental behavior. However, all of these actions relate to primarily natural resource conservation issues and neglect economic or intangibles.

Conservation commitment, another similar construct to support and significantly related to place attachment (Lee, 2011), is noted as being "widely applied in studies of consumer psychology and is a key variable for understanding the maintenance of successful, long-term oriented relationships (Lee, 2011, p. 897)." Conservation commitment exists in people who are willing to "support environmental conservation in a given period (Lee, 2011, p. 897)." Few studies have utilized commitment in an ecological manner to assess whether people will give a promise to support natural areas (Ballantyne, Packer, and Hughes, 2008, 2009; Lee, 2011). Furthermore, conservation commitment only requires a promise from an individual to be made in

order to be considered “committed”. Ballantyne et al. (2008) used actions related to conservation to assess the level of commitment for individuals. Lee (2011) found that both place attachment and pro-environmental behaviors have a positive effect on conservation commitment to visitors to a wetland area. Therefore, there is precedent set that place attachment may lead to a promise to ensure that natural places are kept intact and sustained for years to come, but natural resource-oriented actions may not cover all of the possibilities for supporting a national park.

Conservation commitment does shed light onto the possibilities for developing park support, however.

Pro-environmental behaviors and conservation commitment do not represent the vision of the definition of park support. Both constructs shed light on intentions and behaviors that could benefit national parks, but pro-environmental behaviors only address natural resource issues while conservation commitment only represents an intention or promise to conserve an area. With the multitude of issues the National Park Service is facing noted within *Revisiting Leopold* (2012), monetary contribution and actual behaviors were sought to understand the type of actions visitors currently are undertaking. Philanthropy represented another crucial piece to investigate in conjunction with pro-environmental behavior and conservation commitment. Therefore, philanthropy literature was called upon to gauge why people *give* to causes, people, and places.

Philanthropy is generally defined as promoting the well-being of others through giving, typically by donating money. Within the philanthropy realm, two types of primary giving have been identified: altruistic and “warm glow giving” (Andreoni, 1990). Altruistic giving relates to the decision to contribute out of the goodness of helping others or supporting a cause because of its goals. Pure altruism was considered the dominant reason why people give to causes or participate in philanthropy until Andreoni (1990) found strong evidence that “warm glow” giving

is the primary driver for people to give to causes. This form of giving is also called impure altruism and it states that people give because they want to feel good about themselves. People want to feel the “warm glow” they receive due to being a charitable person. While it is not the only reason for giving, it has been noted as being extremely important.

Bekkers and Wiepking (2011) identified eight primary mechanisms that contribute to an individual choosing to participate in philanthropic activities. These mechanisms include 1) awareness of need, 2) solicitation, 3) costs and benefits, 4) altruism, 5) reputation, 6) psychological benefits, 7) values, and 8) efficacy. Similar to Andreoni (1990), Bekkers and Wiepking (2011) found through their comprehensive review that psychological benefits (“warm glow giving”) is the dominant reason why people choose to give to causes and has the largest effect on giving intentions. However, mechanisms such as values and reputation tend to have similar effects depending on the individual and the cause that is asking for charitable donations. Most individuals have multiple mechanisms driving their decision whether or not to donate, but psychological benefits generally rise up as important for many people.

In conjunction within the study context, autobiographical memory has been shown to have a significant effect on philanthropic behaviors and intentions (Kuwabara and Pillemer, 2010).” Kuwabara and Pillemer (2010) investigated the effect of eliciting memories on the donation intentions of past university alumni. The authors state, “Although decision-making processes are informed by attitudes and knowledge grounded in an accumulation of prior experiences, vivid memories of specific personal episodes may also prove to be influential (p. 365). This study specifically tested “whether the activation of a specific memory can influence present behavior and future intentions over and above the expected effects of general attitudes (p. 367).” The researchers used three experimental groups to test the hypotheses: positive memory,

negative memory, and no-memory control groups. The positive memory group was asked to recall a positive experience they had while attending the university, the negative group was asked about a negative memory, and the control group was not asked to recall any memories. Results indicated that both the positive memory group had a significantly higher likelihood to donate than the negative and no-memory groupings. However, negative memory respondents still had a higher likelihood to give than those with no recalled memories. The researchers conclude that “our findings indicate that prompting participants to recall emotional autobiographical memories influences their future intentions and current behaviors, and that these effects are evident after controlling for general attitudes (p. 372).” Therefore, this gives credence to the notion that autobiographical memory may have a direct effect on behavioral intentions or actual behaviors revolving around charitable behavior.

A combination of results and discussion from Kuwabara and Pillemer (2010), Lee (2011), Ramkisoorn et al. (2013), Jorgenson et al. (2016), and others lead to the development of a conceptual framework to explore park support. The above studies indicate that autobiographical memory has a potential relationship with place attachment and current behaviors related to philanthropy and charitable giving. Place attachment has had a significant relationship with pro-environmental behaviors and conservation commitment. Thus, autobiographical memory and place attachment is hypothesized to have a significant, direct relationship with our defined concept of park support. The detailed hypotheses are presented in the below section.



**Research questions:**

The purpose of this study was to test the relationships between autobiographical memory, place attachment, and park support. The sample population for this study was visitors to Yellowstone National Park. Furthermore, two sub-samples were created once data was collected. Structural equation modeling is used to test the relationships between these concepts. Hypotheses are presented below.

**Hypotheses:**

**H1:** Autobiographical memory has a direct, positive relationship with place identity.

**H2:** Autobiographical memory has a direct, positive relationship with place dependence.

**H3:** Autobiographical memory has a direct, positive relationship with direct support.

**H4:** Autobiographical memory has a direct, positive relationship with indirect support.

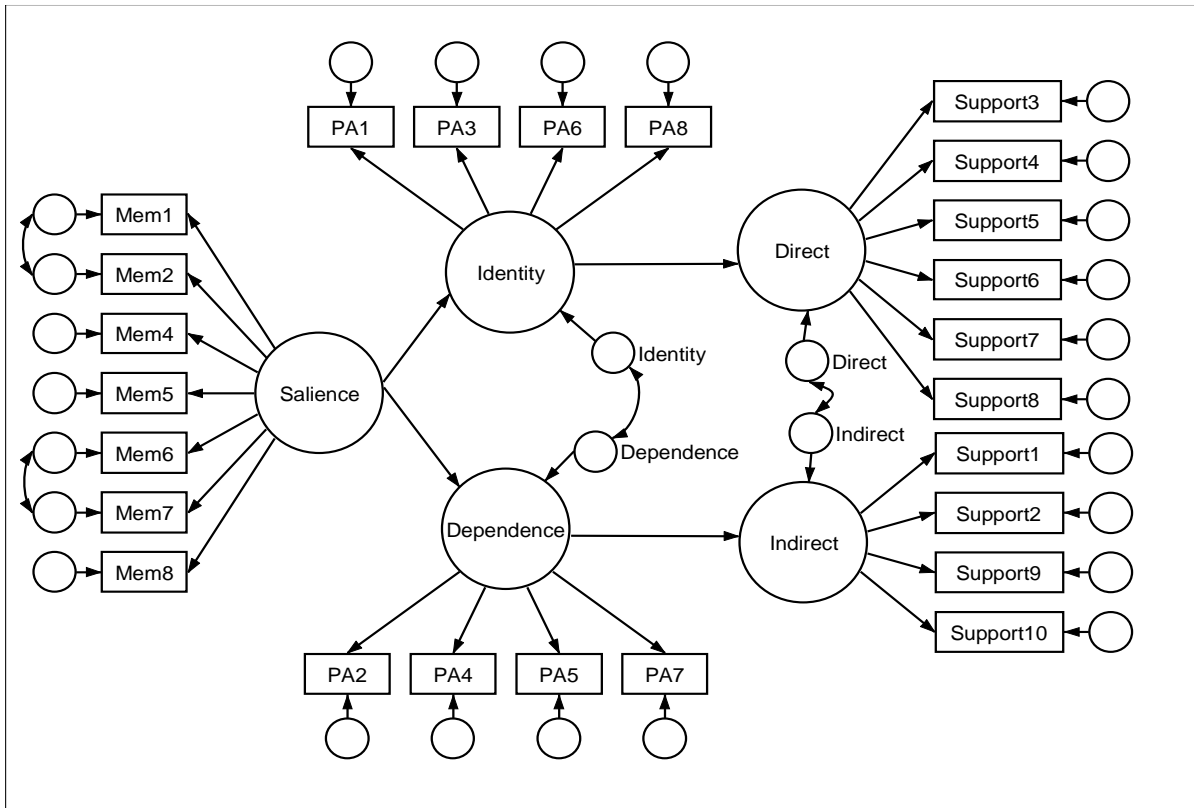
**H5:** Place identity has a direct, positive relationship with direct support.

**H6:** Place identity has a direct, positive relationship with indirect support.

**H7:** Place dependence has a direct, positive relationship with direct support.

**H8:** Place dependence has a direct, positive relationship with indirect support.

**Figure 8: Structural Equation Model of Park Support**



## METHODS

### Study Site and Design

The concerns stated in *Revisiting Leopold* (2012) exist on a national scale across the NPS; however, testing the conceptual framework of memory, place attachment, and park support is needed at an individual site prior to a larger scale study. Yellowstone National Park represents an iconic top tier park in terms of visitation with staff who shared similar interests to the research objective. Therefore, the study site and sample population were summer visitors to Yellowstone National Park. Visitors were sampled on both weekends and weekdays throughout the summer season (May through September). Researchers surveyed visitors as they were exiting the park at one of the five gates (North, East, South, West, and Northwest) using both an on-site and mail-

back survey methodological approach. Researchers flagged vehicles to a road pullout to participate in the on-site survey in order to capture all types of visitors within the park.

For 30 sampling days, visitors were asked an on-site questionnaire (10 questions) about their current trip to Yellowstone National Park. Mail-back surveys were given out to willing visitors upon completion of the on-site questionnaire. The mail-back questionnaire contained all questions about autobiographical memory, place attachment, and park support. A postage paid envelope was included with each mail-back survey to be returned to the researchers. In total, 2,373 visitors were asked to participate in the on-site study, which then included asking them to participate in the mail-back portion. Of all visitors initially intercepted, 2,216 visitors completed the on-site study and were given a mail-back questionnaire. This equates to a response rate of 93 percent for the on-site study. In total, 802 mail-back surveys were returned to the researchers for a response rate of 36 percent. A mail-back response rate above 30 percent is deemed acceptable for studies using a similar methodology (Látková and Vogt, 2012). Due to limitations in time and barriers to collecting private information, the researchers did not use follow-up notifications to increase the mail-back response rate.

Non-response bias questions were included on the on-site and mail-back survey to account for this limitation. Four questions were used to test for non-response bias, but only one showed a significant difference between the on-site and mail-back survey. More respondents on the mail-back survey stated that they were a part of the Yellowstone Association than those who answered the on-site survey. The Yellowstone Association is a supporting organization of the park and membership is seen as inherently becoming a supporter of the park. Data was weighted for those who selected that they were members of the Yellowstone Association, but not for any

other respondent. Yellowstone Association respondents received a weight of .35 to account for this bias.

### **Scale Development**

For place attachment and autobiographical memory, prior literature was consulted to find the most applicable scales to measure the concepts. Williams and Vaske's (2003) study tested place attachment using two dimensions: place identity and place dependence. Stedman (2006) uses a 7-item scale with one dimension to measure place attachment. Ramkissoon et al. (2013) utilized a four-dimension scale that included place dependence, place identity, place affect, and place social bonding. This study adopted Williams and Vaske's (2003) scale which utilizes place identity and place dependence through eight observed variables. This choice was done to keep the survey instrument as parsimonious as possible and to utilize a rigorously tested measure of the primary dimensions of place attachment. Thus, place attachment is measured using the following variables. Place identity is measured on a scale of 1 = "strongly disagree" to 5 = "strongly agree" with the variables being: 1) "Yellowstone National Park means a lot to me", 2) "I identify strongly with Yellowstone National Park", 3) "I have a special connection with Yellowstone National Park", and 4) "I am very attached to Yellowstone National Park." Place dependence contains the variables: 1) "I get more satisfaction out of visiting Yellowstone National Park than any other place.", 2) "I am not able to substitute other places for the type of experience I get in Yellowstone National Park.", 3) "I enjoy visiting Yellowstone more than any other place.", and 4) "Visiting Yellowstone National Park is more important than visiting any other place."

Autobiographical memory has generally been measured through qualitative means until the past decade (Bluck et al., 2005). A sparse number of scales exist, but many of them are more

focused on measuring what is remembered, not the importance of the memory itself. However, Fitzgerald and Broadbridge (2013) and Jorgenson et al. (2016) both utilized a scale that measures the affect specific memories have on an individual. Jorgenson et al. (2016) adapted Fitzgerald and Broadbridge's (2013) original article to measure "autobiographical memory salience" with 7-items that describe how meaningful a specific memory of a touristic experience is to an individual. Thus, this study adopted Jorgenson et al.'s (2016) 7-item scale of autobiographical memory salience to measure the autobiographical memory of the Yellowstone visitor experience. This scale contains the following variables: 1) "Since it happened, I have talked about the event...", 2) "Since it happened, I have thought about the event...", 3) "As I remember the event, I can feel the emotions I felt then.", 4) "As I remember the event, it comes to me in words or in pictures as a coherent story or episode and not as an isolated fact, observation, or scene.", 5) "This memory is significant in my life because it imparts an important message for me or represents an anchor, critical juncture, or turning point.", 6) "This memory has consequences for my life because it influenced my behavior, thoughts, or feelings in noticeable ways.", and 7) "As I recall them now, I would rate the emotions I experienced during the event as..." These items were rated on a 7-point Likert scale with varying value labels between certain variables.

Finally, park support was measured through a newly developed scale specifically designed for Yellowstone National Park as there were no other studies measuring the concept. Through the literature review provided above, concepts of pro-environmental behavior, conservation commitment, and philanthropy were called upon to construct the variables needed for the dimension. In addition to the integration of these similar concepts, researchers consulted with park staff and outside experts to determine the behaviors that could be considered supportive for the park, within reason for an individual to participate in. The concept was

deemed to be focused around specific actions that Yellowstone National Park visitors can partake in to support the park both directly and indirectly. These included monetary behaviors such as donations and memberships to supporting organizations, spending time and money within the park's accommodations, as well as non-monetary options such as sharing stories of Yellowstone experiences with others and bringing visitors who had never been to the park before. Because of specific constraints, political voting could not be included on the survey instrument, but should be taken into consideration in the future as it may be a legitimate support behavior.

The variables were constructed on direct and indirect support behaviors that visitors currently participate in. Direct support behavior variables include: 1) "Became a member/renewed membership with the Yellowstone Association", 2) "Volunteered your time with Yellowstone National Park", 3) "Spent nights lodging inside Yellowstone National Park", 4) "Spent nights camping inside Yellowstone National Park", and 5) "Contributed to the Yellowstone Park Foundation". Indirect support variables include: 1) "Shared (Talked about) your experiences in Yellowstone National Park with others", 2) "Brought new visitors to Yellowstone National Park", 3) "Visited Yellowstone National Park's Facebook page", 4) "Spent nights in gateway communities around Yellowstone National Park", and 5) "Contributed to other conservation organizations." While these behaviors appear to fit on their hypothesized constructs, a Principle Component Analysis was conducted in order to validate each component. These results are presented in the section below along with the full structural equation model.

## **RESULTS**

### **Demographics and trip characteristics**

A limited amount of demographic information was collected on respondents. Inclusion of these results develops context around the type of travelers that frequent the park during the summer season. Respondents varied in the number of prior trips to the park with 36.5 percent of visitors currently on their first visit at the time of contact. Sixty-three percent of visitors had been to the park at least one time prior to their current trip. Within the repeat visitor group, 14 percent of visitors had at least 20 prior visits to the park, which is considered to be a cutoff for the upper echelon for previous visits. First-time visitors have an average age of 51 years old, with 62 percent of respondents being female. Repeat visitors had a slightly higher average age of 57 years old with an equal 50 percent split of male and female respondents. One of the more telling results is the U.S. residency difference between first-time and repeat visitors. Seventy six percent of first-time visitors were residents of the United States whereas 92 percent of repeat visitors were residents.

Visitors participated in a number of activities while in Yellowstone, but five primary activities rose to the top of the responses. Visitors were asked to state what primary activity they participate in when visiting Yellowstone National Park. Scenic driving (31.8%) was the most popular activity followed by viewing geysers and geothermal areas (17.7%). Various forms of wildlife watching (13.6%), hiking (12.1%), and nature photography (9.5%) round out the top five activities that Yellowstone National Park respondents participated in while in the park. Furthermore, respondents were asked about their involvement in the two supporting organizations for the park: Yellowstone Association and Yellowstone Park Foundation. Nine percent of respondents were currently a member of the Yellowstone Association, a supporting

organization revolving around education. Seven percent of respondents had contributed monetarily to the Yellowstone Park Foundation, the fundraising arm of the park.

### **PCA of Park Support**

An Exploratory Principle Components Analysis was conducted on the variables to determine if the hypothesized sub-dimensions accurately fit for park support. All ten variables were placed into the PCA and eigenvalues above 1.0 were considered for possible dimensionality. Results indicated three components had an eigenvalue above 1.0 (Component 1 = 3.322, Component 2 = 1.293, and Component 3 = 1.021). Using a Varimax rotation, component one contained six variables above a .40 factor loading (Table 1). The variables in component one appear to represent “direct support”. Thus, direct support is deemed to contain six total variables compared to the original five that were proposed. Component one explains 33.22% of the total variance within the data. Component two contains three variables above a factor loading of .40 (Table 1). Similarly, the three variables appear to be related to indirect park support and explain 12.94% of the data. Finally, the third and last component with an eigenvalue above 1.0 contains only one variable “Spent nights camping in Yellowstone National Park (Factor loading .791).” This variable has a very low factor loading on both additional components and, thus, was determined to be eliminated from the analysis. Therefore, the park support construct ends with nine total observed variables that fit into two dimensions.



**Table 5: PCA Results of Park Support**

<b>Support Variables</b>	<b>Component 1</b>	<b>Component 2</b>	<b>Component 3</b>
Became a member/renewed membership of the Yellowstone Association.	<b>0.787</b>	0.146	0.009
Visited Yellowstone National Park's Facebook page.	<b>0.616</b>	0.178	-0.147
Volunteered your time with Yellowstone National Park.	<b>0.781</b>	0.014	0.164
Spent nights in lodging inside Yellowstone National Park.	<b>0.48</b>	0.09	0.278
Contributed to other conservation organizations.	<b>0.475</b>	0.302	0.039
Contributed to the Yellowstone Park Foundation.	<b>0.803</b>	0.025	0.124
Shared (talked about) your experiences in Yellowstone National Park with others.	0.016	<b>0.789</b>	0.069
Brought new visitors to Yellowstone National Park.	0.197	<b>0.704</b>	0.261
Spent nights in the gateway communities around Yellowstone National Park.	0.245	<b>0.594</b>	-0.513
Spent nights camping in Yellowstone National Park.	0.207	0.239	<b>0.791</b>

\*Varimax rotation used to extract factor loadings. Eigenvalues above 1.0 were considered.

In addition to the PCA of the support variables, Alpha reliabilities were conducted for both components. For the direct support component, results indicate a reliability of  $\alpha = .739$ , which is above the acceptable level for inclusion. For the indirect support component, results indicate a reliability of  $\alpha = .523$  which is a poor reliability. A commonly hold threshold for Alpha reliability is .70, but this is based on the variance within the data. All park support variables appear to have a high degree of variation as there is a large varying degree of park support. This high level of variation along with the fact that this construct has not been tested previously may lead to lower reliability. Since this is a new scale there still needs to be more data collected to ensure its consistency. Alpha reliability is not the only form of validity, but it does lead to further questions about whether indirect support should be included in the analysis. For

this analysis, indirect support is still included in the analysis as the observed variables themselves are important and deemed to still be a form of support.

### **Structural Equation Model Results**

Table 2 displays the structural relationships between autobiographical memory salience, place attachment (identity and dependence), and park support (direct and indirect). Using SEM, a moderating model was built and tested using Stata version 13.1 software. The following are the results of the individual hypotheses that were tested within this structural equation model.

**H1:** Autobiographical memory has a direct, positive relationship with place identity.

Hypothesis one tested the relationship between autobiographical memory salience and place identity. Model results indicate a positive and significant coefficient from memory salience to place identity ( $\beta=.6151$ ,  $p < .001$ ). Results are very significant and the relationship represents the strongest within the model. Thus, we have enough evidence to state that hypothesis one is supported in the data.

**H2:** Autobiographical memory has a direct, positive relationship with place dependence.

Hypothesis two tested the relationship between autobiographical memory salience and place dependence. Similar to place identity, the relationship between autobiographical memory salience and place dependence is significant at the  $p < .001$  level with a coefficient of .5225. While this relationship is lower than with place identity, the relationship is still very significant. Through the results of the model, we have enough evidence to support hypothesis two.

**H3:** Autobiographical memory has a direct, positive relationship with direct support.

Hypothesis three tested the direct relationship between autobiographical memory salience and direct support. This relationship was tested in an effort to understand whether there was a direct relationship between memory and support without place attachment's moderating role. Results indicate the relationship is insignificant ( $p = .306$ ) with a very small coefficient of .0648. Thus, there is no evidence to support hypothesis three and there is not a direct relationship between memory salience and direct park support. However, autobiographical memory salience does have a significant, indirect effect with direct support. This relationship is moderated through place attachment as the effect size significantly increases. Therefore while there is not a direct effect, there is indeed a significant moderated indirect effect.

**H4:** Autobiographical memory has a direct, positive relationship with indirect support.

Hypothesis four tested the direct relationship between autobiographical memory salience and indirect support. Results indicate a coefficient of .2855 with a  $p$ -value  $< .001$ . While the relationship between memory and direct support was insignificant, this is not the case with indirect support. There is a significant, direct relationship between autobiographical memory salience and indirect support. Thus, hypothesis four is supported through the SEM. Furthermore, autobiographical memory salience has a higher significant indirect effect once moderated through place attachment. This gives further evidence that autobiographical memory is a significant antecedent for indirect support.

**H5:** Place identity has a direct, positive relationship with direct support.

Hypothesis five tested the relationship between place identity and direct support. Model results found an insignificant relationship ( $p=.086$ ) and a coefficient of .1802. While results indicate there is not enough evidence to prove there is a significant relationship between place

identity and direct support, there is still some effect between the constructs. Additional analyses should be conducted in the future to test future relationships. Hypothesis five is not supported within this analysis, but further research may prove otherwise.

**H6:** Place identity has a direct, positive relationship with indirect support.

Hypothesis six tested the relationship between place identity and indirect support. Contrary to direct support, results indicate very strong and significant relationship. The model indicates a coefficient of .6239 with a  $p < .001$  between the constructs. Therefore, place identity is able to predict indirect support as hypothesis six is supported by the data.

**H7:** Place dependence has a direct, positive relationship with direct support.

Finally, the last relationships to be tested are between place dependence and support. Hypothesis seven tests the relationship between dependence and direct support. Results indicate that place dependence has a coefficient of .2566 with a  $p\text{-value} < .01$ . This hypothesis is supported through the data and delineates place dependence from identity. Place dependence has a significant, positive relationship with direct support and hypothesis seven is supported.

**H8:** Place dependence has a direct, positive relationship with indirect support.

The final hypothesis relates to place dependence's relationship with indirect support. Interestingly, the relationship between these two constructs represents the only test with a negative coefficient (-.1108), however, the relationship is not significant ( $p < .244$ ). As place dependence increases, indirect support may decrease, but not at a significant rate. There may not be a real explanation for the direction of the relationship, but further research may flesh out this result. Therefore, there is no evidence to support hypothesis eight.

**Table 6: SEM Results of Full Support Model**

<b>Structural Relationships</b>	<b>Coefficient</b>	<b>z-value</b>	<b>p-value</b>
Salience -> Place Identity	0.6151	19.69	<b>.000</b>
Salience -> Dependence	0.5225	15.31	<b>.000</b>
Salience -> Direct Support	.0648	1.02	.306
Salience -> Indirect Support	.2855	4.31	<b>.000</b>
Identity -> Direct Support	0.1802	1.72	.086
Identity -> Indirect Support	0.6239	5.99	<b>.000</b>
Dependence -> Direct Support	0.2551	2.76	<b>.006</b>
Dependence -> Indirect Support	-0.1108	-1.17	.244

**Table 7: Goodness of Fit Statistics of SEM of Park Support**

<b>Model</b>	<b><math>\chi^2</math></b>	<b>CFI</b>	<b>SRMR</b>	<b>RMSEA</b>
Full Support Model	743.855 (p < .001)	.927	.052	0.056

**Table 8: Direct, Indirect, and Total Effects**

<b>Paths</b>	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
Salience -> Identity	0.3783	-	0.3783***
Salience -> Dependence	0.5368	-	0.5368***
Salience -> Direct Support	0.0716	0.2378***	0.3094***
Salience -> Indirect Support	0.1877***	0.2102***	0.398***
Identity -> Direct Support	0.2842	-	0.2842
Identity -> Indirect Support	0.6551	-	0.6551***
Dependence -> Direct Support	0.2427	-	0.2427*
Dependence -> Indirect Support	-0.0699	-	-0.0699

\* Significant at the p < .05 level.

\*\*Significant at the p < .01 level.

\*\*\*Significant at the p < .001 level.

In total, five of the eight hypotheses are supported by the results of the structural equation model. Autobiographical memory has a significant and direct effect on both place attachment dimensions and indirect support. Place identity has a direct, positive relationship with indirect support. Furthermore, place dependence has a direct, positive relationship with direct support. The strongest relationships between constructs is between place identity and indirect support ( $\beta=.6239$ ) and between autobiographical memory salience and place identity ( $\beta=.6151$ ). Table 3

displays the Goodness of Fit statistics for the entire SEM. Each hypothesis statement is addressed separately. In regards to the Goodness of Fit statistics, the model has an acceptable fit with a CFI of .927, with many models using .90 as the acceptable threshold (Powell, R., Stern, M., Krohn, B., and Ardoin, 2011; Byrne, 2006). The RMSEA (.056) and SRMR (.052) appear to indicate a somewhat strong model. A commonly accepted threshold for RMSEA and SRMR is .1, which these values fall well below (Kline, 2005). However, modification indices identified potential covariances that may increase the CFI. With that said, there is not a theoretical justification for covarying additional errors.

## **DISCUSSION**

The structural equation model indicates some intriguing and potentially critical results for both park managers at Yellowstone and the broader National Park System. As found in Jorgenson et al. (2016) autobiographical memory has a significant and direct relationship with both place attachment constructs of identity and place dependence, but this study found an additional significant relationship with indirect park support ( $p < .001$ ). Furthermore, autobiographical memory salience has a significant indirect relationship with both support constructs only if it is moderated through place attachment. Indirect park support behaviors appear to align with the ideas behind the measurement of autobiographical memory (i.e. sharing experiences is likely if the experience is exceptional) which may be the reason why the direct relationship was found to be significant. If the NPS wishes to simply increase the indirect support for the park, providing visitors with unique experiences that lead to high salience memories will have an effect. However, direct support is not influenced by high salience memories. If the NPS strives to focus on direct support instead of indirect, then the high salience memories of individuals is not likely to be the only contributing factor that drives higher levels of, particularly, monetary support. In order for autobiographical memory to influence direct

support place attachment must be formed prior to seeing outcomes. This may prove concerning as *Revisiting Leopold* (2012) stressed the importance of constraint on park funding being a primary concern.

In terms of place attachment's influence on park support, there are two uniquely different results that may show some promise for both indirect and direct support. Place identity was found to have a significant, direct effect on indirect support ( $p < .001$ ); similar to autobiographical memory salience. There was not enough evidence to state that identity had a significant effect with direct support ( $p = .086$ ). More research may need to be done with place identity and direct support to identify whether the relationship would be significant at other parks or across a national scale. Direct support does have a significant relationship with place dependence, however. With a  $p < .01$ , place dependence does lead to direct support, which is similar to findings from Kyle, Absher and Grafe (2003) where place dependence was found to be supportive of facility development but not education. The coefficient is lower (.2551) than the relationship between place identity and indirect support (.6239) or between autobiographical memory and indirect support (.2855), but significant nonetheless. For park managers interested in direct support, forming a functional attachment between the person and the place appears to be most effective, while if indirect support is of concern then place identity and autobiographical memory directly affect that support typology. As the results indicate, autobiographical memory is critical for increasing place attachment, thus, providing these exceptional experiences is vital.

In a conceptual setting the results from this study benefit both the autobiographical memory and place attachment literature. As Lewicka (2011) outlined, there are a number of consequences due to place attachment and this study adds another to the list. In addition to concepts such as pro-environmental behaviors (Halpenny, 2010) and conservation commitment

(Lee, 2011), place attachment influences park support. Place attachment has further evidence that the emotional connections between a person and a place do indeed affect decision-making processes. For autobiographical memory research, this study provides a needed step towards exploring the functions of event recall in a completely new setting. Kuwabara and Pillemer (2010) and Bluck et al. (2005) had previously identified the directive function within autobiographical memory and this study provides another piece of evidence to support their findings as well. Since memory predicts indirect park support, the directive function of autobiographical memory is found within a tourism context outside of a laboratory setting. This finding could be extremely valuable for a large number of tourism destinations. Most tourism destinations do not need direct support in the way that it is defined in this context. However, indirect support as a form of word-of-mouth marketing is beneficial to tourism destinations. Therefore, memory may be a critical way to utilize recollections of the visitor experience to develop indirect support for tourism destinations outside of a national park context.

In a practical setting, the displayed results can be beneficial to not only Yellowstone National Park managers, but also the NPS as a whole. Place attachment, in this context, appears to be a necessary connection to strive for in order to fulfill many of the concerns mentioned in *Revisiting Leopold* (2012). For Yellowstone, developing both place identity and place dependence amongst their visitors is necessary to foster both types of park support. Since place attachment is preceded by highly salient autobiographical memories, providing experiences that lead to salient memories is critical for both forming place attachment and fostering support. Providing transformative experiences has been noted as being a key concept in the wilderness experience to promote individual well-being and health (Ewert, Overholt, Voight, and Wang, 2011). We argue that highly salient memories that lead to place attachment are the most



indicative sign that a transformative experience may have occurred. Furthermore, the strength of the relationships between these concepts is telling. Support scores overall tended to be quite low as an average, making the formation of place attachment even more important. If park managers look to engrain a sense of appreciation towards parks with younger generations, then these exceptional experiences are potentially the most useful method to ensure such a goal. For the future of national parks, the NPS may need to monitor the impact their variety of experiences has on their guests to ensure long-lasting success. The nature of highly salient visitor experiences is still being explored. Once the typologies of experiences that are highly salient are uncovered, the NPS and other destinations can attempt to facilitate such experiences to new visitors. These experiences will hopefully have a similar effect on incoming visitors or returning visitors who have not previously had these ‘transformative’ experiences.

There are some limitations to the results that are found in this study. For one, this relationship represents only visitors to a single park, Yellowstone. Since Yellowstone is one of the larger and most visited parks in the system, results may vary across other sites. Conceptually the constructs are linked, but additional research needs to be conducted to validate the model. Secondly, the construct of park support still requires additional refinement to work in areas outside of Yellowstone National Park. Many of the variables are specific to Yellowstone support behaviors and would need to be retested if variables changed to represent another site. Third, up to this point there has not been an analysis of this sample’s description of the experiences they recalled. Future research should include open-ended content of the actual recalled memory to be linked with the quantitative results in order to identify the types of experiences that are highly salient. This study only builds the relationship between memory, attachment, and support behaviors. Finally, the addition of examining values associated with supporting Yellowstone

may have proved useful as Bekkars and Wiepking (2011) noted the concept as being a primary mechanism for philanthropy. Future studies should take these limitations into account in order to provide additional validation of the relationships.

## **CONCLUSION**

This study provides a new perspective on exploring how the visitor experiences at national parks can be a key element in visitor's lives and the decision-making processes that occur because of them. The issues the NPS have identified of concern for the future may appear to be difficult to remedy, but steps can be taken to increase the likelihood of public support both now and into the future. The benefits of improving the visitor experience to allow for more salient memories and may provide relief to a number of the concerns. Park managers should investigate the types of experiences that are most important to their visitors and improve, promote, and refine them. For instance, Jorgenson and Nickerson (2014) identified that previous Yellowstone Park organization members were commonly mentioning "wildlife experiences" as being the most recalled. While it is unknown whether all wildlife experiences are highly salient, this does inform that a large volume of memories revolve around wildlife sightings. In this case, Yellowstone managers should simply promote wildlife viewing and ensure that the wildlife populations are abundant in the area, which is part of their longer term management plan.

This study also provides researchers with the opportunity to explore the visitor experience at nature-based and other destinations in a new light. Autobiographical memory has more uses besides determining the strength of the memory, but also the accuracy and level of belief that individuals have about the event (Fitzgerald and Broadbridge, 2013). Future research can further explore the benefits of autobiographical memory outside of the psychology

discipline. It may be possible that autobiographical memory has significant influence on other behaviors or intentions such as revisitation, destination loyalty, and others. What we do know today is that Yellowstone National Park has a framework managers can follow to ensure support both now and into the future.

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## **CHAPTER 5 – Summary and Conclusions**

When Yellowstone National Park approached the researchers to conduct this study, monetary constraints appeared to be the most pressing issue at the time. Since then, concerns of overcrowding, overuse, and potential impacts on the visitor experience have also emerged. Because of these emerging issues, the problems the park is facing are becoming even more multi-faceted and complex as time presses on. Yellowstone is not alone in their concerns as parks across the country have seen a rise in visitation, but also a rise in crowding-related issues. This creates a dilemma for what is found in this dissertation. Exceptional experiences lead to place attachment and increase park support, but that implies that more visitors that visit the park the better. If the goal is to create exceptional experiences for more visitors, then increased visitation is a plus. However, the experience cannot be degraded as the highly salient memories will not form if that occurs. Therefore the park has to balance bringing in new visitors while at the same time providing exceptional experiences in order to increase support. It is a catch-22 scenario. This chapter summarizes and concludes the previous three articles as well as adds managerial and research recommendations.

### **FORMING THE CONCEPTUAL MODEL**

The formation of the conceptual model for this study was based on a number of prior studies that indirectly related to our objectives (Lee, 2011; Ramksisoon et al., 2013). *Revisiting Leopold* (2012) became the centerpiece for developing the objectives for the study. Essentially, this paper guided the NPS in its research and approach to management, but research was needed in order to provide information on how to do that at a site-specific level. The long-term issues of financial constraints and socioeconomic changes including the increasingly diverse populations of visitors and rethinking of national parks' societal function into the 21<sup>st</sup> century are difficult to address. Each individual NPS site deals with a different user base, varying expectations, and



specific challenges. The cited concerns may be stressful for managers as it is up to them to make decisions that benefit the park into the future. Dealing with issues that are out of their control (i.e. socio-demographic shifts in the U.S., NPS budget allocations) is not ideal, but there are ways to address many highlighted concerns. The focus of this study was to provide Yellowstone managers with information to facilitate decision-making processes. Even from the early conception of the study, place attachment was identified as being a crucial component in formulating a vested interest between the park and visitors because of its results in previous studies in natural resource management (see Williams, 2008). Although Lewicka (2011) outlined a number of antecedents for place attachment, none of the concepts define exactly *how* a person becomes attached to a place. Concepts such as recreation involvement are useful for predicting place attachment, but recreation involvement theoretically does not drive attachment formation. For instance, if someone is very involved in a specific recreational activity at a particular place, they are more likely to be highly attached to that place. But, place attachment does not form because of being highly involved in an activity. The attachment is formed through direct experiences within the place itself. Thus, the goal was to identify how to measure the visitor experience with all its nuances in a way that explains how attachment forms. This, in turn, would allow for us to predict whether or not a person would support the park through direct and indirect measures.

In order to explore how people become attached to places, the researchers reviewed the original space and place literature within humanistic geography. Although place attachment is a commonly known concept in the tourism and outdoor recreation field, there are benefits to returning to the source material to understand how place is formed, before attachment exists. It was only natural to harken back to the point of conception within geography. Even within

geography there are multiple ways to view space and place. Tuan's (1975) essay on place and experience provided the most concrete example to hypothesize that experiences and place go hand-in-hand. Therefore, the next step was to identify the most appropriate way to measure the visitor experience in a method that truly reflects the emotional affect that such an experience may have on an individual. Moving back to *Revisiting Leopold* (2012), this goal partially aimed to answer the call for providing "transformative experience" and to identify a reliable method to measure such an experience. Providing transformative experiences to visitors aims to remedy some of the major concerns previously listed. However for park managers, it's difficult to ensure that all types of visitors receive this powerful, transcendent experience. People come from diverse backgrounds, have different expectations, and are at differing points of their life. All of these factors may influence the level of salience and importance a singular Yellowstone visit holds for them.

At this point, the researchers began exploring the ways that the visitor experience could be examined that could measure it in a way that sheds light as to whether it is "transformative". Pearce and Packer's (2013) article about the potential for psychology in tourism research directed the framework towards a possible solution that is autobiographical memory. My initial hypothesis, prior to autobiographical memory, was that emotions and emotional experiences had a role in whether or not a person would become attached to a place and ultimately their level of support. Autobiographical memory included the emotional recollection of experiences plus a number of other key elements such as the impact an experience has on a person's life. In addition, previous studies had already identified autobiographical memory as having "self-defining" qualities, which are very similar in definition to "transformative experiences". These self-defining moments has the ability to change people's lives specifically their identity as a

person and behaviors. Thus, it seemed logical that autobiographical memory had the ability to play a critical role in this study. Once the researchers delved deeper into place attachment literature, it became more obvious that these emotional recollections of experiences (specifically those that were transformative) may have a positive effect on an individual's level of place attachment.

The final construct, and most important to park managers was the measurement of park support. As mentioned, monetary constraints were of primary concern to managers, thus, park support initially was conceived to be philanthropic contributions and fiscal spending. However, it became evident that visitors who were unable to support the park financially can still contribute through non-monetary means. Sharing stories and bringing new visitors can create “ripple effects” where others become interested and may give back monetarily. This created the distinction between direct and indirect support behaviors. Reviewing literature based on public support for a natural site produced little results. No other study had assessed the ways which people can contribute to national parks outside of entry fees. Construct development then turned towards similar concepts in order to build park support as a standalone construct. Using philanthropy and pro-environmental behaviors as an influence, the researchers consulted with park staff and outside experts to brainstorm observable variables based on actions people could take to specifically support Yellowstone. Ten variables were created based on monetary spending and donations, volunteering, sharing experiences, and other non-monetary options.

Finally, the hypotheses between these three constructs were developed based on prior research. Autobiographical memory had shown significant effects on donation intention (Kuwabara and Pillemer, 2010). Place attachment significantly influenced pro-environmental behavior and conservation commitment (Lee, 2011; Ramkissoon et al., 2013) and

autobiographical memory was hypothesized as predicting place attachment through direct experience with the park. Once hypotheses were developed, a conceptual framework based on how people experience Yellowstone National Park was created. This served as the guiding light toward attempting to explore a number of key practical and theoretical questions for the remainder of the study.

## **INTERPRETING THE RESULTS**

The three articles that are presented as the main body of the dissertation culminate in a final model that tests the entirety of the relationship between autobiographical memory, place attachment, and park support. The third article provides the full look at the relationships between the constructs discussed above. However, articles one and two were integral to validate two premises: 1) autobiographical memory's use and structure in a tourism context; an untested area of study, and 2) the initial relationship between autobiographical memory and place attachment. Both autobiographical memory and its relationship with place attachment needed to be tested individually prior to their inclusion in the full SEM.

Article one's testing of autobiographical memory moved the study forward in an unpredicted manner. Since Fitzgerald and Broadbridge (2013) had tested the Autobiographical Memory Questionnaire on four types of autobiographical memories, it was assumed that the structure of the visitors' memories of the Yellowstone experience would mirror those results. The original study took place within a laboratory setting and was the first testing of this specific model including the observe variables. However, our study deviated in a large way from those initial settings and the scale changed as well. The Office of Management and Budget whom approves survey instruments for the National Park Service has specific requirements for questionnaire design. These requirements forced the researchers to further modify the original

scale from Fitzgerald and Broadbridge (2013). These changes in both the survey instrument (e.g. scale labels changed, reworded questions) and the field setting resulted in a poor fit in the original model. The model did not appear to be a two-construct model of autobiographical memory as found in Fitzgerald and Broadbridge (2013). A number of observed variables from the latent construct impact loaded higher on rehearsal and vice versa. These puzzling results gave question as to the original validity of the two-construct model or whether the changes made to the instrument led to a poorly fitting model. Upon a revisit of Fitzgerald and Broadbridge (2013), it was unclear whether there was enough original evidence to support impact and rehearsal as being definitively separate. Questions of face validity led us to believe that the impact and rehearsal could be hand-in-hand with one another, comprising a larger construct that was a more holistic view of autobiographical memory. If a memory has a high level of impact, it more than likely is rehearsed more often than seemingly unimportant memories. Therefore, the researchers saw enough evidence to create a single-factor model that was labeled as “autobiographical memory salience”. This model combined both impact and rehearsal into one construct that represented the level of importance and top-of-mind aspects of the experience. The results of this model were exceptional. Goodness of Fit statistics were more than acceptable and significant loadings were found on all but one variable. Despite having less than ideal convergent validity (.473), the fit statistics and face validity of the construct lead us to move forward the one-factor model.

Article two tested the first relationship between latent constructs of autobiographical memory salience and place attachment. A structural equation model was developed based on the scale of autobiographical memory salience found in article one and place attachment using place identity and place dependence from Williams and Vaske (2003). Two distinct populations were

tested using the same model: first-time and repeat visitors. It was hypothesized that there may have been a difference in the attachment of people who had been to the park before and those who had not. However, the results did not indicate any structural differences. Autobiographical memory significantly predicted both place identity and place dependence in first-time and repeat visitors. These results are important for both autobiographical memory and place attachment literature. As of now, there was not a strong understanding as to how people truly form an attachment to place. These results indicate that memories of the experience can be a telling way to predict whether someone will become attached to a place. Essentially this adds to the literature of both place attachment and autobiographical memory. This linkage supplies more evidence to the usefulness of autobiographical memory within outdoor recreation, tourism, and for understanding the visitor experience. Secondly, place attachment now has a known antecedent that not only significantly predicts the level of attachment but also describes a fundamental way in which attachment formation begins. Additionally, this relationship may shed light on the notion of transformative experiences from *Revisiting Leopold* (2012). Highly salient memories that lead to place attachment appear to be what the NPS wants to achieve. This idea is further supplanted with the behavioral outcomes that are found in article three.

Finally, article three provided the entire overview of the SEM of autobiographical memory, place attachment, and park support. Once the relationship between autobiographical memory salience and place attachment was validated, the researchers began to explore what Bluck et al. (2005) identified as the directive function of autobiographical memory; its decision-making influences. Autobiographical memory and place attachment were found to have significant relationships with park support, albeit in different capacities. More specifically, place dependence predicts direct support and place identity predicts indirect support. Therefore, the

two dimensions that measure place attachment have differing relationships with the two support constructs. Directly, autobiographical memory has a significant relationship with only indirect park support. The total effects of the relationship between autobiographical memory and park support are significant at the  $p < .001$  level. Place attachment moderates the effect between memory and both direct and indirect support, increasing the overall significance of indirect support and indicating a significant indirect effect with direct support. In practical terms, autobiographical memory predicts indirect park support; however, a higher level of place attachment (specifically place dependence) is required in order to find a significant relationship with direct support.

The results, overall, contain both theoretical and practical implications. Theoretically, the SEM produces a conceptual model on how to use the visitor experience to predict behaviors and intentions. This outlines the potential for the directive function of autobiographical memory. Furthermore, it adds more evidence that integration of outside discipline concepts may be of use to tourism and recreation scholars. Practically, park managers have an opportunity to respond to growing concerns from *Revisiting Leopold* (2012) and reason to continue to monitor the visitor experience. The full SEM provides two pathways that create support and they both require high memory salience derived from the visitor experience. This result alone stresses that there needs to be more focus on monitoring and understanding the visitor experience. Public funding through philanthropy and re-visitation are more likely to occur if visitors are provided with these experiences. But, the more important outcome overall is the difference between direct and indirect support. Direct support should be viewed as “short term” solutions that will help improve park management. Donating money to a supporting organization is important and helps fund park projects, which are critical to maintain. However indirect support is the real long-term

solution to many of the issues presented in *Revisiting Leopold* (2012). This is further discussed in the managerial recommendation sections below. Overall these results further our understanding of the national park experience and approaches to improve park management into the future.

## **MANGERIAL RECOMMENDATIONS**

This section discusses and outlines a number of recommendations made by the researchers regarding ways in which both Yellowstone National Park managers and NPS planners can attempt to increase engagement and support for parks. While recommendations have been made in each article, this section drives further discussion and opinion on the methods to approach the topic. Using both the results and anecdotal first-hand experiences, a list of recommendations are presented below.

### **I. Follow the SEM paths, increase support**

From a strictly data-driven approach, the first recommendation simply stresses the importance of following the paths from the model that lead to park support. Ultimately, there are two ways to increase support, depending on what type of support is desired by managers: 1) path to direct support, and 2) path to indirect support. Both of these paths contain one primary similarity which is autobiographical memory's link to place attachment. In other words, to increase park support you must provide high salience memories.

First, exploring direct support was the primary objective for park managers at the beginning of the study. Declining park budgets is an issue that confronts managers day-in and day-out. Maintenance backlogs are ever increasing and there is less staff than years past. If managers are attempting to increase philanthropic behavior or volunteering time within the park, then taking the path from memory, to place dependence, and then to direct support is the route to



focus time and energy. Increasing place dependence could include approaches such as ensuring visitors that their experience will not be replicated in other destinations. Make the park feel extremely unique. Visitors who feel they cannot get their experience elsewhere are more likely to support financially. Of course, the visitor experience and the memory of the events are the driving forces behind it, but there is not a significant link between memory and direct support. Therefore, there needs to be a level of attachment created between the park and its visitors to expect any sign of increase of direct support. Fostering this attachment can come in the form of educational and promotional materials that highlight the uniqueness of the visitor experience to incoming visitors and to those who have already visited.

The second path and the route with the highest likelihood of success lie within indirect support. Indirect support has two potential paths: 1) directly from autobiographical memory salience, and 2) directly through place identity. Again, high salience memories are required for increasing indirect support, but attachment isn't necessarily required. However, forming emotional attachment increases the effect of the relationship. While these actions may not be as tangible as monetary contributions, they are equally if not more important for the preservation of our national parks and for facilitating public engagement. Park managers should look to indirect support in order to create a "ripple effect" of benefits. Visitors who come to the park, receive an exceptional experience, and create an emotional relationship with the place will share their stories with others and hopefully bring new visitors to the park. Recommendations for increasing this form of support are to either continue to provide exceptional experiences or to focus on highlighting the ways people become emotionally connected to the park. Having visitors share their stories reinforces the notion of Yellowstone being a special place for many. This can easily

be done on Facebook and other social media tools as well as continued marketing tactics such as the “Find your park” campaign.

## **II. Creating and promoting important memories from the visitor experience**

Fivush (2011) described the ‘self-defining’ qualities that autobiographical memories hold. People change their perspectives on life, careers, and opinions based on highly important memories. For park managers this presents an opportunity to remind visitors about their memories from past visits and to promote the active formation of memories while they are at the park. Using the “Find your park” campaign as a model, park managers can continue to promote Yellowstone through social media, educational material, and pre-trip planning instruments by highlighting the memories that visitors form while at the park. In fact, the “Find your park” campaign presents an avenue for Yellowstone managers to create their own “Find your Yellowstone” campaign. It would be sensible that managers continue to adopt the platforms and strategies used in this campaign for their individual park.

This approach could be defined as using memory triggers to remind visitors about their past experiences. As an example, print materials could reference specific visitor experiences such as “seeing their first bison in the wild” as being an important part of the Yellowstone experience. For many visitors, this exact memory may be an influential part of creating support and forming an attachment. In fact it may end up being a ‘self-defining quality’ or ‘transformative experience’. Using social media, managers can continually remind visitors to share their experiences, bring new visitors to the park, and continue to create their own long-lasting memories. Facebook pictures depicting experiences that are likely to lead to high salience memories may trigger other individuals to rehearse their own memories of Yellowstone and hopefully increase the likelihood of them becoming attached. Besides online tools and print

materials, specific signs placed at strategic places such as entrance and exit gates may add more to this process as well. A sign that says “Welcome back” to repeat visitors or having staff ask about their memories of the park experience while at a visitor center may induce deeper thought about what made the experience memorable. All of these tactics can trigger influential memories and promote critical thinking from the individual.

### **III. Addressing the financial issues of the National Park Service**

Since the primary purpose of this study was originally set on identifying whether visitors could supplement the congressional allocation of funding, a recommendation based on park support specifically is given. Results suggest ways in increasing direct support (i.e. primarily monetary contributions), but the results are still bleak for this form of contribution. The majority of visitors are not aware, unwilling, or unable to give additional monetary compensation besides the typical entry fee and through yearly payment of taxes. Relying on visitors to supplement the budgetary allocation is not a likely story. This form of persuasion would be a difficult task given the responses from visitors at Yellowstone. Memberships to organizations such as the Yellowstone Association and donations to the Yellowstone Park Foundation are important, but they are a short-sighted solution for a long-term problem. Congressional allocations need to be increased in order for the NPS to decrease maintenance backlogs, service facilities, and hire additional staff to improve the visitor experience. Individual contributions may help fund specific projects, but managers should not rely on this source of revenue as it is not likely to be consistent. However, there is nothing but added benefit for attempting to create direct support among visitors, just so long as managers understand the challenges associated with attempting this feat.

There is hope for the future regarding the financial issues of the NPS, however. If visitors are provided with “transformative experiences”, they are likely to share their stories with other visitors who could be inspired to visit and support parks. This sharing of experience and stories may lead to an appreciation of the place and could benefit the NPS through political voting behaviors or monetary donations at a later date. The court of public opinion is important for garnering support for an increase in funding, and these experiences allow for a greater likelihood of indirect support than direct. The steps the NPS has taken in preparation of the 2016 Centennial, specifically the “Find your park” campaign, are perfect avenues for allowing visitors to share experiences and increasing awareness of these unique sites. However, there are concerns that these campaigns to promote national parks and facilitating shared experiences will not exist after the centennial celebration. If the campaign is proven successful, administrators of the NPS should look to have a more public face and aggressive awareness campaign than years past. It used to be commonplace that children grew up knowing and, hopefully, appreciating national parks as was common during the childhood of the baby boom generation. In today’s world, we cannot be assured children are exposed to parks and protected areas as distractions from nature dominate our world and urbanization becomes the norm. Campaigns reach children and adults who may be out of touch or ignoring the fact that these places exist. Parks should utilize this opportunity to make it known once again that visiting these places does provide exceptional experiences, not just preservation from urban development. With all this said, the balancing act of providing experiences that can be ‘transformative’ but still making sure the parks are cared for and not overcrowded is a difficult path to follow.

#### **IV. Highlighting the importance of indirect support**

As mentioned, park managers were most interested in understanding the direct support actions that visitors partake in, especially those that were monetary contributions. While this does help remedy the issue of budget shortcomings, this is a temporary, short-term solution to a larger problem. Individual contributions only go so far in sustaining necessary park functions; however, indirect support has the potential for fostering the emotional, deep-seated connections that are important for issues such as political support. This recommendation stresses to managers the importance of recognizing indirect support as a legitimate and potentially a more important form of park support.

It's been said that it is difficult to 'see the forest through the trees', which is an apt description of this problem. For park managers, it's easy to focus on monetary aspects, but the real potential for fostering a healthy park ecosystem is through indirect support. Since autobiographical memory and place identity both directly predict indirect support, this should become the primary focus of managers to foster. Not only does it have two direct paths to improvement, but also it's more of a long-term support option. *Revisiting Leopold's* (2012) discussion on the concerns for the future are not solved by donations or memberships, but rather by fostering meaningful relationships with visitors. Therefore, visitors who bring new people to the park and share their stories should be treated the same as an individual who donates money to the supporting organization. Visitors who support the park through indirect actions are creating a positive outlook for national parks and attempting to gain new constituents into the realm of park appreciation. While this isn't as 'flashy' as an individual contributing a large sum of money, indirect behaviors are important for creating the emotional relationship that will propel the NPS into the future. If concerns lie with younger generations being less interested in parks, then

indirect support is the best way to gain the long-lasting bond between the person and natural places.

In order to legitimize indirect support behaviors, managers must take part in recognizing the fact that they do help the park in an important way. As mentioned, these actions were less of a focus by park staff prior to this research. Again, posting messages of appreciation from visitors sharing their experiences online, creating a platform for storytelling and pictures, and simply asking for visitors to share their experiences once they return home are some of the simpler things that can be done in order to promote these behaviors. But first, managers need to reconcile the fact that monetary contributions are not the only important behavior to foster. There are many other forms of indirect behaviors that were not included in this survey. Such behaviors could include simply pro-environmental actions like cleaning up litter and practicing 'Leave No Trace' behaviors while on the trail. Future research should delve deeper into what could be considered indirect support to guide managers on how to promote a positive environment with individuals who choose not to support or cannot support the park financially. These are the types of behaviors that everyone can participate in and will be the force behind moving the NPS forward into the next century of management.

## **V. Evolving and adapting in the 21<sup>st</sup> century**

The NPS has been criticized as holding onto their traditional approaches to management and slowly reacting to modernization. Some of these critiques are valid while others go against the grain of the mission of the agency. The Organic Act of 1916 places the NPS in a difficult conundrum of having to provide enjoyment to the public but also requiring a strong focus on protecting the resource. Recent advances in technology and trending outdoor recreational activities have pushed park managers into an unknown and unfamiliar area. The agency looks to

adapt to these new pressures while attempting to keep traditions intact. For managers, some of these advances in technology include expanded wireless internet provided at hotels, increased cell phone coverage in remote parks, and the use of online media tools to interact and inform visitors. On the other hand, there are a variety of new requests for activities to be allowed within park boundaries such as whitewater rafting, mountain biking on trails, and backcountry skiing, among many more. Each of these emerging issues tends to take the NPS by storm with the request for these to be considered within a timely manner, but such decisions can take months of deliberation and, in some cases, environmental impact statements for activity approval.

The primary argument against the inclusion or expansion of technology is the loss of authenticity of parks and a further separation from nature. National parks strive to stay authentic to the traditional 1900s time period by designing lodges and facilities in a historical context. However, the risk of not including recent technological expectations is further alienation of younger generations. Scholars debate about these concerns in academic journals, conferences, and meetings, but the reality is that younger generations have different worldviews and expectations than those of old. Realistically, if park managers want to engage younger generations then they may have to rethink their own conceptualizations about what is deemed acceptable in national parks. Younger generations may quickly lose interest and may not have the chance to create those important memories if their worldview is not accepted or considered. The National Park Service's stance on limiting cell phone coverage and slow reactions on accepting wireless internet availability will become a moot point in the near future. Satellite internet and phone technology has vastly improved and will become the norm at some point. Park managers will have no control over whether they want visitors to have these features and may be questioned on their inability to accept change.

Contrary to technological advances, specific outdoor recreational activities are somewhat of a different case. Certain recreational activities may have an adverse effect on the resource or the experience of other users. These activities need to be considered with care because of the potential impacts it has on the resources specifically. Although users may push for the acceptance of these activities, park managers will have to decide whether they fit with the mission of the NPS. Managers have more control over what types of activities they allow than technology, but the case should still be made as to whether they are letting down potential park supporters. This will remain a difficult subject and there will be arguments made on both sides for years to come. Leniency needs to be had on both sides so that an adequate resolution can be made on a case-by-case basis.

There are specific recommendations that we as the researchers have to deal with adapting to the modern world. For one, managers need to be open-minded about the notion of becoming more modernized. If they want to stay relevant in this fast-paced, ever-changing environment, being open to considering options such as increased cell-phone service is necessary. The National Park Service as a whole needs to be willing to challenge their deeply rooted traditions and consider when change is needed. Cultures change, opinions change, societies change. The NPS cannot be the only one that resists all changes while all above move in a different direction. Not only do managers at an individualized level need to be open-minded, but so do those at a national scale. Secondly, adopting a “trail period” for many of these suggestions could be a remedy. The Olympics offer “demonstration sports” to vet whether a new competition is added in the next version of the games. The NPS could trail many of these suggestions at parks and create a test environment to base their decisions. Finally, The NPS may look towards becoming more engaging with the visitors themselves. Instead of being perceived as just another arm of the



U.S. Federal Government, the NPS could position themselves as being a provider of these amazing experiences while at the same time carrying out their required duties. This is not to say that staff is not actively concerned and interacting with visitors, but rather there may need to be more of an effort to integrate with the user-base instead of being the authority of the park.

## **FUTURE RESEARCH**

As mentioned previously, this study was a first-of-its-kind take on exploring the visitor experience. The results from this study hopefully intrigue and inspire scholars to consider how this framework can be utilized and improve. Future research should consist of a number of specific considerations.

### **1) Validating results in different contexts and sites**

The scale used to measure autobiographical memory did not follow the same structure as was previously found in past studies. While the alternative model is a acceptable measure of autobiographical memory in a tourism context, additional studies are needed to further validate and identify areas for improvement. This study needs to be repeated in similar contexts to ensure the validity of the alternative model of autobiographical memory. Furthermore, additional studies are needed to identify the relationships between memory, attachment, and support. The relationship was very significant among Yellowstone visitors, but we cannot say if this will hold true at other parks until it is tested. This would be not only beneficial to national park sites, but also to other tourism destinations. The theoretical relationships are sound. All that is needed is additional research to fully validate the findings.

## **2) Identifying the typologies of the visitor experience**

Autobiographical memory results indicated the importance of the visitor experience at Yellowstone; however, the context of those experiences are not known as of yet. Future research should delve into the types of experiences that are likely to be highly salient in order for managers to understand what types of experience to provide. This study contained descriptions of the experiences visitors recalled, but the length and content of the memories varied widely. Some visitors only replied with few words while others wrote large paragraphs. This is where qualitative methods would greatly benefit the research and understanding of autobiographical memory.

Qualitative interviews should be conducted to truly understand what visitors recall about their experience and the qualitative context of those highly salient memories. In-depth interviews could then be linked to the ratings of the Autobiographical Memory Questionnaire to provide a detailed view of what types of experiences are most important to visitors. Traditional autobiographical memory literature began with qualitative interviews, thus, it would be a natural decision to utilize this method for studying the tourism experience.

## **3) Further defining and measuring park support**

Developing a scale for park support was a difficult task. There are a variety of methods people perceive as themselves contributing to a national park which may or may not be captured in this study. The scale developed for this study is specific to Yellowstone National Park and cannot be directly translated to other parks. Therefore, scholars wishing to study this concept in other parks may look to develop a more universal scale than one that is site specific. In addition, the scale for indirect park support does not have a great fit in this study. More research is needed

to develop what can be defined as indirect park support and its conceptual framework.

Developing a more holistic view of how people support parks through non-monetary options would benefit the model and results of this study. Park support is only going to become more and more important as time goes on, which is why additional research is needed.

## **CONCLUSION**

This study represented a progressive step by one of the most historic and renowned parks in the system. Yellowstone is the first park in the NPS that has attempted to address the issues found in *Revisiting Leopold* (2012) with fervor. After spending a significant amount of time within the Greater Yellowstone Ecosystem and reviewing countless studies on the topic, it has opened my eyes to the great potential and importance that the Yellowstone visitor experience holds. Visitors come to Yellowstone for a multitude of reasons and the experience that park managers provide can be extremely powerful. For instance, during data collection I surveyed a woman who was currently going through cancer treatment that stated her time at Yellowstone on the current trip meant more than any others past. In another case, a recently widowed woman responded that she was in the region to spread her late husband's ashes at his favorite place. She also claimed that she would be visiting on that date every year to visit the place where her husband is now put to rest. These types of responses are eye opening and bring to light the weight that national park experiences hold for many people.

These are but a few highly salient memories visitors described that park managers may or may not know about. Yellowstone provides some form of memory to all visitors, be it highly salient or not. Without utilizing autobiographical memory in this context, there may have been no indication as to what people recalled about Yellowstone. A pre-test for this study (Jorgensen and Nickerson, 2015) using only park supporters (YA members, YPF donors, individuals with

reservations for Xanterra lodging) indicated four primary types of memories that are commonly referred to by donors alone: 1) wildlife, 2) “first-time experiences”, 3) landscape/scenery sightings, and 4) family and social ties. These are a good start for understanding the specific experiences, but we can be certain that wildlife and scenery are primary drivers for people’s YNP experiences. Future research needs to clarify and explore how the direct experiences are described by visitors in order to propel autobiographical memory’s use forward. In addition, this study should indicate to tourism scholars the power of exploring memories of visitors in a broader context. As tourism providers, the main outcome should not only be high levels of visitor satisfaction, but also by the impact these memories hold for visitors. However, this study needs to be replicated in another destination or park in order to generalize the results of the study. The theoretical link between memory, attachment, and support has been made within Yellowstone visitors, but Yellowstone is a unique, iconic national park. There are questions as to whether the relationship will be identified in other datasets and among other visitors. The theoretical relationship has indeed been made and the data identified its significance which should begin the discussion for scholars and practitioners.

In terms of park support, Yellowstone in particular may need to look towards other avenues to increase direct monetary support. Select visitors will be willing to contribute to supporting organizations, but overall participation in those support behaviors is low. It is still useful to attempt to garner direct support, but the outlook is not as strong as many of the indirect support actions. As for indirect support, Yellowstone has an opportunity to foster a strong sense of public engagement through sharing of experiences and encouraging other visitors to introduce new people to the park. Visitors are much more likely to participate in these types of activities than direct support. If visitors are inspired by other people’s experiences and choose to visit the

park, they may become the next large contributor in terms of direct support. Further study on why monetary contributors provided money to the YPF or YA may help the park in creating new avenues for direct support.

Overall, Yellowstone National Park will continue to be an iconic and important site in the NPS continuing into the 2<sup>nd</sup> century of management. Overall, visitors enjoy and appreciate their experiences, yet there needs to be more attention paid to the level of attachment and recollections of the experiences as it may prove to be valuable for the park's objectives. Monitoring the visitor experience should become a consistent management strategy as the results have both practical and theoretical implications. As of now, Yellowstone's experience varies from person to person as does their support. However, at the least we know that visitors who receive exceptional experiences benefit the park in a number of ways. The authors of *Revisiting Leopold* (2012) had a vision and that vision may just be the solution to the growing list of concerns. It is now up to individual managers to implement and adapt to the challenges they are facing.

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APPENDIX A

OMB Control Number 1024-0234  
Current Expiration Date 8/31/2015

**2015 Yellowstone National Park Visitor Survey**

The purpose of this study is to understand the experiences of visitors at Yellowstone National Park and their level of park support. Please read the instructions carefully. We thank you for your participation and hope you enjoyed your visit to Yellowstone National Park. Please respond for yourself only, not your household.

**Paperwork Reduction Act Statement:** The National Park Service is authorized by 16 U.S.C. 1a-7 to collect this information. We will use this information to evaluate visitor experiences at Yellowstone National Park. Your response is completely voluntary. Your name and contact information may have been requested and will be used for follow-up purposes only. When analysis of the questionnaire is completed, all names and contact information will be destroyed and will in no way be connected with the results of this survey. A Federal agency may not conduct or sponsor, and you are not required to respond to, a collection of information unless it displays a currently valid OMB Control Number.

We estimate that it will take about 15 minutes to complete this questionnaire. You may send comments concerning the burden estimates or any aspect of this information collection to: Norma Nickerson, Principal Investigator, norma.nickerson@umontana.edu or Jacob Jorgenson, jacob.jorgenson@umontana.edu.

1. Prior to your most recent trip, how many times have you visited Yellowstone National Park?

2. When you travel, how likely are you to visit the following? (Please "X" only one response per line.)

	Not at all likely 1	Unlikely 2	Somewhat unlikely 3	Somewhat likely 4	Likely 5	Very likely 6
A national park	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historic sites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Museums	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cultural sites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cultural events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. When you travel, how likely are you to do the following? (Please "X" only one response per line.)

	Not at all likely 1	Unlikely 2	Somewhat unlikely 3	Somewhat likely 4	Likely 5	Very likely 6
Travel to a specific area for its scenic beauty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stop at scenic overlooks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Search for scenic driving routes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plan your vacation around the opportunity to enjoy scenic beauty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. When you travel, how likely are you to seek out... (Please "X" only one response per line.)

	Not at all likely 1	Unlikely 3	Somewhat unlikely 3	Somewhat likely 4	Likely 5	Very likely 6
Locally owned accommodations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Locally grown food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Locally made arts and crafts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. In daily living, how likely are you to regularly... (Please "X" only one response per line.)

	Not at all likely 1	Unlikely 2	Somewhat unlikely 3	Somewhat likely 4	Likely 5	Very likely 6
Conserve energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conserve water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Purchase environmentally friendly products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recycle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Have you contributed to the Yellowstone Park Foundation in your lifetime? (Please "X" only one.)

Yes       No       I don't know

7. Are you currently a member of the Yellowstone Association? (Please "X" only one.)

Yes       No       I don't know

8. Please select one primary activity you prefer to do while in Yellowstone National Park. (Please "X" only one activity.)

- |   |   |   |  |
|---|---|---|--|
| <input type="checkbox"/> Scenic driving               | <input type="checkbox"/> Other wildlife watching                    | <input type="checkbox"/> Car/RV camping           | <input type="checkbox"/> Interpretive programs |
| <input type="checkbox"/> Viewing geysers/ geothermals | <input type="checkbox"/> Fishing                                    | <input type="checkbox"/> XC skiing/ snowshoeing   | <input type="checkbox"/> Birding               |
| <input type="checkbox"/> Hiking                       | <input type="checkbox"/> Nature study (e.g. geology, history, etc.) | <input type="checkbox"/> Canoeing/kayaking        | <input type="checkbox"/> Taking guided tours   |
| <input type="checkbox"/> Nature photography           | <input type="checkbox"/> Backcountry camping                        | <input type="checkbox"/> Motorboating             | <input type="checkbox"/> Snowmobiling          |
| <input type="checkbox"/> Wolf watching                |   | <input type="checkbox"/> Night sky viewing        | <input type="checkbox"/> Road bicycling        |
| <input type="checkbox"/> Bear watching                |   | <input type="checkbox"/> Visiting visitor centers | <input type="checkbox"/> Snowcoach riding      |

9. In thinking about your PRIMARY Yellowstone National Park activity from question #8, rate your level of agreement with the following statements. (Please "X" only one response per line.)

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
When I participate in my primary activity, I can really be myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can tell a lot about a person by seeing him or her participate in my primary activity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I participate in my primary activity, others see me the way I want them to see me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My primary activity is important to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in my primary activity is one of the most enjoyable things I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I find a lot of my life is organized around my primary activity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My primary activity does not have a central role in my life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I find a lot of my life is organized around similar activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. On your most recent trip to Yellowstone National Park, what type of park entry pass did you purchase? (Please "X" only one park pass.)

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> I did not purchase a new pass/already had pass | <input type="checkbox"/> Bike/foot/snowcoach 7-day pass                  | <input type="checkbox"/> Interagency Senior pass       |
| <input type="checkbox"/> Private, noncommercial vehicle 7-day pass      | <input type="checkbox"/> Annual Yellowstone pass                         | <input type="checkbox"/> Interagency Access pass (\$0) |
| <input type="checkbox"/> Motorcycle/snowmobile 7-day pass               | <input type="checkbox"/> Annual "America the Beautiful" Interagency pass | <input type="checkbox"/> Military Annual pass (\$0)    |

11. How often have you done the following? (Please "X" only one response per line.)

	Very infrequently 1	Infrequently 2	Neutral 3	Frequently 4	Very frequently 5
Shared (talked about) your experiences in Yellowstone National Park with others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brought new visitors to Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Became a member/renewed membership of the Yellowstone Association.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visited Yellowstone National Park's Facebook page.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volunteered your time with Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spent nights in lodging inside Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spent nights camping in Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contributed to the Yellowstone Park Foundation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spent nights in the gateway communities around Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contributed to other conservation organizations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. In the future, how likely are you to...? (Please "X" only one response per line.)

	Very unlikely 1	Somewhat unlikely 2	Neutral 3	Somewhat likely 4	Very likely 5
Share (talk about) your experiences in Yellowstone National Park with others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bring new visitors to Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Become a member/renew membership of the Yellowstone Association.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visit Yellowstone National Park's Facebook page.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volunteer your time with Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spend nights in lodging inside Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spend nights camping in Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contribute to the Yellowstone Park Foundation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spend nights in the gateway communities around Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contribute to other conservation organizations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Please indicate your level of agreement with each of the following statements. (Please "X" only one response per line.)

	Strongly disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly agree 5
Yellowstone National Park means a lot to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get more satisfaction out of visiting Yellowstone National Park than any other place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I identify strongly with Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am able to substitute other places for the type of experience I get in Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I enjoy visiting Yellowstone National Park more than any other place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I do not have a special connection with Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visiting Yellowstone National Park is more important than visiting any other place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am very attached to Yellowstone National Park.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In this next section, we are interested in your memories of a past experience or event at Yellowstone National Park.

14. Please describe the memory that first comes to mind of an experience or event at Yellowstone National Park.

15. Now, please think about the memory you just described. Read each item below and carefully choose the option that most closely reflects your opinion of the experience. (Please "X" only one response per line.)

	Very infrequently 1	Infrequently 2	Somewhat infrequently 3	Neither infrequently nor frequently 4	Somewhat frequently 5	Frequently 6	Very frequently 7
Since it happened, I have <u>talked</u> about this event...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Since it happened, I have <u>thought</u> about this event...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Since it happened, I have <u>written</u> about this event to others (e.g. email, Facebook, blog, letter, text)...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. Continuing to think about this memory, please select the option that best represents your opinion.

	Strongly disagree 1	Disagree 2	Somewhat disagree 3	Neutral 4	Somewhat agree 5	Agree 6	Strongly agree 7
As I remember the event, I can feel now the <u>emotions</u> I felt then.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
As I remember the event, it comes to me in words or in pictures <u>as a coherent story</u> or episode and not as an isolated fact, observation, or scene.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This memory is <u>significant</u> in my life because it imparts an important message for me or represents an anchor, critical juncture, or turning point.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This memory has <u>consequences</u> for my life because it influenced my behavior, thoughts, or feelings in noticeable ways.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Extremely negative 1	Negative 2	Mildly negative 3	Neutral 4	Mildly positive 5	Positive 6	Extremely positive 7
As I recall them now, I would rate the <u>emotions</u> I experienced during the event as...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. What is your gender?  Male  Female

18. Are you a permanent resident or citizen of the United States?  Yes  No

19. In what state/province/foreign country do you permanently reside?

20. What is the highest level of formal education you have completed? (Please "X" only one.)

<input type="checkbox"/> Less than high school	<input type="checkbox"/> Some college	<input type="checkbox"/> Master's degree
<input type="checkbox"/> Some high school	<input type="checkbox"/> Associate's degree	<input type="checkbox"/> Ph.D., M.D., J.D. or equivalent
<input type="checkbox"/> High school diploma or equivalent	<input type="checkbox"/> Bachelor's degree	

21. Which category best describes your annual household income in U.S. dollars?

<input type="checkbox"/> Less than \$24,999	<input type="checkbox"/> \$75,000 to \$99,999	<input type="checkbox"/> More than \$200,000
<input type="checkbox"/> \$25,000 to \$49,999	<input type="checkbox"/> \$100,000 to \$149,999	
<input type="checkbox"/> \$50,000 to \$74,999	<input type="checkbox"/> \$150,000 to \$199,999	

22. What is your age?

Please provide any additional comments that you wish to share in the space below.

Thank you for your participation.